

SEQUENCE LISTING

<110> CODEXIS, INC.

<120> ENGINEERED BIOCATALYSTS AND METHODS FOR SYNTHESIZING CHIRAL AMINES

<130> CX2-212W01

<140>

<141> 2021-09-17

<150> US 63/084,166

<151> 2020-09-28

<160> 358

<210> 1

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Wild Type Transaminase enzyme from *Vibrio fluvialis*

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<210> 2

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Wild Type Transaminase enzyme from *Vibrio fluvialis*

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Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg
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Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
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Phe	Thr	Ala	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
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			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
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Ile	Gly	Glu	Tyr	Arg	Gly	Ile	Gly	Phe	Met	Trp	Ala	Leu	Glu	Ala	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser

385		390		395		400
Glu Arg Ile Ala Asn Thr Cys Thr Asp Leu Gly Leu Ile Cys Arg Pro						
	405		410		415	
Leu Gly Gln Ser Val Val Leu Cys Pro Pro Phe Ile Leu Thr Glu Ala						
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<210> 3
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 3

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gcgggctttg	atcataaagg	cctgattgat	gcggcgaaag	cgagtatga	acgttttccg	240
ggctatcatg	cgttttacgg	cctgatgagc	gatcagaccg	tgatgctgtc	tgaaaaactg	300
gtggaagtga	gcccgtttga	tagcggccgt	gtgtttgtga	ccaacagcgg	cagcgaagcg	360
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gtggttctgg	caccgccgta	cattctgacc	gaagcgcaga	tgatgaaat	gttcgataaa	1320
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<210> 4
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 4

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Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg	35	40	45	
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp	50	55	60	
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	65	70	75	80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu	85	90	95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	100	105	110	
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Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	145	150	155	160
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Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	195	200	205	
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Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	245	250	255	
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Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	290	295	300	
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly	305	310	315	320
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Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn	355	360	365	
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val	370	375	380	
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser	385	390	395	400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro	405	410	415	
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Tyr	Ile	Leu	Thr	Glu	Ala		420	425	430	

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Phe Ala Glu Val Ala
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<210> 5
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

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<210> 6
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

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20 25 30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg

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Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
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Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
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Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
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225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260					265					270			
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
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Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
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Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
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<210> 7
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 7
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<210> 8
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 8
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 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
 20 25 30
 Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
 35 40 45
 Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
 50 55 60
 His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
 65 70 75 80

Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
			85						90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Gly	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
				405					410					415	
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
			450												

<210> 9

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 9

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgc cggtcttct gcatctgacc 540
tgcccgcatc attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
ctggcccgat aactggaaga aaccattcag aaggaaggcg cgataccat tgcgggcttt 660
tttgcggaac cggatgatgt tgccggcggt gttattacc cgccaaaagg ctattttcag 720
gcgattctga ccattctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
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ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
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aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gcccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362
```

<210> 10

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 10

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
```



```

atgaacaaac cgcagagctg ggaaacgcgt gcggaaccg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgtgc cgggctttct gcattctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggg tgcgggcggt gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
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ccggaactga gcaaactctt ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaactctg 1080
aaacatattg cggaactgcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

```

<210> 12

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 12

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160

```

Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	
				165					170					175		
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	
			180					185						190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	
		195					200						205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	
	210					215					220					
Val	Met	Gly	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	
	225				230					235					240	
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	
				245					250					255		
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	
			260					265					270			
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	
		275					280						285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	
	290					295					300					
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly	
	305				310					315					320	
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala	
				325					330					335		
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu	
			340					345					350			
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn	
		355					360					365				
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val	
	370					375					380					
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser	
	385				390					395					400	
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro	
				405					410					415		
Ile	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala	
			420					425					430			
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val	
	435						440					445				
Phe	Ala	Glu	Val	Ala												
	450															

<210> 13

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 13

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cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga agggccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg caagatgagc gatcagaccg tgatgctgtc tgaaaaactg 300

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gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
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tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggg tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccacctgctg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgctg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
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tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgct gaagtggcgt aa 1362

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<210> 14

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 14

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Lys Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165         170         175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180         185         190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr

```



```

ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
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gcgattctga ccacctctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
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gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgtt gggccaaagc 1260
gtggttctgg ccccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

```

<210> 16

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 16

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165         170         175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180         185         190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195         200         205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
210         215         220
Val Met Gly Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225         230         235         240

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```

ccggaactga gcaaactgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaactgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
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<210> 18

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 18

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20           25           30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35           40           45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85           90           95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130          135          140
Thr Leu Lys Gly Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195          200          205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
210          215          220
Val Met Gly Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225          230          235          240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
          245          250          255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
          260          265          270
Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr

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	275		280		285
Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser					
290			295		300
Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Glu Phe Asp His Gly					
305			310		315
Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala					
	325		330		335
Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu					
	340		345		350
Ala Pro Arg Phe Glu Glu Arg Leu Lys His Ile Ala Glu Arg Pro Asn					
	355		360		365
Ile Gly Glu Tyr Arg Gly Val Gly Phe Met Trp Ala Leu Glu Val Val					
	370		375		380
Lys Asp Lys Ala Ser Lys Ala Pro Phe Asp Gly Asn Leu Ser Val Ser					
385			390		395
Glu Arg Ile Ala Asn Thr Cys Thr Asp Leu Gly Leu Ile Cys Arg Pro					
	405		410		415
Leu Gly Gln Ser Val Val Leu Ala Pro Pro Tyr Ile Leu Thr Glu Ala					
	420		425		430
Gln Met Asp Glu Met Phe Asp Lys Leu Glu Lys Ala Leu Asp Lys Val					
	435		440		445
Phe Ala Glu Val Ala					
450					

<210> 19

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 19

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
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gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
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accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
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tttgcggaac cggatgatggg tgcgggcggg gttattaccc cgccaaaagg ctattttcag 720
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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
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<210> 20

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 20

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1      5      10      15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
      20      25      30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
      35      40      45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
      50      55      60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65      70      75      80
Gly Tyr His Ala Phe Tyr Gly Arg Leu Ser Asp Gln Thr Val Met Leu
      85      90      95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
      100     105     110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
      115     120     125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
      130     135     140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145     150     155     160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
      165     170     175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
      180     185     190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
      195     200     205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
      210     215     220
Val Met Gly Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225     230     235     240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
      245     250     255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
      260     265     270
Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
      275     280     285
Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
      290     295     300
Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Phe Asp His Gly
305     310     315     320

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Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390				395						400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
			405					410					415		
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420				425					430			
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
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Phe	Ala	Glu	Val	Ala											
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<210> 21

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 21

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgtttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtgggtt ctgcatcgtg cggaaggcaa accgcagaaa 420
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accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
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tttgcggaac cggatgatggg tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
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tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
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aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
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gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgtt gggcgacagc 1260
gtggttctgg ccccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 22
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 22
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
 1 5 10 15
 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
 20 25 30
 Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
 35 40 45
 Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
 50 55 60
 His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
 65 70 75 80
 Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
 85 90 95
 Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
 100 105 110
 Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
 115 120 125
 Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
 130 135 140
 Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
 145 150 155 160
 Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
 165 170 175
 Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
 180 185 190
 Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
 195 200 205
 Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
 210 215 220
 Val Met Gly Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
 225 230 235 240
 Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
 245 250 255
 Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
 260 265 270
 Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
 275 280 285
 Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
 290 295 300
 Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Glu Phe Asp His Gly
 305 310 315 320
 Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala
 325 330 335
 Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu
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 Ala Pro Cys Phe Glu Glu Arg Leu Lys His Ile Ala Glu Arg Pro Asn

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 24

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			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55				60					
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70				75						80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
			85						90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135				140					
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150				155						160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Gly	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260					265						270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275				280						285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310				315						320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325						330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400

Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
				405					410					415	
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
				450											

<210> 25
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

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 atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
 ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
 gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tgggtgaaaat gctgtgggtt ctgcatcgtg cggaaggcaa accgcagaaa 420
 cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
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 gcgattctga ccattctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
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 gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
 gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
 ctggaaatgg cgctggataa agtggttgcg gaagtggcgt aa 1362

<210> 26
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 26
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu

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Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val	
			20					25					30			
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg	
		35					40					45				
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp	
	50					55					60					
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	
65					70					75					80	
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu	
				85					90					95		
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	
			100					105					110			
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu	
		115					120						125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu	
	130					135					140					
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	
145					150					155					160	
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	
				165					170					175		
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	
			180					185					190			
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	
	195						200					205				
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	
	210					215					220					
Val	Met	Gly	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	
225					230					235					240	
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	
				245					250					255		
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	
			260					265					270			
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	
		275					280						285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	
	290					295					300					
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly	
305					310					315					320	
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala	
				325					330					335		
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu	
			340					345					350			
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn	
		355					360					365				
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val	
	370					375					380					
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser	
385					390					395					400	
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro	
				405					410					415		
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Tyr	Ile	Leu	Thr	Glu	Ala		
		420						425				430				
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Met	Ala	Leu	Asp	Lys	Val	

435
Phe Ala Glu Val Ala
450

440

445

<210> 27
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 27
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aacgaaacca tgggtgaaat gctgtgggtt ctgcatcgtg cggaaggcaa accgcagaaa 420
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tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
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tttgcggaac cggatgatggg tgcgggagggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgag caaatatgat attccggtga tcagcagatga agtgatttgc 780
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tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggag 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgag gaagtggcgt aa 1362

<210> 28
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 28
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ser Val Ser Leu
1 5 10 15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20 25 30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35 40 45

Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
50						55				60					
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70				75						80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100				105						110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Gly	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn											

<210> 29
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 29
atgaacaaac cgacagagctg ggaaacgcgt gcggaagagg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgtgct cgggctttct gcatctgacc 540
tgcccgcatc attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
ctggcccggt aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggg tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccattcctgc caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggtatgcg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtgggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 30
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 30
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
1 5 10 15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20 25 30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35 40 45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
50 55 60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65 70 75 80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 31

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gttgtggatg tgcattggcg tcgttatctg gatgcgaaca gcggcctgta caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtgggtat ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatgg tgccggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccattctgag caaatatgat attccggtga tctcgatga agtgatttgc 780
ggctttgggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagct cgaaaaacct aaccgcgggt tttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcagcaaaa gcccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gctttccgtt gggcgacagc 1260
gtggttctgg ccccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362
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<210> 32

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 32

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Tyr Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115          120          125
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Trp	Tyr	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
130						135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195				200					205				
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
210						215					220				
Val	Met	Gly	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280						285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
290						295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325					330						335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
370						375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Phe	Pro
				405				410						415	
Leu	Gly	Asp	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420						425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
450															

<210> 33

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 33

atgaacaaac cgcagagctg ggaaacgcgt gcggaaaccg tgagcctgta tgcctttacc 60

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cacatgccga gcctacgtca gcgtggcacc atggtggttaa cccatggcga aggcccgtat 120
atcgtgggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgtttttccg 240
ggctatcatg cgtttttacgg cgttatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtgggtt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcattctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggg tgcggggcggg gttattaccc cgccaaaagg ctatttttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttgggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
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tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaactctg 1080
aaacatattg cggaacttcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 34

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 34

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20           25           30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
        35           40           45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
        50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Val Met Ser Asp Gln Thr Val Met Leu
          85           90           95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
        100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
        115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
        130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe

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aacgaaacca tggatgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccggt aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggg tgcgggctgg gttattaccg cgccaaaagg ctattttcag 720
gcatcttga ccacctgctg caaatatgat attccggtga tcagcgatga agtgatttgc 780
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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgct gaagtggcgt aa 1362

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<210> 36

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 36

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Lys Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165         170         175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180         185         190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195         200         205

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Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
210						215					220				
Val	Met	Gly	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
				405					410					415	
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
															450

<210> 37

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 37

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cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggccgtat 120
atcgtggatg tgcattggcc tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
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aacgaaacca tgggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgacctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660

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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaagagg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 38

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 38

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195          200          205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
          210          215          220
Val Met Gly Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225          230          235          240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp

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tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
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<210> 40

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 40

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
        35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
        50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Arg Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
        100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
        115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
        130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
        165         170         175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
        180         185         190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
        195         200         205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
210         215         220
Val Met Gly Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225         230         235         240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
        245         250         255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
        260         265         270
Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
        275         280         285

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Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
290						295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325					330						335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340					345						350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
370					375						380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
			405					410						415	
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420					425						430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
450															

<210> 41

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 41

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cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgtat 120
gttgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttttca ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggtgatggg tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tctcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgctg 840
attattagca gtaaaaacct aaccgcggtt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
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aaacatatgg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggct 1140
ctggaagtgg tgaaagataa agcagcaaaa gcccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gctttccgtt gggccaaagc 1260

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gtggttctgg ccccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
 ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 42

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 42

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu
1				5					10					15	
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val
			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Val	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65				70					75					80	
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
			85						90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Phe	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
			165						170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
		180					185						190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
	195						200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Gly	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
			245						250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260						265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
	275						280						285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala

<211> 453
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 44

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu	1	5	10	15
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val	20	25	30	
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg	35	40	45	
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp	50	55	60	
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	65	70	75	80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu	85	90	95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	100	105	110	
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu	115	120	125	
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu	130	135	140	
Thr	Leu	Lys	Glu	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	145	150	155	160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	165	170	175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	180	185	190	
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	195	200	205	
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	210	215	220	
Val	Met	Gly	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	225	230	235	240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	245	250	255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	260	265	270	
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	275	280	285	
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	290	295	300	
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly	305	310	315	320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala	325	330	335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu	340	345	350	
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn	355	360	365	

Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
370						375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
				405					410					415	
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
450															

<210> 45

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 45

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cacatgccga	gcctacgtca	gcgtggcacc	atggtggtaa	cccatggcga	aggcccgtat	120
atcgtggatg	tgcatggccg	tcgttatctg	gatgcgaaca	gcggcctgtt	caacatgggtg	180
gcgggctttg	atcataaagg	cctgattgat	gcggcgaaag	cgagtatga	acgttttccg	240
ggctatcatg	cgttttacgg	cctgatgagc	gatcagaccg	tgatgctgtc	tgaaaaactg	300
gtggaagtga	gcccgtttga	tagcggccgt	gtgtttgtga	ccaacagcgg	cagcgaagcg	360
aacgaaacca	tggtgaaaat	gctgtggttt	ctgcatcgtg	cggaaggcaa	accgcagaaa	420
cgtaaaattc	tgaccctgaa	gcaggcgtat	catggctcca	ccgcggtgag	cgcgagcatg	480
accggcctgg	gctataacag	caaatttggc	ctgccgctgc	cgggctttct	gcatctgacc	540
tgcccgcat	attggcgtaa	tggcgaagaa	ggcgaaaccg	aagaacagtt	tgtcgcgcgt	600
ctggcccgtg	aactggaaga	aaccattcag	aagggaaggcg	cggataccat	tcggggcttt	660
tttgcggaac	cggtgatggg	tcggggcggt	gttattaccc	cgccaaaagg	ctattttcag	720
gcgattctga	ccatcctgcg	caaatatgat	attccggtga	tcagcgatga	agtgatttgc	780
ggctttggtc	gtaccggcaa	cacctggggc	tcggtgacct	atgattttac	cccggatgcg	840
attattagca	gtaaaaacct	aaccgcgggt	ttttttccag	taggagcggt	gattttgggg	900
ccggaactga	gcaaacgtct	ggaaaccgcg	attgaagcga	tcgaagaatt	tgatcatggt	960
tttaccacag	gcggccatcc	ggtgggttgt	gcgattgcgc	tgaaagcgat	tgatgtggtg	1020
atgaacgaag	gcctggccga	aaacgtgcgt	cgtctggccc	cgcgttttga	agaacgtctg	1080
aaacatat	cggaacgtcc	gaacattggc	gaatatcgtg	gtgtgggctt	tatgtggg	1140
ctggaagtgg	tgaaagataa	agcgagcaaa	gccccgtttg	atggcaacct	gagcgtgagc	1200
gaacgtattg	cgaacacctg	caccgatctg	ggactgattt	gccgaccggc	gggccagagc	1260
gtggttctgg	caccgccgta	cattctgacc	gaagcgcaga	tgatgaaat	gttcgataaa	1320
ctggaaaaag	cgctggataa	agtgtttgcg	gaagtggcgt	aa		1362

<210> 46

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 46

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu	1	5	10	15
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val	20	25	30	
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg	35	40	45	
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp	50	55	60	
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	65	70	75	80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu	85	90	95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	100	105	110	
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu	115	120	125	
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu	130	135	140	
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	145	150	155	160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	165	170	175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	180	185	190	
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	195	200	205	
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	210	215	220	
Val	Met	Gly	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	225	230	235	240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	245	250	255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	260	265	270	
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	275	280	285	
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	290	295	300	
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly	305	310	315	320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala	325	330	335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu	340	345	350	
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn	355	360	365	
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val	370	375	380	
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser	385	390	395	400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro				

				405					410					415			
Ala	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala		
			420					425					430				
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val		
		435					440					445					
Phe	Ala	Glu	Val	Ala													
	450																

<210> 47
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 47
 atgaacaaac cgcagagctg ggaaacgcgt gcggaaaccg tgagcctgta tgcctttacc 60
 cacatgccga gcctacgtca gcgtggcacc atgggtggtaa cccatggcga aggcccgtat 120
 atcgtggatg tgcattggccg tcgttatctg gatgcgatga gcggcctgtg gaacatgggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgagtatga acgttttccg 240
 ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
 gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
 cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
 accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
 tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
 ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
 tttgcggaac cggatgatggg tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
 gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
 ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgag 840
 attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
 ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
 tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtgggt 1020
 atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
 aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggag 1140
 ctggaagtgg tgaaagataa agcagcaaaa gcccgtttg atggcaacct gagcgtgagc 1200
 gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
 gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
 ctggaaaaag cgctggataa agtggtttgcg gaagtggcgt aa 1362

<210> 48
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 48
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
 1 5 10 15

Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val			
			20					25					30					
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg			
		35					40					45						
Tyr	Leu	Asp	Ala	Met	Ser	Gly	Leu	Trp	Asn	Met	Val	Ala	Gly	Phe	Asp			
		50				55					60							
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro			
65					70					75					80			
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu			
			85						90					95				
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe			
			100					105					110					
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu			
		115					120						125					
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu			
	130					135					140							
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met			
145					150					155					160			
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe			
			165						170					175				
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu			
		180					185						190					
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr			
		195					200					205						
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro			
	210					215					220							
Val	Met	Gly	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln			
225					230					235					240			
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp			
			245						250					255				
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val			
		260						265					270					
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr			
		275					280						285					
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser			
		290				295					300							
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly			
305					310					315					320			
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala			
			325						330					335				
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu			
		340						345					350					
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn			
		355					360					365						
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val			
	370					375					380							
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser			
385					390					395					400			
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro			
			405						410					415				
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala			
		420					425						430					
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val			
		435					440					445						

Phe Ala Glu Val Ala
450

<210> 49
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 49
atgaacaaac cgagagctg ggaaacgcgt gcggaaaccg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggttaa cccatggcga aggcccgat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccggtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggg tgcgggagggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccacctctgc caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttgggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gatatttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaaggtattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgct gaagtggcgt aa 1362

<210> 50
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 50
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1 5 10 15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20 25 30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35 40 45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp

50	55	60													
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135				140					
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Gly	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280						285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	Gly	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370				375					380					
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
				405					410					415	
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 51
atgaacaaac cgcagagctg ggaaacgcgt gcggaagggg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga agggccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgcatc attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggg tgcgggcggt gttattacc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcagcaaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 52
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 52
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Gly Val Ser Leu
1 5 10 15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20 25 30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35 40 45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
50 55 60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65 70 75 80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
85 90 95

Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe		
			100					105					110				
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu		
		115					120					125					
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu		
	130					135					140						
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met		
145					150					155					160		
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe		
			165					170						175			
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu		
		180						185					190				
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr		
		195					200					205					
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro		
	210					215					220						
Val	Met	Gly	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln		
225					230					235					240		
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp		
			245					250						255			
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val		
		260						265					270				
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr		
		275					280					285					
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser		
	290					295					300						
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly		
305					310					315					320		
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala		
			325					330						335			
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu		
		340						345					350				
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn		
		355					360					365					
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val		
	370				375						380						
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser		
385					390					395					400		
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro		
			405					410						415			
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala		
		420					425						430				
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val		
		435					440					445					
Phe	Ala	Glu	Val	Ala													
	450																

<210> 53

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 53

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtgggtt ctgcatcgtg cgggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggg tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccgaatctga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
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aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcagcaaaa gcccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362
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<210> 54

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 54

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
```

130		135		140	
Thr	Leu	Lys	Gln	Ala	Tyr
145		150		155	160
Thr	Gly	Leu	Gly	Tyr	Asn
		165		170	175
Leu	His	Leu	Thr	Cys	Pro
		180		185	190
Thr	Glu	Glu	Gln	Phe	Val
		195		200	205
Ile	Gln	Lys	Glu	Gly	Ala
		210		215	220
Val	Met	Gly	Ala	Gly	Gly
225				230	235
Ala	Ile	Leu	Thr	Ile	Leu
				245	250
Glu	Val	Ile	Cys	Gly	Phe
				255	260
Thr	Tyr	Asp	Phe	Thr	Pro
				265	270
Ala	Gly	Phe	Phe	Pro	Val
				275	280
Lys	Arg	Leu	Glu	Thr	Ala
305				285	290
Phe	Thr	Thr	Gly	Gly	His
				295	300
Ile	Asp	Val	Val	Met	Asn
				305	310
Ala	Pro	Arg	Phe	Glu	Glu
				315	320
Ile	Gly	Glu	Tyr	Arg	Gly
				325	330
Lys	Asp	Lys	Ala	Ser	Lys
385				335	340
Glu	Arg	Ile	Ala	Asn	Thr
				345	350
Leu	Gly	Gln	Ser	Val	Val
				355	360
Gln	Met	Asp	Glu	Met	Phe
				365	370
Phe	Ala	Glu	Val	Ala	
				375	380
				385	390
				395	400
				405	410
				415	420
				425	430
				435	440
				445	450

<210> 55

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 55

atgaacaaac cgcagagctg ggaaacgcgt gcggaaaccg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggttaa cccatggcga aggcccgatat 120

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcattctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccggtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggg tgcgggctgt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccattctgag caaatatgat attccggtga tcagcgatga agtgattacg 780
ggctttgggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgag 840
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ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggag 1140
ctggaagtgg tgaaagataa agcagcaaaa gcccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 56

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 56

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165         170         175

```

Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
 180 185 190
 Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
 195 200 205
 Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
 210 215 220
 Val Met Gly Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
 225 230 235 240
 Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
 245 250 255
 Glu Val Ile Thr Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
 260 265 270
 Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
 275 280 285
 Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
 290 295 300
 Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Glu Phe Asp His Gly
 305 310 315 320
 Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala
 325 330 335
 Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu
 340 345 350
 Ala Pro Arg Phe Glu Glu Arg Leu Lys His Ile Ala Glu Arg Pro Asn
 355 360 365
 Ile Gly Glu Tyr Arg Gly Val Gly Phe Met Trp Ala Leu Glu Val Val
 370 375 380
 Lys Asp Lys Ala Ser Lys Ala Pro Phe Asp Gly Asn Leu Ser Val Ser
 385 390 395 400
 Glu Arg Ile Ala Asn Thr Cys Thr Asp Leu Gly Leu Ile Cys Arg Pro
 405 410 415
 Leu Gly Gln Ser Val Val Leu Ala Pro Pro Tyr Ile Leu Thr Glu Ala
 420 425 430
 Gln Met Asp Glu Met Phe Asp Lys Leu Glu Lys Ala Leu Asp Lys Val
 435 440 445
 Phe Ala Glu Val Ala
 450

<210> 57

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 57

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 cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgtat 120
 atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
 ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
 gtggaagtga gcccgtttga tagcgccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tgggtgaaat gctgtggtt ctgcatcgtg cggaaggcaa accgcagaaa 420

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cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggccccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcggggcggg gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgcatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaactctt ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggacg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccggt tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 58

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 58

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165         170         175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180         185         190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195         200         205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro

```

210		215		220	
Val Met Ala Ala Gly	Gly Val Ile Thr Pro	Pro Lys Gly Tyr Phe Gln			
225	230	235	240		
Ala Ile Leu Thr Ile	Leu Arg Lys Tyr Asp	Ile Pro Val Ile Ser Asp			
	245	250	255		
Glu Val Ile Cys Gly	Phe Gly Arg Thr Gly	Asn Thr Trp Gly Cys Val			
	260	265	270		
Thr Tyr Asp Phe Thr	Pro Asp Ala Ile Ile	Ser Ser Lys Asn Leu Thr			
	275	280	285		
Ala Gly Phe Phe Pro	Val Gly Ala Val Ile	Leu Gly Pro Glu Leu Ser			
	290	295	300		
Lys Arg Leu Glu Thr	Ala Ile Glu Ala Ile	Glu Glu Phe Asp His Gly			
305	310	315	320		
Phe Thr Thr Gly Gly	His Pro Val Gly Cys	Ala Ile Ala Leu Lys Ala			
	325	330	335		
Ile Asp Val Val Met	Asn Glu Gly Leu Ala	Glu Asn Val Arg Arg Leu			
	340	345	350		
Ala Pro Arg Phe Glu	Glu Arg Leu Lys His	Ile Ala Glu Arg Pro Asn			
	355	360	365		
Ile Gly Glu Tyr Arg	Gly Val Gly Phe Met	Trp Ala Leu Glu Val Val			
	370	375	380		
Lys Asp Lys Ala Ser	Lys Ala Pro Phe Asp	Gly Asn Leu Ser Val Ser			
385	390	395	400		
Glu Arg Ile Ala Asn	Thr Cys Thr Asp Leu	Gly Leu Ile Cys Arg Pro			
	405	410	415		
Val Gly Gln Ser Val	Val Leu Ala Pro Pro	Tyr Ile Leu Thr Glu Ala			
	420	425	430		
Gln Met Asp Glu Met	Phe Asp Lys Leu Glu	Met Ala Leu Asp Lys Val			
	435	440	445		
Phe Ala Glu Val Ala					
450					

<210> 59

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 59

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gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctggt taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttc ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgcat attggcgta tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggtgatggc tgcgggcggt gttattacc cgccaaaagg ctattttcag 720

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gcgattctga ccatacctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggcttttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatatgg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacgtg caccgatctg ggactgattt gccgcccggg tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 60

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 60

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195          200          205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
210          215          220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225          230          235          240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
          245          250          255

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Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325						330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340						345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
			405						410					415	
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420						425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Met	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 61

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 61

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggt 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgtttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttc ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgacctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccggt aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020

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atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccggg tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 62

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 62

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20           25           30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
        35           40           45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
        50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85           90           95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
        100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
        115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
        130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
        165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
        180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
        195          200          205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
        210          215          220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225          230          235          240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
        245          250          255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
        260          265          270
Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
        275          280          285
Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser

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290		295		300
Lys Arg Leu Glu Thr	Ala Ile Glu Ala Ile Glu	Glu Phe Asp His Gly		
305	310	315		320
Phe Thr Thr Gly Gly	His Pro Val Gly Cys Ala	Ile Ala Leu Lys Ala		
	325	330		335
Ile Asp Val Val Met	Asn Glu Gly Leu Ala Glu	Asn Val Arg Arg Leu		
	340	345		350
Ala Pro Arg Phe Glu Glu	Arg Leu Lys His Ile	Ala Glu Arg Pro Asn		
	355	360		365
Ile Gly Glu Tyr Arg Gly	Val Gly Phe Met Trp	Ala Leu Glu Val Val		
	370	375		380
Lys Asp Lys Ala Ser	Lys Ala Pro Phe Asp Gly	Asn Leu Ser Val Ser		
385	390	395		400
Glu Arg Ile Ala Asn Thr	Cys Thr Asp Leu Gly	Leu Ile Cys Ser Pro		
	405	410		415
Val Gly Gln Ser Val Val	Leu Ala Pro Pro Tyr	Ile Leu Thr Glu Ala		
	420	425		430
Gln Met Asp Glu Met Phe	Asp Lys Leu Glu Lys	Ala Leu Asp Lys Val		
	435	440		445
Phe Ala Glu Val Ala				
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<210> 63

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 63

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gtcgtgggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg ccgtatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
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tttgcggaac cggtgatggc tgcgggcggt gttattaccc cgccaaaagg ctattttcag 720
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gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgtg gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320

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1362

<210> 64

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 64

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Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val
			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Val	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Arg	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Tyr	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
	195						200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280						285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	

Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
			405					410					415		
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Met	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 65

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 65

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gtcgtggatg tgcattggcc tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgcatt attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cgataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggg gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccattctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
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gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 66

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 66

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu
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Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val
			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Val	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55				60					
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70				75						80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Tyr	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135				140					
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150				155						160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
		180						185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
	195						200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260						265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280						285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340						345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
	355						360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val

370		375		380
Lys Asp Lys Ala Ser	Lys Ala Pro Phe Asp Gly	Asn Leu Ser Val Ser		
385	390	395	400	
Glu Arg Ile Ala Asn Thr	Cys Thr Asp Leu Gly	Leu Ile Cys Ser Pro		
	405	410	415	
Ile Gly Gln Ser Val Val	Leu Ala Pro Pro Tyr	Ile Leu Thr Glu Ala		
	420	425	430	
Gln Met Asp Glu Met Phe	Asp Lys Leu Glu Met	Ala Leu Asp Lys Val		
	435	440	445	
Phe Ala Glu Val Ala				
450				

<210> 67
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 67

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atcgtggatg	tgcatggccg	tcgttatctg	gatgcgaaca	gcggcctgtt	caacatgggtg	180
gcgggctttg	atcataaagg	cctgattgat	gcggcgaaag	cgagtatga	acgtttttccg	240
ggctatcatg	cgttttacgg	cctgatgagc	gatcagaccg	tgatgctgtc	tgaaaaactg	300
gtggaagtga	gcccgtttga	tagcggccgt	gtgtttgtga	ccaacagcgg	cagcgaagcg	360
aacgaaacca	tggtgaaaat	gctgtggtac	ctgcatcgtg	cggaaggcaa	accgcagaaa	420
cgtaaaattc	tgaccctgaa	gcaggcgtat	catggctcca	ccgcggtgag	cgcgagcatg	480
accggcctgg	gctataacag	caaatttggc	ctgccgctgc	cgggctttct	gcatctgacc	540
tgcccgcat	attggcggtt	tggcgaagaa	ggcgaaaccg	aagaacagtt	tgtcgcgcgt	600
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ggctttggtc	gtaccggcaa	cacctggggc	tgctgacact	atgattttac	cccggatgcg	840
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aaacatattg	cggaacgtcc	gaacattggc	gaatatcgtg	gtgtgggctt	tatgtgggcg	1140
ctggaagtgg	tgaaagataa	agcgagcaaa	gccccgtttg	atggcaacct	gagcgtgagc	1200
gaacgtattg	cgaacacctg	caccgatctg	ggactgattt	gccgcccggg	tggccagagc	1260
gtgggttctg	caccgccgta	cattctgacc	gaagcgcaga	tggaatgaaat	gttcgataaa	1320
ctggaaaagg	cgctggataa	agtgtttgcg	gaagtggcgt	aa		1362

<210> 68
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 68

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Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val
			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70				75						80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Tyr	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
				405					410					415	

Val Gly Gln Ser Val Val Leu Ala Pro Pro Tyr Ile Leu Thr Glu Ala
420 425 430
Gln Met Asp Glu Met Phe Asp Lys Leu Glu Lys Ala Leu Asp Lys Val
435 440 445
Phe Ala Glu Val Ala
450

<210> 69
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 69
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gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
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aacgaaacca tggatgaaaat gctgtgggtc ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgacctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgat tggccagagc 1260
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<210> 70
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 70
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
1 5 10 15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val

			20					25				30			
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Val	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85						90				95	
Ala	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
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<210> 71
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 71
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 atcgtggatg tgcatggccg tcgttatctg gatgcgaaca gcggcctgtt taacatggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgagtatga acgttttccg 240
 ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
 gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tggtgaaaat gctgtggttc ctgcatcgtg cggaaggcaa accgcagaaa 420
 cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
 accggcctgg gctataacag caaatgtggc ctgccgtgc cgggctttct gcatctgacc 540
 tgcccgcatt attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
 ctggcccgtg aactggaaga aaccattcag aaggaaggcg cgataccat tgcgggcttt 660
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 ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
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 gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgat tggccagagc 1260
 gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
 ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 72
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 72
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
 1 5 10 15
 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
 20 25 30
 Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
 35 40 45
 Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
 50 55 60

$\langle 210 \rangle$ 73
 $\langle 211 \rangle$ 1362

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 73

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atcgtggatg tgcatggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
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gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
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cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccggt tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362
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<210> 74

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 74

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
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Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Leu Ser Asp Gln Thr Val Met Leu
85          90          95
Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
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<400> 75

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gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgta taacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccggt tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362
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<210> 76

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 76

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Tyr Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115          120          125
Trp Tyr Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130          135          140
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Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195				200					205				
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
210					215					220					
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225				230					235						240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325					330						335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370				375					380					
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
			405					410						415	
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
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<210> 77

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 77

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atcgtggatg tgcatggccg tcgttatctg gatgcgaaca gcggcctgtt taacatggtg 180

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gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
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<210> 78

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 78

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20           25           30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
        35           40           45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
        50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Arg Met Ser Asp Gln Thr Val Met Leu
          85           90           95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
        100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
        115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
        130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
        165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu

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aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccggt tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 80

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 80

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20           25           30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35           40           45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85           90           95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195          200          205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
          210          215          220

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Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
				405				410					415		
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425				430			
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 81

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 81

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cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgat 120
gtcgtggatg tgcattggcc tcgttatctg gatgcgaaca gcggcctgtt taacatgggt 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgct cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cgataccat tgccgggcttt 660
tttgcggaac cggatgatggc tgcgggcggg gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccacctctgc caaatatgat attccggtga tcagcgatga agtgatttgc 780

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ggcttttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attatttagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaactctt ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaactctg 1080
aaacataatt cggaactgcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccggg tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 82

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 82

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195          200          205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
210          215          220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225          230          235          240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
          245          250          255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val

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aaacatatg cggaaagtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 84

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 84

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Tyr Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165         170         175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180         185         190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195         200         205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
          210         215         220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225         230         235         240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
          245         250         255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
          260         265         270
Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
          275         280         285
Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
          290         295         300

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Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325					330						335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340						345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
	355						360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
370					375						380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
			405					410						415	
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420						425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Met	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
450															

<210> 85

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 85

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cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgat 120
gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcattctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgtg 600
ctggcccggt aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gatgtttggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatatgt cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gcccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 86
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 86
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
 1 5 10 15
 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
 20 25 30
 Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
 35 40 45
 Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
 50 55 60
 His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
 65 70 75 80
 Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
 85 90 95
 Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
 100 105 110
 Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
 115 120 125
 Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
 130 135 140
 Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
 145 150 155 160
 Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
 165 170 175
 Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
 180 185 190
 Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
 195 200 205
 Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
 210 215 220
 Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
 225 230 235 240
 Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
 245 250 255
 Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
 260 265 270
 Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
 275 280 285
 Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
 290 295 300
 Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Glu Phe Asp His Gly
 305 310 315 320
 Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala
 325 330 335
 Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 88

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Glu	Val	Ser	Leu
1				5					10					15	
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val
			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120						125		
Trp	Tyr	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
	195						200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280						285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295						300			
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
	355						360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				

Lys Asp Lys Ala Ser Lys Ala Pro Phe Asp Gly Asn Leu Ser Val Ser
 385 390 395 400
 Glu Arg Ile Ala Asn Thr Cys Thr Asp Leu Gly Leu Ile Cys Arg Pro
 405 410 415
 Ile Gly Gln Ser Val Val Leu Ala Pro Pro Tyr Ile Leu Thr Glu Ala
 420 425 430
 Gln Met Asp Glu Met Phe Asp Lys Leu Glu Met Ala Leu Asp Lys Val
 435 440 445
 Phe Ala Glu Val Ala
 450

<210> 89
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 89
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 atcgtggatg tgcattggcc tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgagtatga acgttttccg 240
 ggctatcatg cgtttttacgg ccgtatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
 gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tgggtgaaaat gctgtggttc ctgcatcgtg cggaaggcaa accgcagaaa 420
 cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
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 tgcccgcatc attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
 ctggcccggt aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
 tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
 gcgattctga ccacctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
 ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
 attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
 ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
 tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
 atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
 aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
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 gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgat tggccagagc 1260
 gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
 ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 90
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 90

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu
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Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val
			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70				75						80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Arg	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
			85						90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
			165						170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
		180					185					190			
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
			245						250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260					265						270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310				315						320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325						330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340					345						350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
			405						410					415	
Ile	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala

	420		425		430
Gln Met Asp	Glu Met Phe Asp	Lys Leu Glu Lys	Ala Leu Asp	Lys Val	
	435		440		445
Phe Ala Glu	Val Ala				
	450				

<210> 91
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 91
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 gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatgggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
 ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
 gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
 cgtaaaattc tgacctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
 accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcattctgacc 540
 tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
 ctggcccgtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
 tttgcggaac cggatgatggc tgcgggagggt gttattaccg cgccaaaagg ctattttcag 720
 gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
 ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
 attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
 ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
 tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtgggtg 1020
 atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
 aaacatatgt cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggctg 1140
 ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
 gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgtc gggccagagc 1260
 gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
 ctggaatgg cgctggataa agtgtttgct gaagtggcgt aa 1362

<210> 92
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 92
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 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
 20 25 30

Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Val	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala</									

<210> 93
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 93
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cacatgccga gcctacgtca gcgtggcacc atgggtggtaa cccatggcga aggcccgtat 120
gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg ccgtctgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatt attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgagcg tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccacctgctg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgctg 840
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ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 94
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 94
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1 5 10 15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20 25 30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
35 40 45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
50 55 60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro

65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Arg	Leu	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ala	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Tyr	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
	195						200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
	355						360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370				375					380					
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390				395						400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
				405					410					415	
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420				425						430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 95

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 95

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gtcgtggatg tgcatggccg tcgttatctg gatgcgaaca gcggcctgtt taacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgtttttacgg ccgtctgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttc ctgcatcgtg cgggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatTTggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgcatc attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccggtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccacctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gatTTTgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtgggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
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gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362
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<210> 96

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 96

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
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Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Arg Leu Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
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Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
			165						170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
		180						185				190			
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
	195						200				205				
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
			245						250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260						265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
	275						280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325						330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340						345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
	355						360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
			405						410					415	
Ile	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420						425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 97

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 97

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgctgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtgggtt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
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ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
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aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
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<210> 98

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 98

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Leu Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
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145					150					155				160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly
				165					170					175
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly
			180					185					190	
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu
			195				200					205		
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu
	210					215					220			
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe
225					230					235				240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser
				245					250					255
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys
			260				265						270	
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu
		275					280					285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu
	290					295					300			
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His
305					310					315				320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys
			325						330					335
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg
			340				345						350	
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro
		355					360					365		
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val
	370				375						380			
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val
385					390					395				400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg
			405						410					415
Ile	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu
			420				425						430	
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys
	435						440					445		
Phe	Ala	Glu	Val	Ala										
	450													

<210> 99

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 99

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atgaacaaac cgcagagctg ggaaacgcgt gcggaagagg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgtat 120
gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag gcagtatga acgttttccg 240

```

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ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatt attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggg gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgctg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccggg tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 100

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 100

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165         170         175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180         185         190

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Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
	195						200				205				
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225				230					235						240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
			245					250						255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260					265					270			
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
	275					280						285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325					330						335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340						345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
	355						360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370				375						380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
			405					410					415		
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420					425					430			
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 101

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 101

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cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgacctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcattctgacc 540

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tgccgcatt attggcgta tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtag aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcggggcggg gttattaccg cgccaaaagg ctattttcag 720
gcgatttctga ccacacctgcg caaatatgat attccggatga tcagcgatga agtgatttgc 780
ggctttgggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attattagca gtaaaaacct aaccgcgggt tttttccag taggagcggg gattttgggg 900
ccggaactga gcaaactgtc ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
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aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccggt tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
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<210> 102

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 102

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20           25           30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35           40           45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85           90           95
Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195          200          205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
          210          215          220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln

```

225					230					235				240	
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310				315					320	
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325					330					335		
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340					345					350			
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
	355					360					365				
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370				375					380					
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385				390					395					400	
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
			405					410				415			
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420					425				430				
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
	435					440					445				
Phe	Ala	Glu	Val	Ala											
	450														

<210> 103

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 103

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg ccgtctgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgcatt attggcgtaa tggcgaagaa ggcgaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggtgatggc tgcgggcggt gttattacc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840

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attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
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gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccggg tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 104

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 104

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Arg Leu Ser Asp Gln Thr Val Met Leu
85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
165         170         175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
180         185         190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
195         200         205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
210         215         220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225         230         235         240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
245         250         255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
260         265         270

```

Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325					330						335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340					345						350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
			405					410						415	
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420					425						430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Met	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 105

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 105

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtgggtt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgatt attggcgta tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgat aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgagcg tcggggcggt gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccattctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
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ccggaactga gcaaactct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtgggt 1020
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aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140

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ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgct gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 106
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 106

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu	1	5	10	15
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val	20	25	30	
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg	35	40	45	
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp	50	55	60	
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	65	70	75	80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu	85	90	95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	100	105	110	
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu	115	120	125	
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu	130	135	140	
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	145	150	155	160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	165	170	175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	180	185	190	
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	195	200	205	
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	210	215	220	
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	225	230	235	240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	245	250	255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	260	265	270	
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	275	280	285	
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	290	295	300	
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly				

305		310		315		320
Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala						
	325		330		335	
Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu						
	340		345		350	
Ala Pro Arg Phe Glu Glu Arg Leu Lys His Ile Ala Glu Arg Pro Asn						
	355		360		365	
Ile Gly Glu Tyr Arg Gly Val Gly Phe Met Trp Ala Leu Glu Val Val						
	370		375		380	
Lys Asp Lys Ala Ser Lys Ala Pro Phe Asp Gly Asn Leu Ser Val Ser						
385	390		395		400	
Glu Arg Ile Ala Asn Thr Cys Thr Asp Leu Gly Leu Ile Cys Ser Pro						
	405		410		415	
Leu Gly Gln Ser Val Val Leu Ala Pro Pro Tyr Ile Leu Thr Glu Ala						
	420		425		430	
Gln Met Asp Glu Met Phe Asp Lys Leu Glu Lys Ala Leu Asp Lys Val						
	435		440		445	
Phe Ala Glu Val Ala						
450						

<210> 107

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 107

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gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgagtatga acgttttccg 240
ggctatcatg cgttttacgg ccgtatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgacctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcattctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
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tttgcggaac cggatgatggc tgcgggcggt gttattaccc cgcaaaaagg ctattttcag 720
gcgattctga ccattcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgct gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 108
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 108
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 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
 20 25 30
 Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
 35 40 45
 Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
 50 55 60
 His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
 65 70 75 80
 Gly Tyr His Ala Phe Tyr Gly Arg Met Ser Asp Gln Thr Val Met Leu
 85 90 95
 Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
 100 105 110
 Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
 115 120 125
 Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
 130 135 140
 Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
 145 150 155 160
 Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
 165 170 175
 Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
 180 185 190
 Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
 195 200 205
 Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
 210 215 220
 Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
 225 230 235 240
 Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
 245 250 255
 Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
 260 265 270
 Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
 275 280 285
 Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
 290 295 300
 Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Glu Phe Asp His Gly
 305 310 315 320
 Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala
 325 330 335
 Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu
 340 345 350

Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
			405					410					415		
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Tyr	Ile	Leu	Thr	Glu	Ala	
		420					425				430				
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 109

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 109

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atcgtggatg tgcattggcc tcgttatctg gatgcgaaca gcggcctgta taacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg ccgtatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtaa ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgccgcatt attggcgtaa tggcgaagaa ggcgaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgagc tgcgggcggg gttattacc ccgcaaaagg ctattttcag 720
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aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggctg 1140
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gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
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<210> 110

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 110

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Ala	Val	Ser	Leu
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Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val
			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Tyr	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Arg	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120						125		
Trp	Tyr	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200						205		
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
		290				295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser

385		390		395		400
Glu Arg Ile Ala Asn Thr Cys Thr Asp Leu Gly Leu Ile Cys Ser Pro						
	405		410		415	
Leu Gly Gln Ser Val Val Leu Ala Pro Pro Tyr Ile Leu Thr Glu Ala						
	420		425		430	
Gln Met Asp Glu Met Phe Asp Lys Leu Glu Lys Ala Leu Asp Lys Val						
	435		440		445	
Phe Ala Glu Val Ala						
450						

<210> 111
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 111
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 gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
 ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctggc ggaaaaactg 300
 gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tgggtgaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
 cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
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 ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
 tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
 gcgattctga ccattctgca caaatatgat attccggtga tcagcgatga agtgatttgc 780
 ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
 attattagca gtaaaaacct aaccgcgggt ttttttcag taggagcggg gatatttggg 900
 ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
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 aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
 ctggaagtgg tgaaagataa agcgagcaaa gcccgtttg atggcaacct gagcgtgagc 1200
 gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgat tggccagagc 1260
 gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
 ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 112
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 112

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Glu	Val	Ser	Leu	1	5	10	15
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val	20	25	30	
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Val	Val	Asp	Val	His	Gly	Arg	Arg	35	40	45	
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp	50	55	60	
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	65	70	75	80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu	85	90	95	
Ala	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	100	105	110	
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu	115	120	125	
Trp	Tyr	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu	130	135	140	
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	145	150	155	160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	165	170	175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	180	185	190	
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	195	200	205	
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	210	215	220	
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	225	230	235	240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	245	250	255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	260	265	270	
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	275	280	285	
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	290	295	300	
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly	305	310	315	320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala	325	330	335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu	340	345	350	
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn	355	360	365	
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val	370	375	380	
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser	385	390	395	400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro	405	410	415	
Ile	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Tyr	Ile	Leu	Thr	Glu	Ala		420	425	430	

Gln Met Asp Glu Met Phe Asp Lys Leu Glu Lys Ala Leu Asp Lys Val
435 440 445
Phe Ala Glu Val Ala
450

<210> 113
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 113
atgaacaaac cgcagagctg ggaaacgcgt gcggaaaccg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atgggtggtaa cccatggcga aggcccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtgggtt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac tccggatgcg 840
attattagca gtaaaaacct aaccgcgggt ttttttcag taggagcggg gatatttggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggtaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcgcgccggt cgatcagagc 1260
gtggttctgg caccgccgta cattctgacc gaagtacaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 114
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 114
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1 5 10 15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20 25 30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg

		35					40				45				
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260					265					270			
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390		</								

<210> 115
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 115
 atgaacaaac cgcagagctg ggaaacgcgt gcggaagcgg tgagcctgta tgcctttacc 60
 cacatgccga gcctacgtca gcgtggcacc atgggtggtaa cccatggcga aggcccgtat 120
 atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
 ggctatcatg cgttttacgg ccgtctgagc gatcagaccg tgatgctgtc tgaaaaactg 300
 gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tgggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
 cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
 accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
 tgcccgcatc attggcgcta tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
 ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
 tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
 gcgattctga ccattctgcg caaatatgat attccggtga tcagcagatga agtgatttgc 780
 ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgcatgacg 840
 attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
 ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
 tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
 atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
 aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggagc 1140
 ctggaagtgg tgaaagataa agcagcaaaa gccccgtttg atggcaacct gagcgtgagc 1200
 gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccggg tggccagagc 1260
 gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
 ctggaaaaag cgctggataa agtgtttgag gaagtggcgt aa 1362

<210> 116
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 116
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
 1 5 10 15
 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
 20 25 30
 Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
 35 40 45
 Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
 50 55 60
 His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
 65 70 75 80

Gly	Tyr	His	Ala	Phe	Tyr	Gly	Arg	Leu	Ser	Asp	Gln	Thr	Val	Met	Leu
			85						90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
				405					410					415	
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
			450												

<210> 117

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 117

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atgaacaaac cgagagctg ggaaacgcgt gcggaaactg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga agggccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg ccgtatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgc cggtcttct gcatctgacc 540
tgcccgcat attggcgta tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
ctggcccgat aactggaaga aaccattcag aaggaaggcg cgataccat tgcgggcttt 660
tttgcggaac cggatgaggc tgcgggaggc gttattacc cgccaaaagg ctattttcag 720
gcgattctga ccattctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagca gtaaaaacct aaccgcgggt tttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgctttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggag 1140
ctggaagtgg tgaaagataa agcgagcaaa gcccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgag gaagtggcgt aa 1362
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<210> 118

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 118

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Arg Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
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atgaacaaac cgcagagctg ggaaacgcgt gcggaaactg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatgggtg 180
gcgggcctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgtgc cgggctttct gcattctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggg gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttcag taggagcggg gattttgggg 900
ccggaactga gcaaactctt ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaactctg 1080
aaacatattg cggaacttcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 120

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 120

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
115         120         125
Trp Tyr Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160

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Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	
				165					170					175		
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	
			180					185						190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	
		195					200						205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	
	210					215					220					
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	
	225				230					235					240	
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	
				245					250					255		
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	
			260					265					270			
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	
		275					280						285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	
	290					295					300					
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly	
	305				310					315					320	
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala	
				325					330					335		
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu	
			340					345					350			
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn	
		355					360						365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val	
	370					375					380					
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser	
	385				390					395					400	
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro	
				405					410					415		
Ile	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala	
			420					425						430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val	
	435						440						445			
Phe	Ala	Glu	Val	Ala												
	450															

<210> 121

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 121

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atgaacaaac cgcagagctg ggaaacgcgt gcggaaactg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctggt taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg ccgtatgagc gatcagaccg tgatgctgtc tgaaaaactg 300

```

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gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttc ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatattggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggg gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccacctgctg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgctg 840
attattagca gtaaaaacct aaccgcgggt tttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgct gaagtggcgt aa 1362

```

<210> 122

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 122

```

Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Arg Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165         170         175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180         185         190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr

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ctggcccgatg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggtgatggc tgcgggcggt gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccacctgctg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attattagca gtaaaaacct aaccgcggtt tttttccag taggagcggt gattttgggg 900
ccggaactga gcaaactgtc ggaaaccgag attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaactctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggag 1140
ctggaagtgg tgaaagataa agcagcaaaa gcccggtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccggccggt tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgag gaagtggcgt aa 1362

```

<210> 124

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 124

```

Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Tyr Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Arg Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Tyr Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165         170         175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180         185         190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195         200         205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
210         215         220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225         230         235         240

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ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccggg tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

```

<210> 126

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 126

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20           25           30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
35           40           45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
85           90           95
Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
115          120          125
Trp Tyr Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
130          135          140
Thr Leu Lys Gly Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
195          200          205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
210          215          220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225          230          235          240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
245          250          255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
260          265          270
Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr

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	275		280		285										
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
				405					410					415	
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Met	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 127

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 127

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cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgtat 120
gtcgtggatg tgcatggccg tcgttatctg gatgcgaaca gcggcctggt taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg ccgtatgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggg gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccattctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgctttttga agaacgtctg 1080
aaacatatgg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gcccgtttg atggcaacct gagcgtgagc 1200

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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362

```

<210> 128
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 128

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu	1	5	10	15
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val	20	25	30	
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Val	Val	Asp	Val	His	Gly	Arg	Arg	35	40	45	
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp	50	55	60	
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	65	70	75	80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Arg	Met	Ser	Asp	Gln	Thr	Val	Met	Leu	85	90	95	
Ala	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	100	105	110	
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu	115	120	125	
Trp	Tyr	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu	130	135	140	
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	145	150	155	160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	165	170	175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	180	185	190	
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	195	200	205	
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	210	215	220	
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	225	230	235	240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	245	250	255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	260	265	270	
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	275	280	285	
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	290	295	300	
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Phe	Asp	His	Gly		305	310	315	320

Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390				395						400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
			405					410					415		
Ile	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 129

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 129

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cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgtat 120
atcgtggatg tgcattggcc tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgtttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtgggtt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgacctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac tccggatgcg 840
attattagca gtaaaaacct aaccgcgggt ttttttcag taggagcggg gatatttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggtaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcgcgccggg cgatcagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtggtttgcg gaagtggcgt aa 1362

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<210> 130
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 130
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
 1 5 10 15
 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
 20 25 30
 Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
 35 40 45
 Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
 50 55 60
 His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
 65 70 75 80
 Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
 85 90 95
 Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
 100 105 110
 Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
 115 120 125
 Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
 130 135 140
 Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
 145 150 155 160
 Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
 165 170 175
 Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
 180 185 190
 Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
 195 200 205
 Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
 210 215 220
 Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
 225 230 235 240
 Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
 245 250 255
 Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
 260 265 270
 Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
 275 280 285
 Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
 290 295 300
 Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Glu Phe Asp His Gly
 305 310 315 320
 Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala
 325 330 335
 Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu
 340 345 350
 Ala Pro Arg Phe Glu Glu Arg Leu Lys His Ile Ala Glu Arg Pro Asn

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 132

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Ala	Val	Ser	Leu
1				5					10					15	
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val
			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55				60					
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70				75						80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Tyr	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135				140					
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260					265						270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275				280						285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400

Glu Arg Ile Ala Asn Thr Cys Thr Asp Leu Gly Leu Ile Cys Arg Pro
405 410 415
Val Gly Gln Ser Val Val Leu Ala Pro Pro Tyr Ile Leu Thr Glu Ala
420 425 430
Gln Met Asp Glu Met Phe Asp Lys Leu Glu Lys Ala Leu Asp Lys Val
435 440 445
Phe Ala Glu Val Ala
450

<210> 133
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 133
atgaacaaac cgcagagctg ggaaacgcgt gcggaaactg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg ccgtatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtgggtc ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatt attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggg gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccattctgag caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgag 840
attattagca gtaaaaacct aaccgcggtt tttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatatg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggag 1140
ctggaagtgg tgaaagataa agcagcaaaa gcccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtggttgcg gaagtggcgt aa 1362

<210> 134
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 134
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu

1				5				10				15				
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val	
			20					25					30			
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg	
		35					40					45				
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp	
	50					55					60					
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	
65					70					75					80	
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Arg	Met	Ser	Asp	Gln	Thr	Val	Met	Leu	
			85						90					95		
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	
			100					105					110			
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu	
		115					120					125				
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu	
	130					135					140					
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	
145					150					155					160	
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	
			165						170					175		
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	
		180						185					190			
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	
	195						200					205				
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	
	210					215					220					
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	
225					230					235					240	
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	
			245						250					255		
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	
		260						265					270			
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	
	275						280						285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	
	290					295					300					
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly	
305					310					315					320	
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala	
			325						330					335		
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu	
		340						345					350			
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn	
	355						360					365				
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val	
	370					375					380					
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser	
385					390					395					400	
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro	
			405						410					415		
Ile	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Tyr	Ile	Leu	Thr	Glu	Ala		
		420						425					430			
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val	

435
Phe Ala Glu Val Ala
450

440

445

<210> 135
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 135
atgaacaaac cgcagagctg ggaaacgcgt gcggaaccg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atgggtggtaa cccatggcga aggcccgat 120
gtcgtggatg tgcattggcc tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaat gctgtgggtt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcattctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccggt aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggagggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgag caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttgggt gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gatatttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgag gaagtggcgt aa 1362

<210> 136
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 136
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1 5 10 15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20 25 30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
35 40 45

Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
His	50	Gly	Leu	Ile	Asp	55	Ala	Lys	Ala	Gln	60	Glu	Arg	Phe	Pro
65	Tyr	His	Ala	Phe	Tyr	70	Gly	Leu	Met	Ser	75	Gln	Thr	Val	Met
Gly				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100				105						110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195				200					205				
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260					265					270			
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340				345						350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355				360						365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390				395						400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
				405				410						415	

<210> 137
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 137
atgaacaaac cgacagagctg ggaaacgcgt gcggaaactg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atgggtggtaa cccatggcga aggcccgtat 120
gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg ccgtatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgtgct cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccattcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtgggtg 1020
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aaacatatgt cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgct gaagtggcgt aa 1362

<210> 138
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 138
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1 5 10 15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20 25 30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
35 40 45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
50 55 60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65 70 75 80
Gly Tyr His Ala Phe Tyr Gly Arg Met Ser Asp Gln Thr Val Met Leu

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 139

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gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgctgagc gatcagaccg tgatgctgtc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgcatc attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggaggc gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccattctgag caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgag 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggag 1140
ctggaagtgg tgaaagataa agcagcaaaa gcccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
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<210> 140

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 140

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Leu Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115          120          125
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Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
 130 135 140
 Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
 145 150 155 160
 Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
 165 170 175
 Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
 180 185 190
 Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
 195 200 205
 Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
 210 215 220
 Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
 225 230 235 240
 Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
 245 250 255
 Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
 260 265 270
 Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
 275 280 285
 Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
 290 295 300
 Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Glu Phe Asp His Gly
 305 310 315 320
 Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala
 325 330 335
 Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu
 340 345 350
 Ala Pro Arg Phe Glu Glu Arg Leu Lys His Ile Ala Glu Arg Pro Asn
 355 360 365
 Ile Gly Glu Tyr Arg Gly Val Gly Phe Met Trp Ala Leu Glu Val Val
 370 375 380
 Lys Asp Lys Ala Ser Lys Ala Pro Phe Asp Gly Asn Leu Ser Val Ser
 385 390 395 400
 Glu Arg Ile Ala Asn Thr Cys Thr Asp Leu Gly Leu Ile Cys Arg Pro
 405 410 415
 Leu Gly Gln Ser Val Val Leu Ala Pro Pro Tyr Ile Leu Thr Glu Ala
 420 425 430
 Gln Met Asp Glu Met Phe Asp Lys Leu Glu Met Ala Leu Asp Lys Val
 435 440 445
 Phe Ala Glu Val Ala
 450

<210> 141

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 141

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atcgtgggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
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accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcattctgacc 540
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ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcggggcggg gttattaccg cgccaaaagg ctatttttcag 720
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gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccggg tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtggtttgcg gaagtggcgt aa 1362

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<210> 142

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 142

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Arg Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe

```



```

aacgaaacca tggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatTTggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatt attggcgTTa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattacc cgcctaaagg ctattttcag 720
gcgattctga ccacctgCG caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgCG 840
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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgCG gaagtggcgt aa 1362

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<210> 144

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 144

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20           25           30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35           40           45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Arg Leu Ser Asp Gln Thr Val Met Leu
          85           90           95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115          120          125
Trp Tyr Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195          200          205

```

Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
 210 215 220
 Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
 225 230 235 240
 Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
 245 250 255
 Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
 260 265 270
 Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
 275 280 285
 Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
 290 295 300
 Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Glu Phe Asp His Gly
 305 310 315 320
 Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala
 325 330 335
 Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu
 340 345 350
 Ala Pro Arg Phe Glu Glu Arg Leu Lys His Ile Ala Glu Arg Pro Asn
 355 360 365
 Ile Gly Glu Tyr Arg Gly Val Gly Phe Met Trp Ala Leu Glu Val Val
 370 375 380
 Lys Asp Lys Ala Ser Lys Ala Pro Phe Asp Gly Asn Leu Ser Val Ser
 385 390 395 400
 Glu Arg Ile Ala Asn Thr Cys Thr Asp Leu Gly Leu Ile Cys Arg Pro
 405 410 415
 Ile Gly Gln Ser Val Val Leu Ala Pro Pro Tyr Ile Leu Thr Glu Ala
 420 425 430
 Gln Met Asp Glu Met Phe Asp Lys Leu Glu Lys Ala Leu Asp Lys Val
 435 440 445
 Phe Ala Glu Val Ala
 450

<210> 145

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 145

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 gtcgtggatg tgcattggcc tcgttatctg gatgcgaaca gcggcctgtt taacatggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
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 gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tgggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
 cgtaaaaattc tgacctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
 accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
 tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
 ctggcccgtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660

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tttgcggaac cggtgatggc tgcgggcggt gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
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ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 146

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 146

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165         170         175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180         185         190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195         200         205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
          210         215         220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225          230         235         240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp

```



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tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
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gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgct gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 148

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 148

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20           25           30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
        35           40           45
Tyr Leu Asp Ala Asn Ser Gly Leu Tyr Asn Met Val Ala Gly Phe Asp
        50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Arg Met Ser Asp Gln Thr Val Met Leu
          85           90           95
Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
        100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
        115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
        130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
        165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
        180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
        195          200          205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
210          215          220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225          230          235          240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
        245          250          255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
        260          265          270
Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
        275          280          285

```

Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
290						295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
370						375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
				405					410					415	
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Met	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
450															

<210> 149

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 149

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
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gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatTTggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggtgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
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gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
 ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 150

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 150

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu
1				5					10					15	
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val
			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
			85						90					95	
Ala	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120						125		
Trp	Tyr	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130						135					140			
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
			165						170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
		180						185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
	195						200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
			245						250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260						265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
	275						280						285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala

<211> 453
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 152

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Glu	Val	Ser	Leu	1	5	10	15
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val	20	25	30	
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg	35	40	45	
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp	50	55	60	
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	65	70	75	
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Arg	Leu	Ser	Asp	Gln	Thr	Val	Met	Leu	85	90	95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	100	105	110	
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu	115	120	125	
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu	130	135	140	
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	145	150	155	
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	165	170	175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	180	185	190	
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	195	200	205	
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	210	215	220	
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	225	230	235	
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	245	250	255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	260	265	270	
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	275	280	285	
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	290	295	300	
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly	305	310	315	
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala	325	330	335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu	340	345	350	
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn	355	360	365	

Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
370						375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
				405					410					415	
Ile	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
450															

<210> 153
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 153

atgaacaaac	cgagagctg	ggaaacgcgt	gcggaaaccg	tgagcctgta	tccttttacc	60
cacatgaaga	gcctacgtca	gcgtggcacc	atggtggtaa	cccatggcga	aggcccgtat	120
atcgtggatg	tgcatggccg	tcgttatctg	gatgcgaaca	gcggcctgtt	caacatgggtg	180
gcgggctttg	atcataaagg	cctgattgat	gcggcgaaag	cgagtatga	acgttttccg	240
ggctatcatg	cgttttacgg	cctgatgagc	gatcagaccg	tgatgctgtc	tgaaaaactg	300
gtggaagtga	gcccgtttga	tagcggccgt	gtgtttgtga	ccaacagcgg	cagcgaagcg	360
aacgaaacca	tggtgaaaat	gctgtggttt	ctgcatcgtg	cggaaggcaa	accgcagaaa	420
cgtaaaattc	tgaccctgaa	gcaggcgtat	catggctcca	ccgcggtgag	cgcgagcatg	480
accgggctgg	gctataacag	caaatttggc	ctgccgctgc	cgggctttct	gcatctgacc	540
tgcccgcatt	attggcgtaa	tggcgaagaa	ggcgaaaccg	aagaacagtt	tgtcgcgcgt	600
ctggcccgtg	aactggaaga	aaccattcag	aagggaaggcg	cggataccat	tcggggcttt	660
tttgcggaac	cggtgatggc	tcggggcggt	gttattaccc	cgccaaaagg	ctattttcag	720
gcgattctga	ccatcctgcg	caaatatgat	attccggtga	tcagcgatga	agtgatttgc	780
ggctttggtc	gtaccggcaa	cacctggggc	tcggtgacct	atgattttat	tccggatgcg	840
attattagca	gtaaaaacct	aaccgcgggt	ttttttccag	taggagcggg	gattttgggg	900
ccggaactga	gcaaacgtct	ggaaaccgcg	attgaagcga	tcgaagaatt	tgatcatggt	960
tttaccacag	gcggccatcc	ggtgggttgt	gcgattgcgc	tgaaagcgat	tgatgtggtg	1020
atgaacgaag	gcctggccga	aaacgtgcgt	cgtctggccc	cgcgttttga	agaacgtctg	1080
aaacatatgt	cggaacgtcc	gaacattggc	gaatatcgtg	gtgtgggctt	tatgtgggcg	1140
ctggaagtgg	tgaaagataa	agcgagcaaa	gccccgtttg	atgataacct	gagcgtgagc	1200
gaacgtattg	cgaacacctg	caccgatctg	ggactgattt	gccgtccggg	cgatcagagc	1260
gtggttctgg	caccgccgta	cattctgacc	gaagcgcaga	tgatgaaat	gttcgataaa	1320
ctggaaaaag	cgctggataa	agtgtttgcg	gaagtggcgt	aa		1362

<210> 154
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 154

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1      5      10      15
Tyr Ala Phe Thr His Met Lys Ser Leu Arg Gln Arg Gly Thr Met Val
      20      25      30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
      35      40      45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
      50      55      60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65      70      75      80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
      85      90      95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
      100      105      110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
      115      120      125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
      130      135      140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145      150      155      160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
      165      170      175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
      180      185      190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
      195      200      205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
      210      215      220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225      230      235      240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
      245      250      255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
      260      265      270
Thr Tyr Asp Phe Ile Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
      275      280      285
Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
      290      295      300
Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Glu Phe Asp His Gly
305      310      315      320
Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala
      325      330      335
Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu
      340      345      350
Ala Pro Arg Phe Glu Glu Arg Leu Lys His Ile Ala Glu Arg Pro Asn
      355      360      365
Ile Gly Glu Tyr Arg Gly Val Gly Phe Met Trp Ala Leu Glu Val Val
      370      375      380
Lys Asp Lys Ala Ser Lys Ala Pro Phe Asp Asp Asn Leu Ser Val Ser
385      390      395      400
Glu Arg Ile Ala Asn Thr Cys Thr Asp Leu Gly Leu Ile Cys Arg Pro

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				405					410					415			
Val	Asp	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala		
			420					425					430				
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val		
		435					440					445					
Phe	Ala	Glu	Val	Ala													
	450																

<210> 155
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 155
 atgaacaaac cgcagagctg ggaaacgcgt gcggaagagg tgagcctgta tgcctttacc 60
 cacatgccga gcctacgtca gcgtggcacc atggtggttaa cccatggcga aggcccgtat 120
 gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
 ggctatcatg cgttttacgg ccgtctgagc gatcagaccg tgatgctgtc ggaaaaactg 300
 gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tggtgaaaat gctgtggttc ctgcatcgtg cggaaggcaa accgcagaaa 420
 cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
 accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
 tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
 ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
 tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
 gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
 ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgag 840
 attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
 ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
 tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
 atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
 aaacatatcg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggag 1140
 ctggaagtgg tgaaagataa agcagcaaaa gcccgtttg atggcaacct gagcgtgagc 1200
 gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccggg tggccagagc 1260
 gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
 ctggaaaagg cgctggataa agtggtttgcg gaagtggcgt aa 1362

<210> 156
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 156
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
 1 5 10 15

Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val	
			20					25					30			
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Val	Val	Asp	Val	His	Gly	Arg	Arg	
		35					40					45				
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp	
	50					55					60					
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	
65					70					75					80	
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Arg	Leu	Ser	Asp	Gln	Thr	Val	Met	Leu	
			85						90					95		
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	
			100					105					110			
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu	
		115					120						125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu	
	130					135					140					
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	
145					150					155					160	
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	
			165						170					175		
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	
			180					185						190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	
		195					200					205				
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	
	210					215					220					
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	
225					230					235					240	
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	
			245						250					255		
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	
			260					265					270			
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	
		275					280						285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	
	290					295					300					
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly	
305					310					315					320	
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala	
			325						330					335		
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu	
			340					345					350			
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn	
		355					360					365				
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val	
	370					375					380					
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser	
385					390					395					400	
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro	
			405						410					415		
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala	
		420						425					430			
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val	
		435					440					445				

Phe Ala Glu Val Ala
450

<210> 157
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 157
atgaacaaac cgcagagctg ggaaacgcgt gcggaagcgg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggttaa cccatggcga aggcccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaat gctgtggttt ctgcatcgtg cgggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatt attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggg gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccattctgac caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
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ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccggg tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgag gaagtggcgt aa 1362

<210> 158
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 158
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1 5 10 15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20 25 30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35 40 45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp

50	55	60													
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135				140					
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280						285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340						345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370				375						380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
				405					410					415	
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 159
 atgaacaaac cgcagagctg ggaaacgcgt gcggaaactg tgagcctgta tgcctttacc 60
 cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga agggccgtat 120
 atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatgggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
 ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctggc ggaaaaactg 300
 gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tgggtgaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
 cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
 accggcctgg gctataacag caaatgtggc ctgccgtgc cgggctttct gcatctgacc 540
 tggccgcatt attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
 ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
 tttgcggaac cggatgatggc tgcgggcggt gttattacc cgccaaaagg ctattttcag 720
 gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
 ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
 attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
 ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
 tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
 atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
 aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
 ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
 gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgct gggccagagc 1260
 gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
 ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 160
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 160
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
 1 5 10 15
 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
 20 25 30
 Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
 35 40 45
 Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
 50 55 60
 His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
 65 70 75 80
 Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
 85 90 95

Ala	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe		
			100					105					110				
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu		
		115					120					125					
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu		
	130					135					140						
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met		
145					150					155					160		
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe		
			165					170						175			
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu		
		180						185					190				
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr		
		195					200					205					
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro		
	210					215					220						
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln		
225					230					235					240		
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp		
			245					250						255			
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val		
		260						265					270				
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr		
		275					280					285					
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser		
	290					295					300						
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly		
305					310					315					320		
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala		
			325					330						335			
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu		
		340						345					350				
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn		
		355					360					365					
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val		
	370				375						380						
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser		
385					390					395					400		
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro		
			405					410						415			
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala		
		420					425						430				
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val		
		435					440					445					
Phe	Ala	Glu	Val	Ala													
	450																

<210> 161

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 161

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atgaacaaac cgcagagctg ggaaacgcgt gcggaaaccg tgagcctgta tgcctttacc 60
cacatgccta gcctacgtca gcgtggcacc atgggtggtaa cccatggcga aggcccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgtgta gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtgggtt ctgcatcgtg cggaaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accgcgctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgag caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac tccggatgag 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaggaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggag 1140
ctggaagtgg tgaaagataa agcagcaaaa gcccgtttg atgataacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgtccggg cggtcagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcacaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgag gaagtggcgt aa 1362
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<210> 162

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 162

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20        25        30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35        40        45
Tyr Leu Asp Ala Cys Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
50        55        60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65        70        75        80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
85        90        95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
100       105       110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
115      120      125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
```

130		135		140	
Thr	Leu	Lys	Gln	Ala	Tyr
145		150		155	160
Thr	Ala	Leu	Gly	Tyr	Asn
		165		170	175
Leu	His	Leu	Thr	Cys	Pro
		180		185	190
Thr	Glu	Glu	Gln	Phe	Val
		195		200	205
Ile	Gln	Lys	Glu	Gly	Ala
210		215		220	
Val	Met	Ala	Ala	Gly	Gly
225		230		235	240
Ala	Ile	Leu	Thr	Ile	Leu
		245		250	255
Glu	Val	Ile	Cys	Gly	Phe
		260		265	270
Thr	Tyr	Asp	Phe	Thr	Pro
		275		280	285
Ala	Gly	Phe	Phe	Pro	Val
290		295		300	
Lys	Arg	Leu	Glu	Thr	Ala
305		310		315	320
Phe	Thr	Thr	Gly	Gly	His
		325		330	335
Ile	Asp	Val	Val	Met	Asn
		340		345	350
Ala	Pro	Arg	Phe	Glu	Glu
		355		360	365
Ile	Gly	Glu	Tyr	Arg	Gly
370		375		380	
Lys	Asp	Lys	Ala	Ser	Lys
385		390		395	400
Glu	Arg	Ile	Ala	Asn	Thr
		405		410	415
Val	Gly	Gln	Ser	Val	Val
		420		425	430
Gln	Met	Asp	Glu	Met	Phe
		435		440	445
Phe	Ala	Glu	Val	Ala	
450					

<210> 163

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 163

atgaacaaac cgcagagctg ggaaacgcgt gcggaagagg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggttaa cccatggcga aggcccgatat 120

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg ccgtctgagc gatcagaccg tgatgctgtc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatattggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccggtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccacctctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggcttttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcagcaaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccggg tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 164

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 164

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
        35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
        50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Arg Leu Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
        100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
        115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
        130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165          170          175

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Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
 180 185 190
 Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
 195 200 205
 Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
 210 215 220
 Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
 225 230 235 240
 Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
 245 250 255
 Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
 260 265 270
 Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
 275 280 285
 Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
 290 295 300
 Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Glu Phe Asp His Gly
 305 310 315 320
 Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala
 325 330 335
 Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu
 340 345 350
 Ala Pro Arg Phe Glu Glu Arg Leu Lys His Ile Ala Glu Arg Pro Asn
 355 360 365
 Ile Gly Glu Tyr Arg Gly Val Gly Phe Met Trp Ala Leu Glu Val Val
 370 375 380
 Lys Asp Lys Ala Ser Lys Ala Pro Phe Asp Gly Asn Leu Ser Val Ser
 385 390 395 400
 Glu Arg Ile Ala Asn Thr Cys Thr Asp Leu Gly Leu Ile Cys Ser Pro
 405 410 415
 Val Gly Gln Ser Val Val Leu Ala Pro Pro Tyr Ile Leu Thr Glu Ala
 420 425 430
 Gln Met Asp Glu Met Phe Asp Lys Leu Glu Lys Ala Leu Asp Lys Val
 435 440 445
 Phe Ala Glu Val Ala
 450

<210> 165

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 165

atgaacaaac cgcagagctg ggaaacgcgt gcggaaactg tgagcctgta tgcctttacc 60
 cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgtat 120
 atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctggt taacatgggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
 ggctatcatg cgttttacgg ccgtatgagc gatcagaccg tgatgctggc ggaaaaactg 300
 gtggaagtga gcccgtttga tagcgccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tggtgaaaat gctgtggtt ctgcatcgtg cggaaggcaa accgcagaaa 420

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cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggccccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcggggcggg gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgcatgac 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaactctt ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggac 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 166

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 166

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Arg Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165         170         175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180         185         190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195         200         205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro

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210	215	220
Val Met Ala Ala Gly	Gly Val Ile Thr Pro	Pro Lys Gly Tyr Phe Gln
225	230	235
Ala Ile Leu Thr Ile	Leu Arg Lys Tyr Asp	Ile Pro Val Ile Ser Asp
245	250	255
Glu Val Ile Cys Gly	Phe Gly Arg Thr Gly	Asn Thr Trp Gly Cys Val
260	265	270
Thr Tyr Asp Phe Thr	Pro Asp Ala Ile Ile	Ser Ser Lys Asn Leu Thr
275	280	285
Ala Gly Phe Phe Pro	Val Gly Ala Val Ile	Leu Gly Pro Glu Leu Ser
290	295	300
Lys Arg Leu Glu Thr	Ala Ile Glu Ala Ile	Glu Glu Phe Asp His Gly
305	310	315
Phe Thr Thr Gly Gly	His Pro Val Gly Cys	Ala Ile Ala Leu Lys Ala
325	330	335
Ile Asp Val Val Met	Asn Glu Gly Leu Ala	Glu Asn Val Arg Arg Leu
340	345	350
Ala Pro Arg Phe Glu	Glu Arg Leu Lys His	Ile Ala Glu Arg Pro Asn
355	360	365
Ile Gly Glu Tyr Arg	Gly Val Gly Phe Met	Trp Ala Leu Glu Val Val
370	375	380
Lys Asp Lys Ala Ser	Lys Ala Pro Phe Asp	Gly Asn Leu Ser Val Ser
385	390	395
Glu Arg Ile Ala Asn	Thr Cys Thr Asp Leu	Gly Leu Ile Cys Ser Pro
405	410	415
Ile Gly Gln Ser Val	Val Leu Ala Pro Pro	Tyr Ile Leu Thr Glu Ala
420	425	430
Gln Met Asp Glu Met	Phe Asp Lys Leu Glu	Met Ala Leu Asp Lys Val
435	440	445
Phe Ala Glu Val Ala		
450		

<210> 167

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 167

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctggt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
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gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
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cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accgcgctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccggt aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattacc cgcctaaagg ctattttcag 720

```

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gcgattctga ccatacctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
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ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaggaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
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gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
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<210> 168

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 168

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Ala Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195          200          205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
210          215          220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225          230          235          240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
          245          250          255

```


Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
 260 265 270
 Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
 275 280 285
 Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
 290 295 300
 Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Glu Phe Asp His Gly
 305 310 315 320
 Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala
 325 330 335
 Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu
 340 345 350
 Ala Pro Arg Phe Glu Glu Arg Leu Lys His Ile Ala Glu Arg Pro Asn
 355 360 365
 Ile Gly Glu Tyr Arg Gly Val Gly Phe Met Trp Ala Leu Glu Val Val
 370 375 380
 Lys Asp Lys Ala Ser Lys Ala Pro Phe Asp Asp Asn Leu Ser Val Ser
 385 390 395 400
 Glu Arg Ile Ala Asn Thr Cys Thr Asp Leu Gly Leu Ile Cys Ala Pro
 405 410 415
 Val Gly Gln Ser Val Val Leu Ala Pro Pro Tyr Ile Leu Thr Glu Ala
 420 425 430
 Gln Met Asp Glu Met Phe Asp Lys Leu Glu Lys Ala Leu Asp Lys Val
 435 440 445
 Phe Ala Glu Val Ala
 450

<210> 169

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 169

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 atcgtggatg tgcattggcc tcgttatctg gatgcgaaca gcggcctgta taacatgggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
 ggctatcatg cgttttacgg ccgtatgagc gatcagaccg tgatgctggc ggaaaaactg 300
 gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
 cgtaaaattc tgacctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
 accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
 tccccgcatt attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
 ctggccccgtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
 tttgcggaac cggatgatggc tgcgggcggt gttattacc cgcctaaaagg ctattttcag 720
 gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
 ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgacg 840
 attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
 ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
 tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020

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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccggg tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 170

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 170

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Tyr Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Arg Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115          120          125
Trp Tyr Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195          200          205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
          210          215          220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225          230          235          240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
          245          250          255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
          260          265          270
Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
          275          280          285
Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser

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290		295		300
Lys Arg Leu Glu Thr	Ala Ile Glu Ala Ile Glu	Glu Phe Asp His Gly		
305	310	315	320	
Phe Thr Thr Gly Gly	His Pro Val Gly Cys Ala	Ile Ala Leu Lys Ala		
	325	330	335	
Ile Asp Val Val Met	Asn Glu Gly Leu Ala Glu	Asn Val Arg Arg Leu		
	340	345	350	
Ala Pro Arg Phe Glu Glu	Arg Leu Lys His Ile	Ala Glu Arg Pro Asn		
	355	360	365	
Ile Gly Glu Tyr Arg Gly	Val Gly Phe Met Trp	Ala Leu Glu Val Val		
	370	375	380	
Lys Asp Lys Ala Ser	Lys Ala Pro Phe Asp Gly	Asn Leu Ser Val Ser		
385	390	395	400	
Glu Arg Ile Ala Asn Thr	Cys Thr Asp Leu Gly	Leu Ile Cys Arg Pro		
	405	410	415	
Val Gly Gln Ser Val Val	Leu Ala Pro Pro Tyr	Ile Leu Thr Glu Ala		
	420	425	430	
Gln Met Asp Glu Met Phe	Asp Lys Leu Glu Lys	Ala Leu Asp Lys Val		
	435	440	445	
Phe Ala Glu Val Ala				
450				

<210> 171

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 171

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggg gttattatcc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgtccggg cggtcagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcacaga tggatgaaat gttcgataaa 1320

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ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa

1362

<210> 172

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 172

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu
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Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val
			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Ile	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280						285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Gly	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	

Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
			405					410						415	
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
			450												

<210> 173

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 173

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gtcgtggatg tgcattggcc tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccggg tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 174

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 174

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Glu	Val	Ser	Leu
1				5					10					15	
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val
			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Val	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55				60					
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70				75						80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135				140					
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150				155						160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280						285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val

370		375		380
Lys Asp Lys Ala Ser	Lys Ala Pro Phe Asp Gly	Asn Leu Ser Val Ser		
385	390	395	400	
Glu Arg Ile Ala Asn Thr	Cys Thr Asp Leu Gly	Leu Ile Cys Arg Pro		
	405	410	415	
Val Gly Gln Ser Val Val	Leu Ala Pro Pro Tyr	Ile Leu Thr Glu Ala		
	420	425	430	
Gln Met Asp Glu Met Phe	Asp Lys Leu Glu Lys	Ala Leu Asp Lys Val		
	435	440	445	
Phe Ala Glu Val Ala				
450				

<210> 175
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 175

atgaacaaac	cgcagagctg	ggaaacgcgt	gcggaagagg	tgagcctgta	tgccctttacc	60
cacatgccga	gcctacgtca	gcgtggcacc	atggtggtaa	cccatggcga	aggcccgtat	120
atcgtggatg	tgcatggccg	tcgttatctg	gatgcgaaca	gcggcctgta	taacatgggtg	180
gcgggctttg	atcataaagg	cctgattgat	gcggcgaaag	cgcagtatga	acgtttttccg	240
ggctatcatg	cgttttacgg	ccgtatgagc	gatcagaccg	tgatgctggc	ggaaaaactg	300
gtggaagtga	gcccgtttga	tagcggccgt	gtgtttgtga	ccaacagcgg	cagcgaagcg	360
aacgaaacca	tggtgaaaat	gctgtggttc	ctgcatcgtg	cggaaggcaa	accgcagaaa	420
cgtaaaattc	tgaccctgaa	gcaggcgtat	catggctcca	ccgcggtgag	cgcgagcatg	480
accggcctgg	gctataacag	caaatttggc	ctgccgctgc	cgggctttct	gcatctgacc	540
tgcccgcat	attggcgtaa	tggcgaagaa	ggcgaaaccg	aagaacagtt	tgtcgcgcgt	600
ctggcccgtg	aactggaaga	aaccattcag	aaggaaggcg	cggataccat	tgcgggcttt	660
tttgcggaac	cggtgatggc	tgcgggcggt	gttattaccc	cgccaaaagg	ctattttcag	720
gcgattctga	ccatcctgcg	caaatatgat	attccggtga	tcagcgatga	agtgatttgc	780
ggctttggtc	gtaccggcaa	cacctggggc	tgctgacact	atgattttac	cccggatgcg	840
attattagca	gtaaaaacct	aaccgcgggt	ttttttccag	taggagcggg	gattttgggg	900
ccggaactga	gcaaacgtct	ggaaaccgcg	attgaagcga	tcgaagaatt	tgatcatggt	960
tttaccacag	gcggccatcc	ggtgggttgt	gcgattgcgc	tgaaagcgat	tgatgtgggtg	1020
atgaacgaag	gcctggccga	aaacgtgcgt	cgtctggccc	cgcgttttga	agaacgtctg	1080
aaacatattg	cggaacgtcc	gaacattggc	gaatatcgtg	gtgtgggctt	tatgtgggcg	1140
ctggaagtgg	tgaaagataa	agcgagcaaa	gccccgtttg	atggcaacct	gagcgtgagc	1200
gaacgtattg	cgaacacctg	caccgatctg	ggactgattt	gcagcccgt	gggccagagc	1260
gtggttctgg	caccgccgta	cattctgacc	gaagcgcaga	tggaatgaaat	gttcgataaa	1320
ctggaaatgg	cgctggataa	agtgtttgcg	gaagtggcgt	aa		1362

<210> 176
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 176

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Glu	Val	Ser	Leu
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Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val
			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Tyr	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55				60					
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70				75						80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Arg	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ala	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
				405					410					415	

Leu Gly Gln Ser Val Val Leu Ala Pro Pro Tyr Ile Leu Thr Glu Ala
 420 425 430
 Gln Met Asp Glu Met Phe Asp Lys Leu Glu Met Ala Leu Asp Lys Val
 435 440 445
 Phe Ala Glu Val Ala
 450

<210> 177
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 177
 atgaacaaac cgcagagctg ggaaacgcgt gcggaaactg tgagcctgta tgcctttacc 60
 cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgtat 120
 atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatgggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
 ggctatcatg cgttttacgg ccgtatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
 gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tggtgaaaat gctgtggttc ctgcatcgtg cggaaggcaa accgcagaaa 420
 cgtaaaattc tgaccctgaa gggggcgtat catggctcca ccgcggtgag cgcgagcatg 480
 accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcattctgacc 540
 tgcccgcatt attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
 ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
 tttgcggaac cggatgatggc tgcgggcggg gttattaccg cgccaaaagg ctattttcag 720
 gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
 ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgctg 840
 attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gatatttggg 900
 ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
 tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
 atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
 aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggctg 1140
 ctggaagtgg tgaaagataa agcagcaaaa gccccgtttg atggcaacct gagcgtgagc 1200
 gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccggt tggccagagc 1260
 gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
 ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 178
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 178
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
 1 5 10 15
 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val

			20					25					30				
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg		
		35					40					45					
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp		
	50					55					60						
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro		
65					70					75					80		
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Arg	Met	Ser	Asp	Gln	Thr	Val	Met	Leu		
				85						90				95			
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe		
			100					105					110				
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu		
		115					120					125					
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu		
	130					135					140						
Thr	Leu	Lys	Gly	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met		
145					150					155					160		
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe		
				165					170					175			
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu		
			180					185					190				
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr		
		195					200					205					
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro		
	210					215					220						
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln		
225					230					235					240		
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp		
				245					250					255			
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val		
			260					265					270				
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr		
		275					280					285					
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser		
		290				295					300						
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly		
305					310					315					320		
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala		
				325					330					335			
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu		
			340					345					350				
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn		
		355					360					365					
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val		
		370				375					380						

<210> 179
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 179
 atgaacaaac cgcagagctg ggaaacgcgt gcggaagcgg tgagcctgta tgcctttacc 60
 cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgat 120
 atcgtggatg tgcatggccg tcgttatctg gatgcgaaca gcggcctgtt taacatgggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
 ggctatcatg cgttttacgg ccgtatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
 gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tggtgaaaat gctgtggttc ctgcatcgtg cggaaggcaa accgcagaaa 420
 cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
 accggcctgg gctataacag caaatgtggc ctgccgtgc cgggctttct gcatctgacc 540
 tgcccgcatc attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
 ctggcccgtg aactggaaga aaccattcag aaggaaggcg cgataccat tgcgggcttt 660
 tttgcggaac cggatgatggc tgcgggcggg gttattaccg cgccaaaagg ctattttcag 720
 gcgattctga ccacctctgc caaatatgat attccggtga tcagcagatga agtgatttgc 780
 ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgacg 840
 attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gatatttgggg 900
 ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
 tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtgggtg 1020
 atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
 aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
 ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
 gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgtt gggccagagc 1260
 gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
 ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 180
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 180
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
 1 5 10 15
 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
 20 25 30
 Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
 35 40 45
 Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
 50 55 60

His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	65	70	75	80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Arg	Met	Ser	Asp	Gln	Thr	Val	Met	Leu	85	90	95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	100	105	110	
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu	115	120	125	
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu	130	135	140	
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	145	150	155	160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	165	170	175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	180	185	190	
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	195	200	205	
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	210	215	220	
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	225	230	235	240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	245	250	255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	260	265	270	
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	275	280	285	
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	290	295	300	
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly	305	310	315	320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala	325	330	335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu	340	345	350	
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn	355	360	365	
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val	370	375	380	
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser	385	390	395	400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro	405	410	415	
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala	420	425	430	
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val	435	440	445	
Phe	Ala	Glu	Val	Ala												450			

<210> 181

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 181

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gtcgtggatg tgcatggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatTTggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgcatc attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccggtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
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ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
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aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgct gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362
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<210> 182

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 182

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20          25          30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
```


<400> 183

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atgaacaaac cgcagagctg ggaaacgcgt gcggaaactg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atgggtggtaa cccatggcga aggcccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttc ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgacctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgag 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacataatt cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggag 1140
ctggaagtgg tgaaagataa agcagagcaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccggg tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgag gaagtggcgt aa 1362
```

<210> 184

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 184

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
130         135         140
```

Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280						285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325					330						335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
			405					410						415	
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Met	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 185

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 185

atgaacaaac cgcagagctg ggaaacgcgt gcggaaaccg tgagcctgta tgcctttacc 60
cacatgaaga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgat 120
atcgtggatg tgcatggccg tcgttatctg gatgcgtgta gcggcctgtt caacatggtg 180


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gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgtttttccg 240
ggctatcatg cgtttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accgggctgg gctataacag caaatattggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatg attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggg gttattaccg cgccaaaagg ctatttttcag 720
gcgattctga ccacctctgc caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggcttttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attatttagc gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcggggaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgtccggg cgatcagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcacaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

```

<210> 186

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 186

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Lys Ser Leu Arg Gln Arg Gly Thr Met Val
          20           25           30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
        35           40           45
Tyr Leu Asp Ala Cys Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
        50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85           90           95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
        100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
        115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
        130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
        165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu

```



```

accggcctgg gctataacag caaatTTggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcat attggcgta tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccggt aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggt gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccgct gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362

```

<210> 188

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 188

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20           25           30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
        35           40           45
Tyr Leu Asp Ala Asn Ser Gly Leu Tyr Asn Met Val Ala Gly Phe Asp
        50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Arg Met Ser Asp Gln Thr Val Met Leu
          85           90           95
Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
        100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
        115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
        130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
        165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
        180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
        195          200          205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
        210          215          220

```

Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
				405				410						415	
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 189

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 189

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atgaacaaac cgcagagctg ggaaacgcgt gcggaaaccg tgagcctgta tgcctttacc 60
cacatgccta gcctacgtca gcgtggcacc atggtggttaa cccatggcga aggcccgat 120
atcgtggatg tgcattggcc tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accgcgctgg gctataacag caaatttggc ctgccgtgcg cgggctttct gcatctgacc 540
tgcccgcatt attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cgataccat tgcgggcttt 660
tttgcggaac cggatgaggc tgcgggcggg gttattatcc cgccaaaagg ctattttcag 720
gcgattctga ccacctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780

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ggcttttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attatttagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaactgtc ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaactctg 1080
aaacataatt cggaactgcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggtaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcgcgccggg cggtcagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

```

<210> 190

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 190

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Ala Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195          200          205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
          210          215          220
Val Met Ala Ala Gly Gly Val Ile Ile Pro Pro Lys Gly Tyr Phe Gln
225          230          235          240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
          245          250          255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val

```



```

aaacatatg cggaaagtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccggg tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362

```

<210> 192

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 192

```

Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
1      5      10      15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
      20      25      30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
      35      40      45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
      50      55      60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65      70      75      80
Gly Tyr His Ala Phe Tyr Gly Leu Leu Ser Asp Gln Thr Val Met Leu
      85      90      95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
      100     105     110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
      115     120     125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
      130     135     140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145     150     155     160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
      165     170     175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
      180     185     190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
      195     200     205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
      210     215     220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225     230     235     240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
      245     250     255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
      260     265     270
Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
      275     280     285
Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
      290     295     300

```

Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325					330						335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340					345						350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
	355					360					365				
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
370					375						380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385				390					395						400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
			405					410						415	
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420					425						430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
	435					440						445			
Phe	Ala	Glu	Val	Ala											
450															

<210> 193

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 193

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atgaacaaac cgcagagctg ggaaacgcgt gcggaaactg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggccgtat 120
gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcattctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggg gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gatgtttggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaactctg 1080
aaacatatgt cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtggg 1140
ctggaagtgg tgaaagataa agcgagcaaa gcccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 194
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 194
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
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 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
 20 25 30
 Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
 35 40 45
 Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
 50 55 60
 His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
 65 70 75 80
 Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
 85 90 95
 Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
 100 105 110
 Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
 115 120 125
 Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
 130 135 140
 Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
 145 150 155 160
 Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
 165 170 175
 Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
 180 185 190
 Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
 195 200 205
 Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
 210 215 220
 Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
 225 230 235 240
 Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
 245 250 255
 Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
 260 265 270
 Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
 275 280 285
 Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
 290 295 300
 Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Glu Phe Asp His Gly
 305 310 315 320
 Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala
 325 330 335
 Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 196

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu
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Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val
			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Cys	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120						125		
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
	195						200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Ile	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280						285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
	355						360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				

Lys Asp Lys Ala Ser Lys Ala Pro Phe Asp Asp Asn Leu Ser Val Ser
 385 390 395 400
 Glu Arg Ile Ala Asn Thr Cys Thr Asp Leu Gly Leu Ile Cys Arg Pro
 405 410 415
 Val Asp Gln Ser Val Val Leu Ala Pro Pro Tyr Ile Leu Thr Glu Ala
 420 425 430
 Gln Met Asp Glu Met Phe Asp Lys Leu Glu Lys Ala Leu Asp Lys Val
 435 440 445
 Phe Ala Glu Val Ala
 450

<210> 197
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 197
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 cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgtat 120
 gtcgtggatg tgcatggccg tcgttatctg gatgcgaaca gcggcctgtt taacatggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
 ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
 gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tgggtgaaaat gctgtggttc ctgcatcgtg cggaaggcaa accgcagaaa 420
 cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
 accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
 tgcccgcatc attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
 ctggcccgtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
 tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
 gcgattctga ccacctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
 ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
 attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
 ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
 tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
 atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
 aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
 ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
 gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
 gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
 ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 198
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 198

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu
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Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val
			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Val	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70				75						80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
		180					185					190			
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260					265						270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310				315						320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340					345						350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
				405					410					415	
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala

<400> 200
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1 5 10 15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20 25 30

Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Ile	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260				265						270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275				280						285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Gly	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala</									

<210> 201
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 201
atgaacaaac cgcagagctg ggaaacgcgt gcggaagcgg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggttaa cccatggcga aggcccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg ccgtatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatt attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggg gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccacctctgc caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgcatgac 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcagcaaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 202
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 202
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1 5 10 15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20 25 30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35 40 45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
50 55 60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro

65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Arg	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Tyr	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
	195						200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370				375					380					
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390				395						400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
				405					410					415	
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420				425						430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Met	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
															450

<210> 203

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 203

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgta taacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgagtatga acgttttccg 240
ggctatcatg cgtttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtgggtt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatattggc ctgccgtgc cggtctttct gcatctgacc 540
tgcccgcatc attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccggtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccacctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtgggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gcccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccggt tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362
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<210> 204

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 204

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
        35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Tyr Asn Met Val Ala Gly Phe Asp
        50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
        100        105        110
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Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
			165						170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
		180						185				190			
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
	195						200				205				
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
			245						250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260						265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
	275						280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325						330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340						345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
	355						360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
			405						410					415	
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420						425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 205

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 205

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cacatgccga gcctacgtca gcgtggcacc atgggtggtaa cccatggcga aggcccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgta taacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg ccgtctgagc gatcagaccg tgatgctgtc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362
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<210> 206

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 206

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
        35        40        45
Tyr Leu Asp Ala Asn Ser Gly Leu Tyr Asn Met Val Ala Gly Phe Asp
        50        55        60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Arg Leu Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
        100        105        110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
        115        120        125
Trp Tyr Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
        130        135        140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
```

145					150					155				160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly
				165					170					175
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly
			180					185					190	
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu
		195					200				205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu
	210					215				220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe
225					230				235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser
			245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys
			260				265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu
	275					280						285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu
	290					295				300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His
305					310				315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys
			325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg
		340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro
	355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val
	370				375				380					
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val
385				390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser
			405				410					415		
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu
		420				425					430			
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Met	Ala	Leu	Asp	Lys
	435					440					445			
Phe	Ala	Glu	Val	Ala										
	450													

<210> 207

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 207

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cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgtat 120
gtcgtggatg tgcatggccg tcgttatctg gatgcgaaca gcggcctgta taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgagtatga acgttttccg 240

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ggctatcatg cgttttacgg cctgctgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttc ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatg attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggg gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
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ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
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aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccggg tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 208

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 208

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Tyr Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Leu Ser Asp Gln Thr Val Met Leu
          85          90          95
Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180          185          190

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Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
	195						200				205				
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225				230					235						240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
			245					250						255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260					265					270			
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
	275					280						285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325					330						335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340					345						350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
	355					360						365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370				375					380					
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390				395						400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
			405				410						415		
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420				425						430			
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
	435					440						445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 209

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 209

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgacctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caatttggc ctgccgtgc cgggctttct gcatctgacc 540

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tgccgcatt attggcgta tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtag aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcggggcggg gttattaccc cgccaaaagg ctattttcag 720
gcgatttctga ccacacctgcg caaatatgat attccggatga tcagcgatga agtgatttgc 780
ggctttgggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attattagca gtaaaaacct aaccgcgggt ttttttcag taggagcggg gattttgggg 900
ccggaactga gcaaactct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaactctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgct gggccagagc 1260
gtggttctgg caccgccgta cattctgact gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 210

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 210

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20           25           30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
        35           40           45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
        50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85           90           95
Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
        100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
        115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
        130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
        180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
        195          200          205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
        210          215          220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln

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225					230					235				240	
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310				315					320	
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325					330					335		
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340					345					350			
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
	355					360					365				
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370				375					380					
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385				390					395					400	
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
			405					410				415			
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420					425				430				
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
	435					440					445				
Phe	Ala	Glu	Val	Ala											
	450														

<210> 211

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 211

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atgaacaaac cgcagagctg ggaaacgcgt gcggaagagg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgctgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgcatt attggcgtaa tggcgaagaa ggcgaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggtgatggc tgcgggcggt gttattacc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840

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attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccggg tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362

```

<210> 212

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 212

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20        25        30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35        40        45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
50        55        60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65        70        75        80
Gly Tyr His Ala Phe Tyr Gly Leu Leu Ser Asp Gln Thr Val Met Leu
85        90        95
Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
100       105       110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
115       120       125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
130       135       140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145       150       155       160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
165       170       175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
180       185       190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
195       200       205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
210       215       220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225       230       235       240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
245       250       255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
260       265       270

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Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325					330						335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340					345						350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
			405					410						415	
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420					425						430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 213

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 213

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cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga agggccgtat 120
gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttc ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
tgccgcatt attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgat aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattacc cgcctaaagg ctattttcag 720
gcgattctga ccattctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgctg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gatatttggg 900
ccggaactga gcaaactct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaactctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140

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ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccggg tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 214
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 214

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu	1	5	10	15
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val	20	25	30	
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Val	Val	Asp	Val	His	Gly	Arg	Arg	35	40	45	
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp	50	55	60	
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	65	70	75	80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu	85	90	95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	100	105	110	
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu	115	120	125	
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu	130	135	140	
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	145	150	155	160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	165	170	175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	180	185	190	
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	195	200	205	
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	210	215	220	
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	225	230	235	240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	245	250	255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	260	265	270	
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	275	280	285	
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	290	295	300	
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly				

305		310		315		320
Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala						
	325		330		335	
Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu						
	340		345		350	
Ala Pro Arg Phe Glu Glu Arg Leu Lys His Ile Ala Glu Arg Pro Asn						
	355		360		365	
Ile Gly Glu Tyr Arg Gly Val Gly Phe Met Trp Ala Leu Glu Val Val						
	370		375		380	
Lys Asp Lys Ala Ser Lys Ala Pro Phe Asp Gly Asn Leu Ser Val Ser						
385	390		395		400	
Glu Arg Ile Ala Asn Thr Cys Thr Asp Leu Gly Leu Ile Cys Arg Pro						
	405		410		415	
Val Gly Gln Ser Val Val Leu Ala Pro Pro Tyr Ile Leu Thr Glu Ala						
	420		425		430	
Gln Met Asp Glu Met Phe Asp Lys Leu Glu Lys Ala Leu Asp Lys Val						
	435		440		445	
Phe Ala Glu Val Ala						
450						

<210> 215

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 215

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atgaacaaac cgcagagctg ggaaacgcgt gcggaaccg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggttaa cccatggcga aggcccgat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgacctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accgggctgg gctataacag caaatgtggc ctgccgtgc cgggctttct gcattctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgcaaaaagg ctattttcag 720
gcgattctga ccattcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttat tccggatgcg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaggaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gcccgtttg atgataacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcgcgccgct ggatcagagc 1260
gtggttctgg caccgccgta cattctgacc gaagtacaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 216
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 216
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
 1 5 10 15
 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
 20 25 30
 Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
 35 40 45
 Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
 50 55 60
 His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
 65 70 75 80
 Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
 85 90 95
 Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
 100 105 110
 Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
 115 120 125
 Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
 130 135 140
 Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
 145 150 155 160
 Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
 165 170 175
 Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
 180 185 190
 Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
 195 200 205
 Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
 210 215 220
 Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
 225 230 235 240
 Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
 245 250 255
 Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
 260 265 270
 Thr Tyr Asp Phe Ile Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
 275 280 285
 Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
 290 295 300
 Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Glu Phe Asp His Gly
 305 310 315 320
 Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala
 325 330 335
 Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu
 340 345 350

Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Asp	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ala	Pro
			405					410						415	
Leu	Asp	Gln	Ser	Val	Val	Leu	Ala	Pro	Tyr	Ile	Leu	Thr	Glu	Val	
		420						425				430			
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 217

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 217

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cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgtat 120
atcgtggatg tgcattggcc tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
tgccgcatt attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgagc tgcgggcggg gttattacc cgcctaaagg ctattttcag 720
gcgattctga ccattcctgc caaatatgat attccggtga tcagcgtatg agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccggg tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 218

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 218

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu
1				5					10					15	
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val
			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70				75						80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
			85						90					95	
Ala	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135				140					
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150				155						160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260					265					270			
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310				315						320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser

385		390		395		400
Glu Arg Ile Ala Asn Thr Cys Thr Asp Leu Gly Leu Ile Cys Ser Pro						
	405		410		415	
Val Gly Gln Ser Val Val Leu Ala Pro Pro Tyr Ile Leu Thr Glu Ala						
	420		425		430	
Gln Met Asp Glu Met Phe Asp Lys Leu Glu Lys Ala Leu Asp Lys Val						
	435		440		445	
Phe Ala Glu Val Ala						
450						

<210> 219
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 219

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cacatgccga	gcctacgtca	gcgtggcacc	atggtggtaa	cccatggcga	aggcccgtat	120
atcgtggatg	tgcatggccg	tcgttatctg	gatgcgaaca	gcggcctgtt	caacatgggtg	180
gcgggctttg	atcataaagg	cctgattgat	gcggcgaaag	cgagtatga	acgttttccg	240
ggctatcatg	cgttttacgg	cctgatgagc	gatcagaccg	tgatgctgtc	tgaaaaactg	300
gtggaagtga	gcccgtttga	tagcggccgt	gtgtttgtga	ccaacagcgg	cagcgaagcg	360
aacgaaacca	tggtgaaaat	gctgtggttt	ctgcatcgtg	cggaaggcaa	accgcagaaa	420
cgtaaaattc	tgaccctgaa	gcaggcgtat	catggctcca	ccgcggtgag	cgcgagcatg	480
accggcctgg	gctataacag	caaatttggc	ctgccgctgc	cgggctttct	gcatctgacc	540
tgcccgcat	attggcgcta	tggcgaagaa	ggcgaaaccg	aagaacagtt	tgtcgcgcgt	600
ctggcccgtg	aactggaaga	aaccattcag	aaggaaggcg	cggataccat	tgcgggcttt	660
tttgcggaac	cggtgatggc	tgcgggcggt	gttattacc	cgccaaaagg	ctattttcag	720
gcgattctga	ccatcctgcg	caaatatgat	attccggtga	tcagcgatga	agtgatttgc	780
ggctttggtc	gtaccggcaa	cacctggggc	tgctgac	atgattttac	cccggatgcg	840
attattagca	gtaaaaacct	aaccgcgggt	ttttttccag	taggagcggt	gattttgggg	900
ccggaactga	gcaaacgtct	ggaaaccgcg	attgaagcga	tcgaagaatt	tgatcatggt	960
tttaccacag	gcggccatcc	ggtgggttgt	gcgattgcgc	tgaaagcgat	tgatgtgggtg	1020
atgaacgaag	gcctggccga	aaacgtgcgt	cgtctggccc	cgctttttga	agaacgtctg	1080
aaacatattg	cggaacgtcc	gaacattggc	gaatatcgtg	gtgtgggctt	tatgtggg	1140
ctggaagtgg	tgaaagataa	agcgagcaaa	gccccgtttg	atggcaacct	gagcgtgagc	1200
gaacgtattg	cgaacacctg	caccgatctg	ggactgattt	gccgcccgat	tgccagagc	1260
gtggttctgg	caccgccgta	cattctgacc	gaagcgcaga	tgatgaaat	gttcgataaa	1320
ctggaaaaag	cgctggataa	agtgtttgcg	gaagtggcgt	aa		1362

<210> 220
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 220

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Glu	Val	Ser	Leu	1	5	10	15
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val	20	25	30	
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg	35	40	45	
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp	50	55	60	
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	65	70	75	80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu	85	90	95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	100	105	110	
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu	115	120	125	
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu	130	135	140	
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	145	150	155	160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	165	170	175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	180	185	190	
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	195	200	205	
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	210	215	220	
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	225	230	235	240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	245	250	255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	260	265	270	
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	275	280	285	
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	290	295	300	
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly	305	310	315	320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala	325	330	335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu	340	345	350	
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn	355	360	365	
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val	370	375	380	
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser	385	390	395	400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro	405	410	415	
Ile	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Tyr	Ile	Leu	Thr	Glu	Ala	420	425	430		

Gln Met Asp Glu Met Phe Asp Lys Leu Glu Lys Ala Leu Asp Lys Val
435 440 445
Phe Ala Glu Val Ala
450

<210> 221
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 221
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cacatgccga gcctacgtca gcgtggcacc atgggtggtaa cccatggcga agggccgtat 120
gtcgtggatg tgcattggcg tcgttatctg gatgcgaaca gcggcctgta taacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttcag taggagcggg gatatttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 222
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 222
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1 5 10 15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20 25 30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg

		35					40				45				
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Tyr	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260					265					270			
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390		</								

<210> 223
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 223
atgaacaaac cgcagagctg ggaaacgcgt gcggaaactg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggttaa cccatggcga aggcccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgta taacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gggggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccattctgcg caaatatgat attccggtga tcagcagatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgcatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcagcaaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 224
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 224
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1 5 10 15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20 25 30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35 40 45
Tyr Leu Asp Ala Asn Ser Gly Leu Tyr Asn Met Val Ala Gly Phe Asp
50 55 60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65 70 75 80

Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
			85						90					95	
Ala	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Tyr	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gly	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
				405					410					415	
Ile	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Met	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
			450												

<210> 225

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 225

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gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgta taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg ccgtatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatg attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccattctgag caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagca gtaaaaacct aaccgcgggt tttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcagcaaaa gcccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccggg tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgag gaagtggcgt aa 1362
```

<210> 226

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 226

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Tyr Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Arg Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
```



```

atgaacaaac cgcagagctg ggaaacgcgt gcggaaactg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga agggccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg tctgatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcattctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
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attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaatggc cgctggataa agtgtttgcg gaagtggcgt aa 1362

```

<210> 228

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 228

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160

```

Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	
				165					170					175		
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	
			180					185						190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	
		195					200						205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	
	210					215					220					
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	
	225				230					235					240	
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	
				245					250					255		
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	
			260					265					270			
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	
		275					280						285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	
	290					295					300					
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly	
	305				310					315					320	
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala	
				325					330					335		
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu	
			340					345					350			
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn	
		355					360						365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val	
	370					375					380					
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser	
	385				390					395					400	
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro	
				405					410					415		
Ile	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala	
			420					425					430			
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Met	Ala	Leu	Asp	Lys	Val	
	435						440					445				
Phe	Ala	Glu	Val	Ala												
	450															

<210> 229

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 229

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cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga agggccgtat 120
gtcgtggatg tgcatggccg tcgttatctg gatgcgaaca gcggcctgta taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc ggaaaaactg 300

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gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggatgaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggg gttattaccg cgccaaaagg ctattttcag 720
gcatctctga ccacctctgc caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcatgtgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362

```

<210> 230

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 230

```

Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Tyr Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165         170         175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180         185         190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr

```



```

ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggtgatggc tgcgggcggt gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccacctgctg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attattagca gtaaaaacct aaccgcggtt tttttccag taggagcggt gattttgggg 900
ccggaactga gcaaactgtt ggaaaccgct attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
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aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcagcaaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

```

<210> 232

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 232

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
1      5      10      15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
      20      25      30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
      35      40      45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
      50      55      60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
      65      70      75      80
Gly Tyr His Ala Phe Tyr Gly Arg Leu Ser Asp Gln Thr Val Met Leu
      85      90      95
Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
      100     105     110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
      115     120     125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
      130     135     140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
      145     150     155     160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
      165     170     175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
      180     185     190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
      195     200     205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
      210     215     220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
      225     230     235     240

```



```

ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
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gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccggg tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

```

<210> 234

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 234

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20           25           30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
          35           40           45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85           90           95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195          200          205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
210          215          220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225          230          235          240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
          245          250          255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
          260          265          270
Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr

```

	275		280		285										
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325						330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340						345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
	355						360				365				
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
370					375						380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
			405						410					415	
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420						425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 235

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 235

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatggtg 180
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gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggg gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccattctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
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aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggag 1140
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gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgct gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 236

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 236

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1      5      10      15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
      20      25      30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
      35      40      45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
      50      55      60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
      65      70      75      80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
      85      90      95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
      100     105     110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
      115     120     125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
      130     135     140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
      145     150     155     160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
      165     170     175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
      180     185     190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
      195     200     205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
      210     215     220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
      225     230     235     240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
      245     250     255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
      260     265     270
Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
      275     280     285
Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
      290     295     300
Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Phe Asp His Gly
      305     310     315     320

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Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390				395						400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
			405					410					415		
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420				425						430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Met	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 237

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 237

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atcgtggatg tgcattggcc tcgttatctg gatgcgaaca gcggcctgtt taacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgtttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtgggtt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgacctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aagggaaggc cgataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattacc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgctg 840
attattagca gtaaaaacct aaccgcgggt ttttttcag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
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gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtggtttgcg gaagtggcgt aa 1362

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<210> 238
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 238
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
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 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
 20 25 30
 Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
 35 40 45
 Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
 50 55 60
 His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
 65 70 75 80
 Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
 85 90 95
 Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
 100 105 110
 Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
 115 120 125
 Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
 130 135 140
 Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
 145 150 155 160
 Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
 165 170 175
 Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
 180 185 190
 Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
 195 200 205
 Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
 210 215 220
 Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
 225 230 235 240
 Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
 245 250 255
 Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
 260 265 270
 Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
 275 280 285
 Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
 290 295 300
 Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Glu Phe Asp His Gly
 305 310 315 320
 Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala
 325 330 335
 Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu
 340 345 350
 Ala Pro Arg Phe Glu Glu Arg Leu Lys His Ile Ala Glu Arg Pro Asn

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 240

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Ala	Val	Ser	Leu
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Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val
			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Val	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Tyr	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55				60					
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70				75						80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
			85						90					95	
Ala	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Tyr	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135				140					
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260					265						270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275				280						285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325						330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400

Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
				405					410					415	
Ile	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Met	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
				450											

<210> 241
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 241

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cacatgccta	gcctacgtca	gctgtggcacc	atggtggtaa	cccatggcga	aggcccgtat	120
atcgtggatg	tgcatggccg	tcgttatctg	gatgcgaaca	gcggcctgtt	caacatgggtg	180
gcgggctttg	atcataaagg	cctgattgat	gcggcgaaag	cgagtatga	acgttttccg	240
ggctatcatg	cgttttacgg	cctgatgagc	gatcagaccg	tgatgctgtc	tgaaaaactg	300
gtggaagtga	gcccgtttga	tagcggccgt	gtgtttgtga	ccaacagcgg	cagcgaagcg	360
aacgaaacca	tggtgaaaat	gctgtggttt	ctgcatcgtg	cggaaggcaa	accgcagaaa	420
cgtaaaattc	tgaccctgaa	gcaggcgtat	catggctcca	ccgcggtgag	cgcgagcatg	480
accggcctgg	gctataacag	caaatttggc	ctgccgctgc	cgggctttct	gcatctgacc	540
tgcccgcatt	attggcggtt	tggcgaagaa	ggcgaaaccg	aagaacagtt	tgtcgcgcgt	600
ctggcccgtg	aactggaaga	aaccattcag	aaggaaggcg	cggataccat	tgcgggcttt	660
tttgcggaac	cggtgatggc	tgcgggcggt	gttattacc	cgccaaaagg	ctattttcag	720
gcgattctga	ccatcctgcg	caaatatgat	attccggtga	tcagcgatga	agtgatttgc	780
ggctttggtc	gtaccggcaa	cacctggggc	tgctgacct	atgattttac	tccggatgcg	840
attattagca	gtaaaaacct	aaccgcgggt	ttttttccag	taggagcggt	gattttgggg	900
ccggaactga	gcaaacgtct	ggaaaccgcg	attgaagcga	tcggggaatt	tgatcatggt	960
tttaccacag	gcggccatcc	ggtgggttgt	gcgattgcgc	tgaaagcgat	tgatgtggtg	1020
atgaacgaag	gcctggccga	aaacgtgcgt	cgtctggccc	cgctttttga	agaacgtctg	1080
aaacatatg	cggaacgtcc	gaacattggc	gaatatcgtg	gtgtgggctt	tatgtgggcg	1140
ctggaagtgg	tgaaagataa	agcgagcaaa	gccccgtttg	atggtaacct	gagcgtgagc	1200
gaacgtattg	cgaacacctg	caccgatctg	ggactgattt	gcgcgccgct	ggatcagagc	1260
gtggttctgg	caccgccgta	cattctgacc	gaagtacaga	tgatgaaat	gttcgataaa	1320
ctggaaaaag	cgctggataa	agtgtttgcg	gaagtggcgt	aa		1362

<210> 242
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 242

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

1				5				10				15				
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val	
			20					25					30			
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg	
		35					40					45				
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp	
	50					55					60					
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	
65					70					75					80	
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu	
			85						90					95		
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	
			100					105					110			
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu	
		115					120						125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu	
	130					135					140					
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	
145					150					155					160	
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	
			165						170					175		
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	
		180						185					190			
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	
	195						200					205				
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	
	210					215					220					
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	
225					230					235					240	
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	
			245						250					255		
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	
		260						265					270			
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	
	275						280						285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	
	290					295					300					
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Gly	Glu	Phe	Asp	His	Gly	
305					310					315					320	
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala	
			325						330					335		
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu	
		340						345					350			
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn	
	355						360					365				
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val	
	370					375					380					
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser	
385					390					395					400	
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ala	Pro	
			405						410					415		
Leu	Asp	Gln	Ser	Val	Val	Leu	Ala	Pro	Tyr	Ile	Leu	Thr	Glu	Val		
		420						425					430			
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val	

435
Phe Ala Glu Val Ala
450

440

445

<210> 243
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 243
atgaacaaac cgcagagctg ggaaacgcgt gcggaaactg tgagcctgta tgcctttacc 60
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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaat gctgtgggtt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgcaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatt attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggagggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgag caaatatgat attccggtga tcagcagatga agtgatttgc 780
ggctttgggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgag 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gatgtttggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggag 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgct gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgag gaagtggcgt aa 1362

<210> 244
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 244
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1 5 10 15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20 25 30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35 40 45

Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
His	50					55					60				
65	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195				200					205				
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315				320	
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395				400	
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro

<210> 245
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 245
 atgaacaaac cgacagagctg ggaaacgcgt gcggaaactg tgagcctgta tgcctttacc 60
 cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgat 120
 gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgta taacatgggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
 ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
 gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
 cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
 accggcctgg gctataacag caaatgtggc ctgccgtgc cgggctttct gcatctgacc 540
 tgcccgcatc attggcgcta tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
 ctggcccggt aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
 tttgcggaac cggatgatggc tgcgggcggg gttattaccg cgccaaaagg ctattttcag 720
 gcgattctga ccattcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
 ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggtatgcg 840
 attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
 ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
 tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtgggtg 1020
 atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
 aaacataatt cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
 ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
 gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgct gggccagagc 1260
 gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
 ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 246
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 246
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
 1 5 10 15
 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
 20 25 30
 Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
 35 40 45
 Tyr Leu Asp Ala Asn Ser Gly Leu Tyr Asn Met Val Ala Gly Phe Asp
 50 55 60
 His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
 65 70 75 80
 Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 247

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cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgctgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgtgc cggtcttctt gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgag 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgctttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcagcaaaa gcccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtggttgcg gaagtggcgt aa 1362
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<210> 248

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 248

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Leu Ser Asp Gln Thr Val Met Leu
          85          90          95
Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115          120          125
```

Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
130						135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
			195				200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
						215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280						285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
						295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
						375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
				405					410					415	
Ile	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
															450

<210> 249

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 249

atgaacaaac cgcagagctg ggaaacgcgt gcggaagagg tgagcctgta tgcctttacc 60

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cacatgccga gcctacgtca gcgtggcacc atggtggttaa cccatggcga aggcccgtat 120
atcgtgggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgtttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtgggtt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcattctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgccgggagggt gttattaccg cgccaaaagg ctatttttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gatatttgggg 900
ccggaactga gcaaactctt ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaactctg 1080
aaacatattg cggaacttcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 250

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 250

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20           25           30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35           40           45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
85           90           95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe

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aacgaaacca tggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accgggctgg gctataacag caaatTTggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatt attggcgtta tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctatTTTcag 720
gcgattctga ccacctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttat tccgatgcg 840
attattagca gtaaaaacct aaccgcgggt tttttccag taggagcggg gattttgggg 900
ccggaactga gcaaactct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
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aaacatatTg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggtaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcgcgccggg cggtcagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcacaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 252

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 252

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20           25           30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35           40           45
Tyr Leu Asp Ala Cys Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85           90           95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195          200          205

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Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
210						215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Ile	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ala	Pro
				405					410					415	
Gly	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
															450

<210> 253

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 253

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atgaacaaac cgcagagctg ggaaacgcgt gcggaagagg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggccgtat 120
gtcgtggatg tgcattggcc tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggttc ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgacctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660

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tttgcggaac cggatgatggc tgcgggcggt gttattaccc cgccaaaagg ctattttcag 720
gcgatttctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggcttttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attattagca gtaaaaacct aaccgcggtt tttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcmc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcmg cgtctggccc cgcgttttga agaacgtctg 1080
aaacatatgg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacgtg caccgatctg ggactgattt gcagcccgcg gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 254

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 254

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165         170         175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180         185         190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195         200         205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
          210         215         220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225         230         235         240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp

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tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 256

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 256

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20           25           30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
        35           40           45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
        50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85           90           95
Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
        100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
        115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
        130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
        165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
        180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
        195          200          205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
210          215          220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225          230          235          240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
        245          250          255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
        260          265          270
Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
        275          280          285

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Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
290						295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325					330						335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340					345						350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
370					375						380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
			405					410						415	
Ile	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420					425						430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
450															

<210> 257

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 257

atgaacaaac	cgcagagctg	ggaaacgcgt	gcggaaaccg	tgagcctgta	tgccctttacc	60
cacatgccga	gcctacgtca	gcgtggcacc	atggtggtaa	cccatggcga	aggcccgtat	120
atcgtggatg	tgcatggccg	tcgttatctg	gatgcgaaca	gcggcctgtt	caacatggtg	180
gcgggctttg	atcataaagg	cctgattgat	gcggcgaaag	cgcagtatga	acgttttccg	240
ggctatcatg	cgttttacgg	cctgatgagc	gatcagaccg	tgatgctgtc	ggaaaaactg	300
gtggaagtga	gcccgtttga	tagcggccgt	gtgtttgtga	ccaacagcgg	cagcgaagcg	360
aacgaaacca	tggtgaaaat	gctgtggttc	ctgcatcgtg	cggaaaggcaa	accgcagaaa	420
cgtaaaattc	tgaccctgaa	gcaggcgtat	catggctcca	ccgcggtgag	cgcgagcatg	480
accggcctgg	gctataacag	caaatttggc	ctgccgctgc	cgggctttct	gcatctgacc	540
tgcccgcat	attggcggtta	tggcgaagaa	ggcgaaccg	aagaacagtt	tgtcgcgcgt	600
ctggcccgtg	aactggaaga	aaccattcag	aaggaaggcg	cggataccat	tgcgggcttt	660
tttgcggaac	cggtgatggc	tcgggcggt	gttattacc	cgccaaaagg	ctattttcag	720
gcgattctga	ccatcctgcg	caaatatgat	attccggtga	tcagcgatga	agtgatttgc	780
ggctttggtc	gtaccggcaa	cacctggggc	tcgctgacct	atgattttac	cccgatgctg	840
attattagca	gtaaaaacct	aaccgcgggt	ttttttccag	taggagcggg	gattttgggg	900
ccggaactga	gcaaacgtct	ggaaaccgcg	attgaagcga	tcgaagaatt	tgatcatggt	960
tttaccacag	gcggccatcc	ggtgggttgt	gcgattgcgc	tgaaagcgat	tgatgtggtg	1020
atgaacgaag	gcctggccga	aaacgtgcgt	cgtctggccc	cgcgttttga	agaacgtctg	1080
aaacatatg	cggaacgtcc	gaacattggc	gaatatcgtg	gtgtgggctt	tatgtgggctg	1140
ctggaagtgg	tgaaagataa	agcgagcaaa	gccccgtttg	atggcaacct	gagcgtgagc	1200
gaacgtattg	cgaacacctg	caccgatctg	ggactgattt	gccgcccggg	tggccagagc	1260

gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
 ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 258

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 258

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu	1	5	10	15
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val	20	25	30	
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg	35	40	45	
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp	50	55	60	
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	65	70	75	80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu	85	90	95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	100	105	110	
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu	115	120	125	
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu	130	135	140	
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	145	150	155	160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	165	170	175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	180	185	190	
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	195	200	205	
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	210	215	220	
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	225	230	235	240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	245	250	255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	260	265	270	
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	275	280	285	
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	290	295	300	
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly	305	310	315	320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala				

<211> 453
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 260

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Glu	Val	Ser	Leu	1	5	10	15
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val	20	25	30	
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg	35	40	45	
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp	50	55	60	
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	65	70	75	80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu	85	90	95	
Ala	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	100	105	110	
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu	115	120	125	
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu	130	135	140	
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	145	150	155	160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	165	170	175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	180	185	190	
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	195	200	205	
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	210	215	220	
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	225	230	235	240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	245	250	255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	260	265	270	
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	275	280	285	
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	290	295	300	
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly	305	310	315	320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala	325	330	335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu	340	345	350	
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn	355	360	365	

Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
370						375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
				405					410					415	
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
450															

<210> 261
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 261

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cacatgccga	gcctacgtca	gcgtggcacc	atggtggtaa	cccatggcga	aggcccgtat	120
gtcgtggatg	tgcatggccg	tcgttatctg	gatgcgaaca	gcggcctgtt	taacatggtg	180
gcgggctttg	atcataaagg	cctgattgat	gcggcgaaag	cgagtatga	acgttttccg	240
ggctatcatg	cgttttacgg	cctgatgagc	gatcagaccg	tgatgctgtc	tgaaaaactg	300
gtggaagtga	gcccgtttga	tagcggccgt	gtgtttgtga	ccaacagcgg	cagcgaagcg	360
aacgaaacca	tggtgaaaat	gctgtggttt	ctgcatcgtg	cggaaggcaa	accgcagaaa	420
cgtaaaattc	tgaccctgaa	gcaggcgtat	catggctcca	ccgcggtgag	cgcgagcatg	480
accggcctgg	gctataacag	caaatttggc	ctgccgctgc	cgggctttct	gcatctgacc	540
tgcccgcat	attggcgtaa	tggcgaagaa	ggcgaaaccg	aagaacagtt	tgtcgcgcgt	600
ctggcccgtg	aactggaaga	aaccattcag	aaggaaggcg	cggataccat	tcggggcttt	660
tttgcggaac	cggtgatggc	tcggggcggt	gttattaccc	cgccaaaagg	ctattttcag	720
gcgattctga	ccatcctgcg	caaatatgat	attccggtga	tcagcgatga	agtgatttgc	780
ggctttggtc	gtaccggcaa	cacctggggc	tcggtgacct	atgattttac	cccggatgcg	840
attattagca	gtaaaaacct	aaccgcgggt	ttttttccag	taggagcggt	gattttgggg	900
ccggaactga	gcaaacgtct	ggaaaccgcg	attgaagcga	tcgaagaatt	tgatcatggt	960
tttaccacag	gcggccatcc	ggtgggttgt	gcgattgcgc	tgaaagcgat	tgatgtggtg	1020
atgaacgaag	gcctggccga	aaacgtgcgt	cgtctggccc	cgcgttttga	agaacgtctg	1080
aaacatat	cggaacgtcc	gaacattggc	gaatatcgtg	gtgtgggctt	tatgtgggcg	1140
ctggaagtgg	tgaaagataa	agcgagcaaa	gccccgtttg	atggcaacct	gagcgtgagc	1200
gaacgtattg	cgaacacctg	caccgatctg	ggactgattt	gcagcccgat	tggccagagc	1260
gtggttctgg	caccgccgta	cattctgacc	gaagcgcaga	tgatgaaat	gttcgataaa	1320
ctggaaaaag	cgctggataa	agtgtttgcg	gaagtggcgt	aa		1362

<210> 262
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 262

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Ala	Val	Ser	Leu	1	5	10	15
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val	20	25	30	
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Val	Val	Asp	Val	His	Gly	Arg	Arg	35	40	45	
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp	50	55	60	
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	65	70	75	80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu	85	90	95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	100	105	110	
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu	115	120	125	
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu	130	135	140	
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	145	150	155	160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	165	170	175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	180	185	190	
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	195	200	205	
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	210	215	220	
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	225	230	235	240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	245	250	255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	260	265	270	
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	275	280	285	
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	290	295	300	
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly	305	310	315	320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala	325	330	335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu	340	345	350	
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn	355	360	365	
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val	370	375	380	
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser	385	390	395	400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro				

				405					410					415					
Ile	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala				
			420					425					430						
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val				
		435					440					445							
Phe	Ala	Glu	Val	Ala															
	450																		

<210> 263
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 263
 atgaacaaac cgcagagctg ggaaacgcgt gcggaagagg tgagcctgta tgcctttacc 60
 cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgtat 120
 gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
 ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctggc ggaaaaactg 300
 gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tggtgaaaat gctgtggttc ctgcatcgtg cggaaggcaa accgcagaaa 420
 cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
 accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
 tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
 ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
 tttgcggaac cggatgatggc tgcgggcggt gttattacc cgcgaagg ctattttcag 720
 gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
 ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgac 840
 attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
 ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
 tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
 atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
 aaacatatg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggac 1140
 ctggaagtgg tgaaagataa agcagacaaa gcccgtttg atggcaacct gagcgtgagc 1200
 gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgtt gggccagagc 1260
 gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
 ctggaaaaag cgctggataa agtggtttgcg gaagtggcgt aa 1362

<210> 264
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 264
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
 1 5 10 15

Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val			
			20					25					30					
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Val	Val	Asp	Val	His	Gly	Arg	Arg			
		35					40					45						
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp			
		50				55					60							
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro			
65					70					75					80			
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu			
				85					90					95				
Ala	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe			
			100					105					110					
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu			
		115					120					125						
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu			
	130					135					140							
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met			
145					150					155					160			
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe			
				165					170					175				
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu			
			180					185					190					
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr			
		195					200					205						
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro			
	210					215					220							
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln			
225					230					235					240			
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp			
				245					250					255				
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val			
			260					265					270					
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr			
		275					280						285					
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser			
		290				295					300							
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly			
305					310					315					320			
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala			
				325					330					335				
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu			
			340					345					350					
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn			
		355					360					365						
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val			
	370					375					380							
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser			
385					390					395					400			
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro			
				405					410					415				
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala			
		420					425						430					
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val			
		435					440					445						

Phe Ala Glu Val Ala
450

<210> 265
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 265
atgaacaaac cgcagagctg ggaaacgcgt gcggaagagg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggttaa cccatggcga aggcccgtat 120
gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg ccgtatgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatt attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggctgg gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccattctgac caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gatatttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgct gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgac gaagtggcgt aa 1362

<210> 266
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 266
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
1 5 10 15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20 25 30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
35 40 45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp

50	55	60													
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Arg	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ala	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
				100				105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135				140					
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280						285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340						345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370				375						380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
				405					410					415	
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420					425						430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 267
atgaacaaac cgcagagctg ggaaacgcgt gcggaaaccg tgagcctgta tgcctttacc 60
cacatgaaga gcctacgtca gcgtggcacc atggtggtaa cccatggcga agggccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accgggctgg gctataacag caaatgtggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgcatc attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattacc cgccaaaagg ctattttcag 720
gcgattctga ccattcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac tccggatgcg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaggaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gcccgtttg atggtaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgtccgct ggatcagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcacaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 268
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 268
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1 5 10 15
Tyr Ala Phe Thr His Met Lys Ser Leu Arg Gln Arg Gly Thr Met Val
20 25 30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35 40 45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
50 55 60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65 70 75 80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
85 90 95

Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe		
			100					105					110				
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu		
		115					120					125					
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu		
	130					135					140						
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met		
145					150					155					160		
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe		
				165					170					175			
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu		
			180					185					190				
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr		
		195					200					205					
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro		
	210					215					220						
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln		
225					230					235					240		
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp		
				245					250					255			
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val		
			260					265					270				
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr		
		275					280					285					
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser		
	290					295					300						
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly		
305					310					315					320		
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala		
				325					330					335			
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu		
			340					345					350				
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn		
		355					360					365					
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val		
	370					375					380						
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser		
385					390					395					400		
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro		
				405					410					415			
Leu	Asp	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala		
			420					425					430				
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val		
		435					440					445					
Phe	Ala	Glu	Val	Ala													
	450																

<210> 269

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 269

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cacatgccta gcctacgtca gcgtggcacc atgggtggtaa cccatggcga aggcccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtgggtt ctgcatcgtg cggaaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaggaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcagcaaaa gcccgtttg atgataacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgtccgct ggatcagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcacaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362
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<210> 270

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 270

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
```

130		135		140	
Thr	Leu	Lys	Gln	Ala	Tyr
145		150		155	160
Thr	Gly	Leu	Gly	Tyr	Asn
		165		170	175
Leu	His	Leu	Thr	Cys	Pro
		180		185	190
Thr	Glu	Glu	Gln	Phe	Val
		195		200	205
Ile	Gln	Lys	Glu	Gly	Ala
		210		215	220
Val	Met	Ala	Ala	Gly	Gly
225				230	235
Ala	Ile	Leu	Thr	Ile	Leu
				245	250
Glu	Val	Ile	Cys	Gly	Phe
				255	260
Thr	Tyr	Asp	Phe	Thr	Pro
				265	270
Ala	Gly	Phe	Phe	Pro	Val
				275	280
Lys	Arg	Leu	Glu	Thr	Ala
305				285	290
Phe	Thr	Thr	Gly	Gly	His
				295	300
Ile	Asp	Val	Val	Met	Asn
				305	310
Ala	Pro	Arg	Phe	Glu	Glu
				315	320
Ile	Gly	Glu	Tyr	Arg	Gly
				325	330
Lys	Asp	Lys	Ala	Ser	Lys
385				335	340
Glu	Arg	Ile	Ala	Asn	Thr
				345	350
Leu	Asp	Gln	Ser	Val	Val
				355	360
Gln	Met	Asp	Glu	Met	Phe
				365	370
Phe	Ala	Glu	Val	Ala	
				375	380
				385	390
				395	400
				405	410
				415	420
				425	430
				435	440
				445	450

<210> 271

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 271

atgaacaaac cgcagagctg ggaaacgcgt gcggaaactg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggttaa cccatggcga aggcccgatat 120

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgta taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgtttttccg 240
ggctatcatg cgtttttacgg ccgtatgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatattggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatg attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccggtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctatttttcag 720
gcgattctga ccattctgcg caaatatgat attccggtga tcagcgatga agtgattttgc 780
ggctttgggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gatatttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgctc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgctg cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggacg 1140
ctggaagtgg tgaaagataa agcagcaaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgct gaagtggcgt aa 1362

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<210> 272

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 272

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
        35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Tyr Asn Met Val Ala Gly Phe Asp
        50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Arg Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
        100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
        115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
        130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165          170          175

```

Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
	195						200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225				230					235						240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
			245					250						255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280						285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325					330						335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340						345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370				375						380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
			405					410						415	
Ile	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420						425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
		450													

<210> 273

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 273

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atgaacaaac cgcagagctg ggaaacgcgt gcggaaactg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgtat 120
gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcgccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420

```

```

cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggccccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcggggcggg gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgcatgac 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaactctt ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggac 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgct gaagtggcgt aa 1362

```

<210> 274

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 274

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Tyr Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165         170         175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180         185         190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195         200         205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro

```

210		215		220	
Val Met Ala Ala Gly	Gly Val Ile Thr Pro Pro	Lys Gly Tyr Phe Gln			
225	230	235	240		
Ala Ile Leu Thr Ile	Leu Arg Lys Tyr Asp Ile	Pro Val Ile Ser Asp			
245	250	255			
Glu Val Ile Cys Gly	Phe Gly Arg Thr Gly	Asn Thr Trp Gly Cys Val			
260	265	270			
Thr Tyr Asp Phe Thr	Pro Asp Ala Ile Ile Ser	Ser Lys Asn Leu Thr			
275	280	285			
Ala Gly Phe Phe Pro	Val Gly Ala Val Ile Leu	Gly Pro Glu Leu Ser			
290	295	300			
Lys Arg Leu Glu Thr	Ala Ile Glu Ala Ile Glu	Glu Phe Asp His Gly			
305	310	315	320		
Phe Thr Thr Gly Gly	His Pro Val Gly Cys	Ala Ile Ala Leu Lys Ala			
325	330	335			
Ile Asp Val Val Met	Asn Glu Gly Leu Ala	Glu Asn Val Arg Arg Leu			
340	345	350			
Ala Pro Arg Phe Glu	Glu Arg Leu Lys His	Ile Ala Glu Arg Pro Asn			
355	360	365			
Ile Gly Glu Tyr Arg	Gly Val Gly Phe Met	Trp Ala Leu Glu Val Val			
370	375	380			
Lys Asp Lys Ala Ser	Lys Ala Pro Phe Asp	Gly Asn Leu Ser Val Ser			
385	390	395	400		
Glu Arg Ile Ala Asn	Thr Cys Thr Asp Leu	Gly Leu Ile Cys Ser Pro			
405	410	415			
Leu Gly Gln Ser Val	Val Leu Ala Pro Pro	Tyr Ile Leu Thr Glu Ala			
420	425	430			
Gln Met Asp Glu Met	Phe Asp Lys Leu Glu	Lys Ala Leu Asp Lys Val			
435	440	445			
Phe Ala Glu Val Ala					
450					

<210> 275

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 275

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cacatgccga gcctacgtca gcgtggcacc atggtggttaa cccatggcga aggcccgat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgta taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg ccgtatgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
tgccgcatt attggcgta tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgaggc tgcgggcggt gttattacc cgcctaaagg ctattttcag 720

```

```

gcgattctga ccatacctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggcttttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatatgg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacgtg caccgatctg ggactgattt gcagcccgct gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 276

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 276

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Tyr Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Arg Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115          120          125
Trp Tyr Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195          200          205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
210          215          220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225          230          235          240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
          245          250          255

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Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325						330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340						345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
			405						410					415	
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420						425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Met	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 277

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 277

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cacatgaaga gcctacgtca gcgtggcacc atggtggttaa cccatggcga aggcccgat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgtttttccg 240
ggctatcatg cgtttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtgggtt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgacctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgcatg attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccggtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020

```



```

atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atgataacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgtccgct ggatcagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 278

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 278

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Lys Ser Leu Arg Gln Arg Gly Thr Met Val
          20           25           30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
        35           40           45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
        50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85           90           95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
        100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
        115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
        130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
        165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
        180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
        195          200          205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
        210          215          220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225          230          235          240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
        245          250          255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
        260          265          270
Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
        275          280          285
Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser

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290		295		300
Lys Arg Leu Glu Thr	Ala Ile Glu Ala Ile Glu	Glu Phe Asp His Gly		
305	310	315	320	
Phe Thr Thr Gly Gly	His Pro Val Gly Cys Ala	Ile Ala Leu Lys Ala		
	325	330	335	
Ile Asp Val Val Met	Asn Glu Gly Leu Ala Glu	Asn Val Arg Arg Leu		
	340	345	350	
Ala Pro Arg Phe Glu Glu	Arg Leu Lys His Ile	Ala Glu Arg Pro Asn		
	355	360	365	
Ile Gly Glu Tyr Arg Gly	Val Gly Phe Met Trp	Ala Leu Glu Val Val		
	370	375	380	
Lys Asp Lys Ala Ser	Lys Ala Pro Phe Asp	Asn Leu Ser Val Ser		
385	390	395	400	
Glu Arg Ile Ala Asn Thr	Cys Thr Asp Leu Gly	Leu Ile Cys Arg Pro		
	405	410	415	
Leu Asp Gln Ser Val Val	Leu Ala Pro Pro Tyr	Ile Leu Thr Glu Ala		
	420	425	430	
Gln Met Asp Glu Met Phe	Asp Lys Leu Glu Lys	Ala Leu Asp Lys Val		
	435	440	445	
Phe Ala Glu Val Ala				
450				

<210> 279

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 279

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cacatgccta gcctacgtca gcgtggcacc atggtggttaa cccatggcga aggcccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accgggctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgctg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaggaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatatgg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggtaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcgcgccggt cggtcagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320

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ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa

1362

<210> 280

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 280

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu	1	5	10	15
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val	20	25	30	
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg	35	40	45	
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp	50	55	60	
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	65	70	75	80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu	85	90	95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	100	105	110	
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu	115	120	125	
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu	130	135	140	
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	145	150	155	160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	165	170	175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	180	185	190	
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	195	200	205	
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	210	215	220	
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	225	230	235	240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	245	250	255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	260	265	270	
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	275	280	285	
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	290	295	300	
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly	305	310	315	320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala	325	330	335	

Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ala	Pro
			405					410						415	
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
			450												

<210> 281

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 281

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atcgtggatg	tgcatggccg	tcgttatctg	gatgcgaaca	gcggcctggt	caacatgggtg	180
gcgggctttg	atcataaagg	cctgattgat	gcggcgaaag	cgcagtatga	acgtttttccg	240
ggctatcatg	cgttttacgg	cctgatgagc	gatcagaccg	tgatgctgtc	tgaaaaactg	300
gtggaagtga	gcccgtttga	tagcggccgt	gtgtttgtga	ccaacagcgg	cagcgaagcg	360
aacgaaacca	tggtgaaaat	gctgtggtac	ctgcatcgtg	cggaaggcaa	accgcagaaa	420
cgtaaaattc	tgaccctgaa	gcaggcgtat	catggctcca	ccgcggtgag	cgcgagcatg	480
accggcctgg	gctataacag	caaatttggc	ctgccgctgc	cgggctttct	gcatctgacc	540
tgcccgcatt	attggcggtt	tggcgaagaa	ggcgaaaccg	aagaacagtt	tgtcgcgcgt	600
ctggcccgtg	aactggaaga	aaccattcag	aaggaaggcg	cggataccat	tgcgggcttt	660
tttgcggaac	cggatgatgg	tgcgggcggt	gttattatcc	cgccaaaagg	ctatttttcag	720
gcgattctga	ccatcctgcg	caaatatgat	attccggtga	tcagcgatga	agtgttttgc	780
ggcttttggtc	gtaccggcaa	cacctggggc	tgctgtgacct	atgattttac	cccggatgcg	840
attattagca	gtaaaaacct	aaccgcgggt	ttttttccag	taggagcggt	gatttttgggg	900
ccggaactga	gcaaacgtct	ggaaaccgcg	attgaagcga	tcgaagaatt	tgatcatggt	960
tttaccacag	gcggccatcc	ggtgggttgt	gcgattgcgc	tgaaagcgat	tgatgtggtg	1020
atgaacgaag	gcctggccga	aaacgtgcgt	cgtctggccc	cgctttttga	agaacgtctg	1080
aaacatattg	cggaacgtcc	gaacattggc	gaatatcgtg	gtgtgggctt	tatgtgggcg	1140
ctggaagtgg	tgaaagataa	agcgagcaaa	gccccgtttg	atggcaacct	gagcgtgagc	1200
gaacgtattg	cgaacacctg	caccgatctg	ggactgattt	gcagcccgct	gggccagagc	1260
gtggttctgg	caccgccgta	cattctgacc	gaagcgcaga	tggtatgaaat	gttcgataaa	1320
ctggaaaagg	cgctggataa	agtgtttgcg	gaagtggcgt	aa		1362

<210> 282

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 282

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Glu	Val	Ser	Leu
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Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val
			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55				60					
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70				75						80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Tyr	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135				140					
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150				155						160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
		180						185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
	195						200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260						265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280						285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340						345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
	355						360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val

370		375		380
Lys Asp Lys Ala Ser	Lys Ala Pro Phe Asp Gly	Asn Leu Ser Val Ser		
385	390	395	400	
Glu Arg Ile Ala Asn Thr	Cys Thr Asp Leu Gly	Leu Ile Cys Ser Pro		
	405	410	415	
Leu Gly Gln Ser Val Val	Leu Ala Pro Pro Tyr	Ile Leu Thr Glu Ala		
	420	425	430	
Gln Met Asp Glu Met Phe	Asp Lys Leu Glu Lys	Ala Leu Asp Lys Val		
	435	440	445	
Phe Ala Glu Val Ala				
450				

<210> 283
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 283

atgaacaaac	cgagagctg	ggaaacgcgt	gcggaaactg	tgagcctgta	tgcttttacc	60
cacatgccga	gcctacgtca	gcgtggcacc	atggtggtaa	cccatggcga	aggcccgtat	120
atcgtggatg	tgcatggccg	tcgttatctg	gatgcgaaca	gcggcctgtt	taacatgggtg	180
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ggctatcatg	cgttttacgg	cctgctgagc	gatcagaccg	tgatgctgtc	ggaaaaactg	300
gtggaagtga	gcccgtttga	tagcggccgt	gtgtttgtga	ccaacagcgg	cagcgaagcg	360
aacgaaacca	tggtgaaaat	gctgtggttc	ctgcatcgtg	cggaaggcaa	accgcagaaa	420
cgtaaaattc	tgaccctgaa	gcaggcgtat	catggctcca	ccgcggtgag	cgcgagcatg	480
accggcctgg	gctataacag	caaatttggc	ctgccgctgc	cgggctttct	gcatctgacc	540
tgcccgcat	attggcggtt	tggcgaagaa	ggcgaaaccg	aagaacagtt	tgtcgcgcgt	600
ctggcccgtg	aactggaaga	aaccattcag	aaggaaggcg	cggataccat	tgcgggcttt	660
tttgcggaac	cggtgatggc	tgcgggcggt	gttattaccc	cgccaaaagg	ctattttcag	720
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ggctttggtc	gtaccggcaa	cacctggggc	tgctgacact	atgattttac	cccggatgcg	840
attattagca	gtaaaaacct	aaccgcgggt	ttttttccag	taggagcggg	gattttgggg	900
ccggaactga	gcaaacgtct	ggaaaccgcg	attgaagcga	tcgaagaatt	tgatcatggt	960
tttaccacag	gcggccatcc	ggtgggttgt	gcgattgcgc	tgaaagcgat	tgatgtgggtg	1020
atgaacgaag	gcctggccga	aaacgtgcgt	cgtctggccc	cgctttttga	agaacgtctg	1080
aaacatattg	cggaacgtcc	gaacattggc	gaatatcgtg	gtgtgggctt	tatgtgggcg	1140
ctggaagtgg	tgaaagataa	agcgagcaaa	gccccgtttg	atggcaacct	gagcgtgagc	1200
gaacgtattg	cgaacacctg	caccgatctg	ggactgattt	gccgcccgt	gggccagagc	1260
gtggttctgg	caccgccgta	cattctgacc	gaagcgcaga	tggaatgaaat	gttcgataaa	1320
ctggaaatgg	cgctggataa	agtgtttgcg	gaagtggcgt	aa		1362

<210> 284
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 284

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu
1				5					10					15	
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val
			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70				75						80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Leu	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
				405					410					415	

Leu Gly Gln Ser Val Val Leu Ala Pro Pro Tyr Ile Leu Thr Glu Ala
420 425 430
Gln Met Asp Glu Met Phe Asp Lys Leu Glu Met Ala Leu Asp Lys Val
435 440 445
Phe Ala Glu Val Ala
450

<210> 285
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 285
atgaacaaac cgcagagctg ggaaacgcgt gcggaagcgg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gggggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatt attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggg gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gatatttggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcagcaaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 286
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 286
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1 5 10 15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val

			20					25				30			
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85						90				95	
Ala	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gly	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375									

<210> 287
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 287
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 cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgtat 120
 gtcgtggatg tgcattggcc tcgttatctg gatgcgaaca gcggcctgta taacatgggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
 ggctatcatg cgttttacgg ccgtatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
 gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tgggtgaaaat gctgtggttc ctgcatcgtg cggaaggcaa accgcagaaa 420
 cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
 accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
 tgcccgcatt attggcgta tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
 ctggcccgtg aactggaaga aaccattcag aaggaaggcg cgataccat tgcgggcttt 660
 tttgcggaac cggatgatggc tgcgggcggg gttattacc cgcctaaagg ctattttcag 720
 gcgattctga ccacctctgc caaatatgat attccggtga tcagcgatga agtgatttgc 780
 ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgac 840
 attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gatatttggg 900
 ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
 tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtgggtg 1020
 atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
 aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
 ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
 gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgct gggccagagc 1260
 gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
 ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 288
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 288
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
 1 5 10 15
 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
 20 25 30
 Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
 35 40 45
 Tyr Leu Asp Ala Asn Ser Gly Leu Tyr Asn Met Val Ala Gly Phe Asp
 50 55 60

His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	65	70	75	80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Arg	Met	Ser	Asp	Gln	Thr	Val	Met	Leu	85	90	95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	100	105	110	
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu	115	120	125	
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu	130	135	140	
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	145	150	155	160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	165	170	175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	180	185	190	
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	195	200	205	
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	210	215	220	
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	225	230	235	240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	245	250	255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	260	265	270	
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	275	280	285	
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	290	295	300	
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly	305	310	315	320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala	325	330	335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu	340	345	350	
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn	355	360	365	
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val	370	375	380	
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser	385	390	395	400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro	405	410	415	
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala	420	425	430	
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val	435	440	445	
Phe	Ala	Glu	Val	Ala												450			

<210> 289

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 289

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cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgat 120
atcgtggatg tgcatggccg tcgttatctg gatgcgaaca gcggcctgtt taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgcatg attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccggtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgct gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362
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<210> 290

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 290

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
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			100					105				110					
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu		
		115					120					125					
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu		
	130					135					140						
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met		
145					150					155					160		
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe		
			165						170					175			
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu		
		180						185				190					
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr		
	195					200					205						
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro		
	210				215						220						
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln		
225				230					235						240		
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp		
			245					250						255			
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val		
	260					265						270					
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr		
	275					280						285					
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser		
	290			295					300								
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly		
305				310				315							320		
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala		
			325					330						335			
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu		
	340					345						350					
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn		
	355					360					365						
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val		
	370				375					380							
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser		
385				390					395						400		
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro		
			405					410						415			
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala		
	420					425					430						
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Met	Ala	Leu	Asp	Lys	Val		
	435					440					445						
Phe	Ala	Glu	Val	Ala													
	450																

<210> 291

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 291

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gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
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gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttc ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgacctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
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tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccgct gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362
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<210> 292

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 292

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20          25          30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Arg Met Ser Asp Gln Thr Val Met Leu
85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
130         135         140
```

Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
 145 150 155 160
 Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
 165 170 175
 Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
 180 185 190
 Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
 195 200 205
 Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
 210 215 220
 Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
 225 230 235 240
 Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
 245 250 255
 Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
 260 265 270
 Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
 275 280 285
 Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
 290 295 300
 Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Glu Phe Asp His Gly
 305 310 315 320
 Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala
 325 330 335
 Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu
 340 345 350
 Ala Pro Arg Phe Glu Glu Arg Leu Lys His Ile Ala Glu Arg Pro Asn
 355 360 365
 Ile Gly Glu Tyr Arg Gly Val Gly Phe Met Trp Ala Leu Glu Val Val
 370 375 380
 Lys Asp Lys Ala Ser Lys Ala Pro Phe Asp Gly Asn Leu Ser Val Ser
 385 390 395 400
 Glu Arg Ile Ala Asn Thr Cys Thr Asp Leu Gly Leu Ile Cys Arg Pro
 405 410 415
 Leu Gly Gln Ser Val Val Leu Ala Pro Pro Tyr Ile Leu Thr Glu Ala
 420 425 430
 Gln Met Asp Glu Met Phe Asp Lys Leu Glu Met Ala Leu Asp Lys Val
 435 440 445
 Phe Ala Glu Val Ala
 450

<210> 293

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 293

atgaacaaac cgcagagctg ggaaacgcgt gcggaaaccg tgagcctgta tgcctttacc 60
 cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgat 120
 gtcgtggatg tgcatggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180

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gcgggctttg atcataaagg cctgattgat gcggcgaaaag cgcagtatga acgtttttccg 240
ggctatcatg cgtttttacgg cctgatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatattggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatg attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggg gttattaccg cgccaaaagg ctatttttcag 720
gcgattctga ccacctctgc caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggcttttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgct gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 294

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 294

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20           25           30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
        35           40           45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
        50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85           90           95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
        100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
        115          120          125
Trp Tyr Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
        165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu

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accggcctgg gctataacag caaatTTggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcat attggcgta tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccggt aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggt gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccgct gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 296

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 296

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
           20           25           30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
           35           40           45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
           50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Leu Leu Ser Asp Gln Thr Val Met Leu
           85           90           95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
           100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
           115          120          125
Trp Tyr Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
           130          135          140
Thr Leu Lys Gly Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
           165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
           180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
           195          200          205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
           210          215          220

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Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
 225 230 235 240
 Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
 245 250 255
 Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
 260 265 270
 Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
 275 280 285
 Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
 290 295 300
 Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Glu Phe Asp His Gly
 305 310 315 320
 Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala
 325 330 335
 Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu
 340 345 350
 Ala Pro Arg Phe Glu Glu Arg Leu Lys His Ile Ala Glu Arg Pro Asn
 355 360 365
 Ile Gly Glu Tyr Arg Gly Val Gly Phe Met Trp Ala Leu Glu Val Val
 370 375 380
 Lys Asp Lys Ala Ser Lys Ala Pro Phe Asp Gly Asn Leu Ser Val Ser
 385 390 395 400
 Glu Arg Ile Ala Asn Thr Cys Thr Asp Leu Gly Leu Ile Cys Arg Pro
 405 410 415
 Leu Gly Gln Ser Val Val Leu Ala Pro Pro Tyr Ile Leu Thr Glu Ala
 420 425 430
 Gln Met Asp Glu Met Phe Asp Lys Leu Glu Met Ala Leu Asp Lys Val
 435 440 445
 Phe Ala Glu Val Ala
 450

<210> 297

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 297

atgaacaaac cgcagagctg ggaaacgcgt gcggaagcgg tgagcctgta tgcctttacc 60
 cacatgccga gcctacgtca gcgtggcacc atggtggttaa cccatggcga aggcccgat 120
 gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
 ggctatcatg cgttttacgg ccgtctgagc gatcagaccg tgatgctgtc tgaaaaactg 300
 gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tgggtgaaaat gctgtggttc ctgcatcgtg cggaaggcaa accgcagaaa 420
 cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
 accggcctgg gctataacag caaatgtggc ctgccgtgc cgggctttct gcatctgacc 540
 tgcccgcatt attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
 ctggcccgtg aactggaaga aaccattcag aaggaaggcg cgataccat tgcgggcttt 660
 tttgcggaac cggatgatggc tgcgggcggt gttattacc cgccaaaagg ctattttcag 720
 gcgattctga ccacctctgc caaatatgat attccggtga tcagcgatga agtgatttgc 780

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ggcttttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attatttagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacataattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgct gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 298

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 298

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Arg Leu Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195          200          205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
210          215          220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225          230          235          240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
          245          250          255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val

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aaacatatg cggaaagtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 300

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 300

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Leu Ser Asp Gln Thr Val Met Leu
          85          90          95
Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
          145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165         170         175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180         185         190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195         200         205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
          210         215         220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
          225         230         235         240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
          245         250         255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
          260         265         270
Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
          275         280         285
Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
          290         295         300

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Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325					330						335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340					345						350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
	355					360					365				
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
370					375						380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385				390					395						400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
			405				410						415		
Ile	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420					425					430			
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
	435					440					445				
Phe	Ala	Glu	Val	Ala											
450															

<210> 301

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 301

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cacatgccga gcctacgtca gcgtggcacc atggtggttaa cccatggcga aggcccgat 120
gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgta taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcattctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgtg 600
ctggcccggt aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgctg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gatgtttggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
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aaacatatgt cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggct 1140
ctggaagtgg tgaaagataa agcgagcaaa gcccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccggg tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgct gaagtggcgt aa 1362

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<210> 302
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 302
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
 1 5 10 15
 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
 20 25 30
 Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
 35 40 45
 Tyr Leu Asp Ala Asn Ser Gly Leu Tyr Asn Met Val Ala Gly Phe Asp
 50 55 60
 His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
 65 70 75 80
 Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
 85 90 95
 Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
 100 105 110
 Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
 115 120 125
 Trp Tyr Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
 130 135 140
 Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
 145 150 155 160
 Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
 165 170 175
 Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
 180 185 190
 Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
 195 200 205
 Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
 210 215 220
 Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
 225 230 235 240
 Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
 245 250 255
 Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
 260 265 270
 Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
 275 280 285
 Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
 290 295 300
 Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Glu Phe Asp His Gly
 305 310 315 320
 Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala
 325 330 335
 Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 304

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu
1				5					10					15	
Tyr	Ala	Phe	Thr	His	Met	Lys	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val
			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Cys	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120						125		
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Ala	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
	195						200						205		
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Ile	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Ile	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280						285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295						300			
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Gly	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
	355						360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				

Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ala	Pro
				405					410					415	
Leu	Asp	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Val
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
				450											

<210> 305
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 305

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atcgtggatg	tgcatggccg	tcgttatctg	gatgcgaaca	gcggcctgta	taacatggtg	180
gcgggctttg	atcataaagg	cctgattgat	gcggcgaaag	cgagtatga	acgttttccg	240
ggctatcatg	cgttttacgg	ccgtatgagc	gatcagaccg	tgatgctgtc	ggaaaaactg	300
gtggaagtga	gcccgtttga	tagcggccgt	gtgtttgtga	ccaacagcgg	cagcgaagcg	360
aacgaaacca	tggtgaaaat	gctgtggttt	ctgcatcgtg	cggaaggcaa	accgcagaaa	420
cgtaaaattc	tgaccctgaa	gcaggcgtat	catggctcca	ccgcggtgag	cgcgagcatg	480
accggcctgg	gctataacag	caaatttggc	ctgccgctgc	cgggctttct	gcatctgacc	540
tgcccgcat	attggcgtaa	tggcgaagaa	ggcgaaccg	aagaacagtt	tgtcgcgcgt	600
ctggcccgtg	aactggaaga	aaccattcag	aagggaaggcg	cggataccat	tgccggcctt	660
tttgcggaac	cggtgatggc	tgccggcggt	gttattacc	cgccaaaagg	ctattttcag	720
gcgattctga	ccatcctgcg	caaatatgat	attccggtga	tcagcgatga	agtgatttgc	780
ggctttggtc	gtaccggcaa	cacctggggc	tgctgacct	atgattttac	cccgatgctg	840
attattagca	gtaaaaacct	aaccgcgggt	ttttttccag	taggagcggg	gattttgggg	900
ccggaactga	gcaaacgtct	ggaaaccgcg	attgaagcga	tcgaagaatt	tgatcatggt	960
tttaccacag	gcggccatcc	ggtgggttgt	gcgattgcgc	tgaaagcgat	tgatgtggtg	1020
atgaacgaag	gcctggccga	aaacgtgcgt	cgtctggccc	cgctttttga	agaacgtctg	1080
aaacatattg	cggaacgtcc	gaacattggc	gaatatcgtg	gtgtgggctt	tatgtgggcg	1140
ctggaagtgg	tgaaagataa	agcgagcaaa	gccccgtttg	atggcaacct	gagcgtgagc	1200
gaacgtattg	cgaacacctg	caccgatctg	ggactgattt	gcagcccgtg	gggccagagc	1260
gtggttctgg	caccgccgta	cattctgacc	gaagcgcaga	tggatgaaat	gttcgataaa	1320
ctggaaaaag	cgctggataa	agtgtttgcg	gaagtggcgt	aa		1362

<210> 306
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 306

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Ala	Val	Ser	Leu
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Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val
			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Tyr	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55				60					
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70				75						80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Arg	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
			85						90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
			165						170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
		180					185					190			
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
			245						250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260					265						270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310				315						320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325						330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340					345						350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
			405						410					415	
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala

	420		425		430
Gln Met Asp	Glu Met Phe Asp	Lys Leu Glu Lys	Ala Leu Asp	Lys Val	
	435		440		445
Phe Ala Glu	Val Ala				
	450				

<210> 307
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 307
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 atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatgggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
 ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctggc ggaaaaactg 300
 gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
 cgtaaaattc tgacctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
 accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
 tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
 ctggcccgtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
 tttgcggaac cggatgatggc tgcgggagggt gttattaccg cgccaaaagg ctattttcag 720
 gcgattctga ccattcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
 ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
 attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gatatttggg 900
 ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
 tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtgggt 1020
 atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
 aaacatatgt cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggct 1140
 ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
 gaacgtattg cgaacacctg caccgatctg ggactgattt gcagccgat tggccagagc 1260
 gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
 ctggaaaaag cgctggataa agtgtttgct gaagtggcgt aa 1362

<210> 308
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 308
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
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 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
 20 25 30

Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55				60					
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ala	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala									

<210> 309
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 309
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cacatgccga gcctacgtca gcgtggcacc atggtggttaa cccatggcga aggcccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgta taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatt attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggg gttattacc cgcctaaaagg ctattttcag 720
gcgattctga ccattctgag caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgag 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
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tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggag 1140
ctggaagtgg tgaaagataa agcagcaaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccggg tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgag gaagtggcgt aa 1362

<210> 310
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 310
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
1 5 10 15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20 25 30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35 40 45
Tyr Leu Asp Ala Asn Ser Gly Leu Tyr Asn Met Val Ala Gly Phe Asp
50 55 60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro

65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ala	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Tyr	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
	195						200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
	355						360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370				375					380					
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390				395						400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
				405					410					415	
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Met	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 311

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 311

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgagtatga acgttttccg 240
ggctatcatg cgtttttacgg cctgatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatattggc ctgccgtgc cggtctttct gcatctgacc 540
tgcccgcatc attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
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gcgattctga ccacctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
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aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
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gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362
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<210> 312

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 312

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
```

Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Tyr	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
			165						170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
		180						185				190			
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
	195						200				205				
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
			245						250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260						265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
	275						280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325						330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340						345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
	355						360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
			405						410					415	
Ile	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420						425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 313

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 313

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atgaacaaac cgcagagctg ggaaacgcgt gcggaaactg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atgggtggtaa cccatggcga aggcccgtat 120
gtcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgta taacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg ccgtatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtgggtt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgctg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgtg gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362
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<210> 314

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 314

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Tyr Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Arg Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
```

145					150					155				160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly
				165					170					175
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly
			180					185					190	
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu
			195				200					205		
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu
	210					215					220			
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe
225					230					235				240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser
				245					250					255
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys
			260				265						270	
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu
		275					280					285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu
	290					295					300			
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His
305					310					315				320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys
			325						330					335
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg
			340				345						350	
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro
		355					360					365		
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val
	370				375						380			
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val
385					390					395				400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser
				405					410					415
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu
			420				425						430	
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Met	Ala	Leu	Asp	Lys
	435						440					445		
Phe	Ala	Glu	Val	Ala										
	450													

<210> 315

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 315

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cacatgccta gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgtgta gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgagtatga acgttttccg 240

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ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accgcgctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatt attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggg gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac tccgcatgcg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgctttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 316

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 316

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
           20           25           30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
           35           40           45
Tyr Leu Asp Ala Cys Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
           50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
           85           90           95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
           100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
           115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
           130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Ala Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
           165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
           180          185          190

```

Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
	195						200				205				
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
			245						250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280						285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325						330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370				375						380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
			405					410					415		
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420				425						430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 317

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 317

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cacatgccga gcctacgtca gctggcacc atggtggtaa cccatggcga aggcccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaat gctgtggtt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgacctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caatttggc ctgccgtgc cgggctttct gcattctgacc 540

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tgccgcatt attggcgta tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtag aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcggggcggg gttattaccg cgccaaaagg ctattttcag 720
gcgatttctga ccacacctgcg caaatatgat attccggatga tcagcgatga agtgatttgc 780
ggctttgggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attattagca gtaaaaacct aaccgcgggt tttttccag taggagcggg gattttgggg 900
ccggaactga gcaaactct ggaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
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aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
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```

<210> 318

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 318

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20           25           30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
        35           40           45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
        50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85           90           95
Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
        100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
        115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
        130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165          170          175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
        180          185          190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
        195          200          205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
        210          215          220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln

```

225					230					235				240	
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325						330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340					345						350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
	355						360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370				375						380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
			405						410					415	
Ile	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420					425					430			
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 319

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 319

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgcatt attggcgtaa tggcgaagaa ggcgaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggtgatggc tgcgggcggg gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840

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attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
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gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 320

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 320

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
165         170         175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
180         185         190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
195         200         205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
210         215         220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225         230         235         240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
245         250         255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
260         265         270

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Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325					330						335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
		340					345						350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
			405					410						415	
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
		420					425						430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Met	Ala	Leu	Asp	Lys	Val
	435						440					445			
Phe	Ala	Glu	Val	Ala											
	450														

<210> 321

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 321

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cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga agggccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gggggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
tgccgcatt attggcgtaa tggcgaagaa ggcgaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgat aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccattcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gatatttggg 900
ccggaactga gcaaactctt ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtgggt 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140

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ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgct gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 322
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 322

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu	1	5	10	15
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val	20	25	30	
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg	35	40	45	
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp	50	55	60	
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	65	70	75	80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu	85	90	95	
Ala	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	100	105	110	
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu	115	120	125	
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu	130	135	140	
Thr	Leu	Lys	Gly	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	145	150	155	160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	165	170	175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	180	185	190	
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	195	200	205	
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	210	215	220	
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	225	230	235	240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	245	250	255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	260	265	270	
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	275	280	285	
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	290	295	300	
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly				

305		310		315		320
Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala						
		325		330		335
Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu						
		340		345		350
Ala Pro Arg Phe Glu Glu Arg Leu Lys His Ile Ala Glu Arg Pro Asn						
		355		360		365
Ile Gly Glu Tyr Arg Gly Val Gly Phe Met Trp Ala Leu Glu Val Val						
		370		375		380
Lys Asp Lys Ala Ser Lys Ala Pro Phe Asp Gly Asn Leu Ser Val Ser						
385		390		395		400
Glu Arg Ile Ala Asn Thr Cys Thr Asp Leu Gly Leu Ile Cys Ser Pro						
		405		410		415
Leu Gly Gln Ser Val Val Leu Ala Pro Pro Tyr Ile Leu Thr Glu Ala						
		420		425		430
Gln Met Asp Glu Met Phe Asp Lys Leu Glu Lys Ala Leu Asp Lys Val						
		435		440		445
Phe Ala Glu Val Ala						
		450				

<210> 323

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 323

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgagtatga acgttttccg 240
ggctatcatg cgttttacgg ccgtatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgacctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgtgc cgggctttct gcattctgacc 540
tgcccgcatc attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccc cgcaaaaagg ctattttcag 720
gcgattctga ccattctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
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ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
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aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgct gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 324
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 324
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
 1 5 10 15
 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
 20 25 30
 Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
 35 40 45
 Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
 50 55 60
 His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
 65 70 75 80
 Gly Tyr His Ala Phe Tyr Gly Arg Met Ser Asp Gln Thr Val Met Leu
 85 90 95
 Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
 100 105 110
 Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
 115 120 125
 Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
 130 135 140
 Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
 145 150 155 160
 Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
 165 170 175
 Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
 180 185 190
 Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
 195 200 205
 Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
 210 215 220
 Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
 225 230 235 240
 Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
 245 250 255
 Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
 260 265 270
 Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
 275 280 285
 Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
 290 295 300
 Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Glu Phe Asp His Gly
 305 310 315 320
 Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala
 325 330 335
 Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu
 340 345 350

Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
			405					410					415		
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Tyr	Ile	Leu	Thr	Glu	Ala	
		420					425				430				
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
	435						440				445				
Phe	Ala	Glu	Val	Ala											
	450														

<210> 325

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 325

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accgggctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
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aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggctg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggtaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgtccgct gggtcagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 326

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 326

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu
1				5					10					15	
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val
			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120						125		
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200						205		
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280						285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
						295						300			
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Gly	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser

385		390		395		400
Glu Arg Ile Ala Asn Thr Cys Thr Asp Leu Gly Leu Ile Cys Arg Pro						
	405		410		415	
Leu Gly Gln Ser Val Val Leu Ala Pro Pro Tyr Ile Leu Thr Glu Ala						
	420		425		430	
Gln Met Asp Glu Met Phe Asp Lys Leu Glu Lys Ala Leu Asp Lys Val						
	435		440		445	
Phe Ala Glu Val Ala						
450						

<210> 327
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 327

atgaacaaac	cgagagctg	ggaaacgcgt	gcggaagagg	tgagcctgta	tgccctttacc	60
cacatgccga	gcctacgtca	gcgtggcacc	atggtggtaa	cccatggcga	aggcccgtat	120
atcgtggatg	tgcatggccg	tcgttatctg	gatgcgaaca	gcggcctgta	taacatgggtg	180
gcgggctttg	atcataaagg	cctgattgat	gcggcgaaag	cgagtatga	acgttttccg	240
ggctatcatg	cgttttacgg	cctgatgagc	gatcagaccg	tgatgctggc	ggaaaaactg	300
gtggaagtga	gcccgtttga	tagcggccgt	gtgtttgtga	ccaacagcgg	cagcgaagcg	360
aacgaaacca	tggtgaaaat	gctgtggttt	ctgcatcgtg	cggaaggcaa	accgcagaaa	420
cgtaaaattc	tgaccctgaa	gcaggcgtat	catggctcca	ccgcggtgag	cgcgagcatg	480
accggcctgg	gctataacag	caaatttggc	ctgccgctgc	cgggctttct	gcatctgacc	540
tgcccgcat	attggcgta	tggcgaagaa	ggcgaaaccg	aagaacagtt	tgtcgcgcgt	600
ctggcccgtg	aactggaaga	aaccattcag	aaggaaggcg	cggataccat	tgccggcttt	660
tttgcggaac	cggtgatggc	tgccggcggt	gttattacc	cgccaaaagg	ctattttcag	720
gcgattctga	ccatcctgcg	caaatatgat	attccggtga	tcagcgatga	agtgatttgc	780
ggctttggtc	gtaccggcaa	cacctggggc	tgctgac	atgattttac	cccggatgcg	840
attattagca	gtaaaaacct	aaccgcgggt	ttttttccag	taggagcggt	gattttgggg	900
ccggaactga	gcaaacgtct	ggaaaccgcg	attgaagcga	tcgaagaatt	tgatcatggt	960
tttaccacag	gcggccatcc	ggtgggttgt	gcgattgcgc	tgaaagcgat	tgatgtgggtg	1020
atgaacgaag	gcctggccga	aaacgtgcgt	cgtctggccc	cgctttttga	agaacgtctg	1080
aaacatattg	cggaacgtcc	gaacattggc	gaatatcgtg	gtgtgggctt	tatgtggg	1140
ctggaagtgg	tgaaagataa	agcgagcaaa	gccccgtttg	atggcaacct	gagcgtgagc	1200
gaacgtattg	cgaacacctg	caccgatctg	ggactgattt	gccgcccggg	tgccagagc	1260
gtggttctgg	caccgccgta	cattctgacc	gaagcgcaga	tgatgaaat	gttcgataaa	1320
ctggaaaaag	cgctggataa	agtgtttgcg	gaagtggcgt	aa		1362

<210> 328
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 328

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Glu	Val	Ser	Leu	1	5	10	15
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val	20	25	30	
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg	35	40	45	
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Tyr	Asn	Met	Val	Ala	Gly	Phe	Asp	50	55	60	
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	65	70	75	80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu	85	90	95	
Ala	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	100	105	110	
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu	115	120	125	
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu	130	135	140	
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	145	150	155	160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	165	170	175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	180	185	190	
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	195	200	205	
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	210	215	220	
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	225	230	235	240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	245	250	255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	260	265	270	
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	275	280	285	
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	290	295	300	
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly	305	310	315	320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala	325	330	335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu	340	345	350	
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn	355	360	365	
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val	370	375	380	
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser	385	390	395	400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro	405	410	415	
Val	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Tyr	Ile	Leu	Thr	Glu	Ala		420	425	430	

Gln Met Asp Glu Met Phe Asp Lys Leu Glu Lys Ala Leu Asp Lys Val
435 440 445
Phe Ala Glu Val Ala
450

<210> 329
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 329
atgaacaaac cgcagagctg ggaaacgcgt gcggaagagg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atgggtggtaa cccatggcga agggccgtat 120
atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtgggtc ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttcag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 330
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 330
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
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Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20 25 30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg

		35					40				45				
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55					60				
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70					75					80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ala	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260					265					270			
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390										

<210> 331
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 331
 atgaacaaac cgcagagctg ggaaacgcgt gcggaaactg tgagcctgta tgcctttacc 60
 cacatgccga gcctacgtca gcgtggcacc atgggtggttaa cccatggcga aggcccgtat 120
 atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt taacatgggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
 ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
 gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tgggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
 cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
 accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
 tgcccgcatt attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
 ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
 tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
 gcgattctga ccattctgcg caaatatgat attccggtga tcagcagatga agtgatttgc 780
 ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgcatgacg 840
 attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
 ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
 tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
 atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
 aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
 ctggaagtgg tgaaagataa agcagcaaaa gccccgtttg atggcaacct gagcgtgagc 1200
 gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgtt gggccagagc 1260
 gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
 ctggaaaaag cgctggataa agtgtttgctg gaagtggcgt aa 1362

<210> 332
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 332
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
 1 5 10 15
 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
 20 25 30
 Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
 35 40 45
 Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
 50 55 60
 His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
 65 70 75 80

Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
			85						90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Tyr	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ser	Pro
				405					410					415	
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
			450												

<210> 333

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 333

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atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgcatc attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
ctggcccggtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccattctgag caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttat tccggatgag 840
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ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcggggaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgctttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggag 1140
ctggaagtgg tgaaagataa agcagcaaaa gcccgtttg atgataacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcgcgccggg cggtcagagc 1260
gtggttctgg caccgccgta cattctgacc gaagtacaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgag gaagtggcgt aa 1362
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<210> 334

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 334

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Lys Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
```



```

atgaacaaac cgcagagctg ggaaacgcgt gcggaaactg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atgggtggtaa cccatggcga aggcccgtat 120
atcgtgggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggccccgtg aactggaaga aaccattcag aagggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgacg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaactctt ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
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aaacatattg cggaacttcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 336

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 336

```

Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Tyr Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160

```


Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	
				165					170					175		
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	
			180					185						190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	
		195					200						205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	
	210					215					220					
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	
	225				230					235					240	
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	
				245					250					255		
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	
			260					265					270			
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	
		275					280						285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	
	290					295					300					
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly	
	305				310					315					320	
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala	
				325					330					335		
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu	
			340					345					350			
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn	
		355					360						365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val	
	370					375					380					
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser	
	385				390					395					400	
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro	
				405					410					415		
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala	
			420					425						430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val	
	435						440						445			
Phe	Ala	Glu	Val	Ala												
	450															

<210> 337

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 337

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atgaacaaac cgcagagctg ggaaacgcgt gcggaaactg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atggtggtaa cccatggcga agggccgtat 120
gtcgtggatg tgcatggccg tcgttatctg gatgcgaaca gcggcctgta taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc ggaaaaactg 300

```

```

gtggaagtga gcccgtttga tagcgggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggtac ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gggggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatattggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggg gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccacctgctg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgctg 840
attattagca gtaaaaacct aaccgcgggt tttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgat tggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaagg cgctggataa agtgtttgct gaagtggcgt aa 1362

```

<210> 338

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 338

```

Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1           5           10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Tyr Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Tyr Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130         135         140
Thr Leu Lys Gly Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165         170         175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180         185         190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr

```



```

ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattaccc cgccaaaagg ctatttttcag 720
gcgattctga ccacctctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attattagca gtaaaaacct aaccgcgggt tttttccag taggagcggt gattttgggg 900
ccggaactga gcaaactgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
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aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcagcaaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgct gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

```

<210> 340

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 340

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
          130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
          165         170         175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
          180         185         190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
          195         200         205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
210         215         220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225         230         235         240

```



```

ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

```

<210> 342

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 342

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Ala Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35          40          45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
100         105         110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
115         120         125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
130         135         140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145         150         155         160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
165         170         175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
180         185         190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
195         200         205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
210         215         220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225         230         235         240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
245         250         255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
260         265         270
Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr

```

	275		280		285
Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser					
290			295		300
Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Glu Phe Asp His Gly					
305			310		315
Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala					
	325		330		335
Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu					
	340		345		350
Ala Pro Arg Phe Glu Glu Arg Leu Lys His Ile Ala Glu Arg Pro Asn					
	355		360		365
Ile Gly Glu Tyr Arg Gly Val Gly Phe Met Trp Ala Leu Glu Val Val					
	370		375		380
Lys Asp Lys Ala Ser Lys Ala Pro Phe Asp Gly Asn Leu Ser Val Ser					
385			390		395
Glu Arg Ile Ala Asn Thr Cys Thr Asp Leu Gly Leu Ile Cys Arg Pro					
	405		410		415
Leu Gly Gln Ser Val Val Leu Ala Pro Pro Tyr Ile Leu Thr Glu Ala					
	420		425		430
Gln Met Asp Glu Met Phe Asp Lys Leu Glu Lys Ala Leu Asp Lys Val					
	435		440		445
Phe Ala Glu Val Ala					
450					

<210> 343

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 343

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cacatgccga gcctacgtca gcgtggcacc atggtggttaa cccatggcga aggcccgtat 120
gtcgtggatg tgcatggccg tcgttatctg gatgcgaaca gcggcctgtt taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg ccgtatgagc gatcagaccg tgatgctgtc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tggtgaaaat gctgtggttc ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
tgcccgcat attggcgta tggcgaagaa ggcgaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgaggc tgcgggcggg gttattacc cgccaaaagg ctattttcag 720
gcgattctga ccacctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attattagca gtaaaaacct aaccgcgggg ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgctttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggcaacct gagcgtgagc 1200

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gaacgtattg cgaacacctg caccgatctg ggactgattt gccgcccgt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 344

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 344

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1      5      10      15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
      20      25      30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
      35      40      45
Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
      50      55      60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65      70      75      80
Gly Tyr His Ala Phe Tyr Gly Arg Met Ser Asp Gln Thr Val Met Leu
      85      90      95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
      100     105     110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
      115     120     125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
      130     135     140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145     150     155     160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
      165     170     175
Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
      180     185     190
Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
      195     200     205
Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
      210     215     220
Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
225     230     235     240
Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
      245     250     255
Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
      260     265     270
Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
      275     280     285
Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
      290     295     300
Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Phe Asp His Gly
305     310     315     320

```


Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390				395						400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
			405					410					415		
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420				425					430			
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Met	Ala	Leu	Asp	Lys	Val
	435					440					445				
Phe	Ala	Glu	Val	Ala											
	450														

<210> 345

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 345

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gtcgtggatg tgcattggcc tcgttatctg gatgcgaaca gcggcctgtt taacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgtttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtgggtt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgacctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatttggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aagggaaggc cgataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggt gttattacc cgccaaaagg ctattttcag 720
gcgattctga ccattcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccgatgctg 840
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gaacgtattg cgaacacctg caccgatctg ggactgattt gcagcccgct gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtggttgcg gaagtggcgt aa 1362

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<210> 346
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 346
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 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
 20 25 30
 Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
 35 40 45
 Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
 50 55 60
 His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
 65 70 75 80
 Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
 85 90 95
 Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
 100 105 110
 Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
 115 120 125
 Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
 130 135 140
 Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
 145 150 155 160
 Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe
 165 170 175
 Leu His Leu Thr Cys Pro His Tyr Trp Arg Tyr Gly Glu Glu Gly Glu
 180 185 190
 Thr Glu Glu Gln Phe Val Ala Arg Leu Ala Arg Glu Leu Glu Glu Thr
 195 200 205
 Ile Gln Lys Glu Gly Ala Asp Thr Ile Ala Gly Phe Phe Ala Glu Pro
 210 215 220
 Val Met Ala Ala Gly Gly Val Ile Thr Pro Pro Lys Gly Tyr Phe Gln
 225 230 235 240
 Ala Ile Leu Thr Ile Leu Arg Lys Tyr Asp Ile Pro Val Ile Ser Asp
 245 250 255
 Glu Val Ile Cys Gly Phe Gly Arg Thr Gly Asn Thr Trp Gly Cys Val
 260 265 270
 Thr Tyr Asp Phe Thr Pro Asp Ala Ile Ile Ser Ser Lys Asn Leu Thr
 275 280 285
 Ala Gly Phe Phe Pro Val Gly Ala Val Ile Leu Gly Pro Glu Leu Ser
 290 295 300
 Lys Arg Leu Glu Thr Ala Ile Glu Ala Ile Glu Glu Phe Asp His Gly
 305 310 315 320
 Phe Thr Thr Gly Gly His Pro Val Gly Cys Ala Ile Ala Leu Lys Ala
 325 330 335
 Ile Asp Val Val Met Asn Glu Gly Leu Ala Glu Asn Val Arg Arg Leu
 340 345 350
 Ala Pro Arg Phe Glu Glu Arg Leu Lys His Ile Ala Glu Arg Pro Asn

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 348

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu
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			20					25					30		
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg
		35					40					45			
Tyr	Leu	Asp	Ala	Asn	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
	50					55				60					
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70				75						80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
			85						90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100					105					110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120					125			
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135				140					
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150				155						160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
		260						265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310				315						320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400

Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Ala	Pro
				405					410					415	
Gly	Asp	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
		450													

<210> 349
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 349

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cacatgccta	gcctacgtca	gcgtggcacc	atgggtggtaa	cccatggcga	aggcccgtat	120
atcgtggatg	tgcatggccg	tcgttatctg	gatgcgtgta	gcggcctgtt	caacatgggtg	180
gcgggctttg	atcataaagg	cctgattgat	gcggcgaaag	cgagtatga	acgttttccg	240
ggctatcatg	cgttttacgg	cctgatgagc	gatcagaccg	tgatgctgtc	tgaaaaactg	300
gtggaagtga	gcccgtttga	tagcggccgt	gtgtttgtga	ccaacagcgg	cagcgaagcg	360
aacgaaacca	tggtgaaaat	gctgtggttt	ctgcatcgtg	cgggaaggcaa	accgcagaaa	420
cgtaaaattc	tgaccctgaa	gcaggcgtat	catggctcca	ccgcggtgag	cgcgagcatg	480
accgcgctgg	gctataacag	caaatttggc	ctgccgctgc	cgggctttct	gcatctgacc	540
tgcccgcatt	attggcgcta	tggcgaagaa	ggcgaaaccg	aagaacagtt	tgtcgcgcgt	600
ctggcccgtg	aactggaaga	aaccattcag	aaggaaggcg	cggataccat	tgcgggcttt	660
tttgcggaac	cggtgatggc	tgcgggcggt	gttattacc	cgccaaaagg	ctattttcag	720
gcgattctga	ccatcctgcg	caaatatgat	attccggtga	tcagcgatga	agtgatttgc	780
ggctttggtc	gtaccggcaa	cacctggggc	tgctgacct	atgattttac	tccggatgcg	840
attattagca	gtaaaaacct	aaccgcgggt	ttttttccag	taggagcggt	gattttgggg	900
ccggaactga	gcaaacgtct	ggaaaccgcg	attgaagcga	tcgaggaatt	tgatcatggt	960
tttaccacag	gcggccatcc	ggtgggttgt	gcgattgcgc	tgaaagcgat	tgatgtggtg	1020
atgaacgaag	gcctggccga	aaacgtgcgt	cgtctggccc	cgctttttga	agaacgtctg	1080
aaacatatg	cggaaacgtc	gaacattggc	gaatatcgtg	gtgtgggctt	tatgtgggcg	1140
ctggaagtgg	tgaaagataa	agcgagcaaa	gccccgtttg	atggtaacct	gagcgtgagc	1200
gaacgtattg	cgaacacctg	caccgatctg	ggactgattt	gccgtccgct	ggatcagagc	1260
gtggttctgg	caccgccgta	cattctgacc	gaagtacaga	tgatgaaat	gttcgataaa	1320
ctggaaaaag	cgctggataa	agtgtttgcg	gaagtggcgt	aa		1362

<210> 350
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 350

Met	Asn	Lys	Pro	Gln	Ser	Trp	Glu	Thr	Arg	Ala	Glu	Thr	Val	Ser	Leu
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1				5				10				15				
Tyr	Ala	Phe	Thr	His	Met	Pro	Ser	Leu	Arg	Gln	Arg	Gly	Thr	Met	Val	
			20					25					30			
Val	Thr	His	Gly	Glu	Gly	Pro	Tyr	Ile	Val	Asp	Val	His	Gly	Arg	Arg	
		35					40					45				
Tyr	Leu	Asp	Ala	Cys	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp	
	50					55					60					
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro	
65					70					75					80	
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu	
			85						90					95		
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe	
			100					105					110			
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu	
		115					120					125				
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu	
	130					135					140					
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met	
145					150					155					160	
Thr	Ala	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe	
			165						170					175		
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu	
			180					185					190			
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr	
	195						200					205				
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro	
	210					215					220					
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln	
225					230					235					240	
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp	
			245						250					255		
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val	
			260					265					270			
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr	
		275					280						285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser	
	290					295					300					
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly	
305					310					315					320	
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala	
			325						330					335		
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu	
			340					345					350			
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn	
		355					360					365				
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val	
	370					375					380					
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser	
385					390					395					400	
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro	
			405						410					415		
Leu	Asp	Gln	Ser	Val	Val	Leu	Ala	Pro	Tyr	Ile	Leu	Thr	Glu	Val		
		420						425					430			
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val	

435
Phe Ala Glu Val Ala
450

440

445

<210> 351
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 351
atgaacaaac cgcagagctg ggaaacgcgt gcggaaaccg tgagcctgta tgcctttacc 60
cacatgccga gcctacgtca gcgtggcacc atgggtggtaa cccatggcga aggcccgat 120
atcgtggatg tgcattggcc tcgttatctg gatgcgtgta gcggcctgtt caacatgggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaat gctgtgggtt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accgggctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcattctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgat aactggaaga aaccattcag aagggaaggc cggaaccatc tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggctgg gttattaccg cgccaaaagg ctattttcag 720
gcgattctga ccatcctgag caaatatgat attccggtga tcagcagatg agtgatttgc 780
ggctttgggtc gtaccggcaa cacctggggc tgcgtgacct atgattttat tccggatgag 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gatatttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaggaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggag 1140
ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atgataacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgaccgtt gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcacaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtgtttgag gaagtggcgt aa 1362

<210> 352
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 352
Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1 5 10 15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20 25 30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
35 40 45

Tyr	Leu	Asp	Ala	Cys	Ser	Gly	Leu	Phe	Asn	Met	Val	Ala	Gly	Phe	Asp
50						55				60					
His	Lys	Gly	Leu	Ile	Asp	Ala	Ala	Lys	Ala	Gln	Tyr	Glu	Arg	Phe	Pro
65					70				75						80
Gly	Tyr	His	Ala	Phe	Tyr	Gly	Leu	Met	Ser	Asp	Gln	Thr	Val	Met	Leu
				85					90					95	
Ser	Glu	Lys	Leu	Val	Glu	Val	Ser	Pro	Phe	Asp	Ser	Gly	Arg	Val	Phe
			100				105						110		
Val	Thr	Asn	Ser	Gly	Ser	Glu	Ala	Asn	Glu	Thr	Met	Val	Lys	Met	Leu
		115					120				125				
Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
	130					135				140					
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200				205				
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
	210					215				220					
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Thr	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Ile	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280					285			
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	290					295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
				325					330					335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Asp	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn											

<210> 353
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 353
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 cacatgccta gcctacgtca gcgtggcacc atggtggtaa cccatggcga aggcccgat 120
 atcgtggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgtt caacatgggtg 180
 gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
 ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
 gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
 aacgaaacca tggtagaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
 cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
 accgcgctgg gctataacag caaatttggc ctgccgtgc cgggctttct gcatctgacc 540
 tgcccgcatc attggcgtaa tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
 ctggcccggt aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
 tttgcggaac cggatgatggc tgcgggcggt gttattacc cgcctaaagg ctattttcag 720
 gcgattctga ccattcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
 ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggtatgcg 840
 attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
 ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaggaatt tgatcatggt 960
 ttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtgggtg 1020
 atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
 aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
 ctggaagtgg tgaaagataa agcgagcaaa gccccgtttg atggtaacct gagcgtgagc 1200
 gaacgtattg cgaacacctg caccgatctg ggactgattt gccgtccgct ggatcagagc 1260
 gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
 ctggaaaaag cgctggataa agtgtttgcg gaagtggcgt aa 1362

<210> 354
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 354
 Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
 1 5 10 15
 Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
 20 25 30
 Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
 35 40 45
 Tyr Leu Asp Ala Asn Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
 50 55 60
 His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
 65 70 75 80
 Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 355

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atcgtggatg tgcattggccg tcgttatctg gatgcgtgta gcggcctgtt caacatggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgttttacgg cctgatgagc gatcagaccg tgatgctgtc tgaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtggttt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accgggctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcatctgacc 540
tgcccgcatc attggcggtt tggcgaagaa ggcgaaaccg aagaacagtt tgcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aagggaaggc cgataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgcgggcggg gttattatcc cgccaaaagg ctattttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac tccggatgag 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gattttgggg 900
ccggaactga gcaaacgtct ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaacgtctg 1080
aaacatattg cggaacgtcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggag 1140
ctggaagtgg tgaaagataa agcagcaaaa gcccgtttg atggtaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgtccgct gggtcagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcacaga tggatgaaat gttcgataaa 1320
ctggaaaaag cgctggataa agtggttgcg gaagtggcgt aa 1362
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<210> 356

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 356

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Thr Val Ser Leu
1          5          10          15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
          20          25          30
Val Thr His Gly Glu Gly Pro Tyr Ile Val Asp Val His Gly Arg Arg
          35          40          45
Tyr Leu Asp Ala Cys Ser Gly Leu Phe Asn Met Val Ala Gly Phe Asp
          50          55          60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65          70          75          80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
          85          90          95
Ser Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
          100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
          115          120          125
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Trp	Phe	Leu	His	Arg	Ala	Glu	Gly	Lys	Pro	Gln	Lys	Arg	Lys	Ile	Leu
130						135					140				
Thr	Leu	Lys	Gln	Ala	Tyr	His	Gly	Ser	Thr	Ala	Val	Ser	Ala	Ser	Met
145					150					155					160
Thr	Gly	Leu	Gly	Tyr	Asn	Ser	Lys	Phe	Gly	Leu	Pro	Leu	Pro	Gly	Phe
				165					170					175	
Leu	His	Leu	Thr	Cys	Pro	His	Tyr	Trp	Arg	Tyr	Gly	Glu	Glu	Gly	Glu
			180					185					190		
Thr	Glu	Glu	Gln	Phe	Val	Ala	Arg	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Thr
		195					200					205			
Ile	Gln	Lys	Glu	Gly	Ala	Asp	Thr	Ile	Ala	Gly	Phe	Phe	Ala	Glu	Pro
210						215					220				
Val	Met	Ala	Ala	Gly	Gly	Val	Ile	Ile	Pro	Pro	Lys	Gly	Tyr	Phe	Gln
225					230					235					240
Ala	Ile	Leu	Thr	Ile	Leu	Arg	Lys	Tyr	Asp	Ile	Pro	Val	Ile	Ser	Asp
				245					250					255	
Glu	Val	Ile	Cys	Gly	Phe	Gly	Arg	Thr	Gly	Asn	Thr	Trp	Gly	Cys	Val
			260					265					270		
Thr	Tyr	Asp	Phe	Thr	Pro	Asp	Ala	Ile	Ile	Ser	Ser	Lys	Asn	Leu	Thr
		275					280						285		
Ala	Gly	Phe	Phe	Pro	Val	Gly	Ala	Val	Ile	Leu	Gly	Pro	Glu	Leu	Ser
		290				295					300				
Lys	Arg	Leu	Glu	Thr	Ala	Ile	Glu	Ala	Ile	Glu	Glu	Phe	Asp	His	Gly
305					310					315					320
Phe	Thr	Thr	Gly	Gly	His	Pro	Val	Gly	Cys	Ala	Ile	Ala	Leu	Lys	Ala
			325					330						335	
Ile	Asp	Val	Val	Met	Asn	Glu	Gly	Leu	Ala	Glu	Asn	Val	Arg	Arg	Leu
			340					345					350		
Ala	Pro	Arg	Phe	Glu	Glu	Arg	Leu	Lys	His	Ile	Ala	Glu	Arg	Pro	Asn
		355					360					365			
Ile	Gly	Glu	Tyr	Arg	Gly	Val	Gly	Phe	Met	Trp	Ala	Leu	Glu	Val	Val
	370					375					380				
Lys	Asp	Lys	Ala	Ser	Lys	Ala	Pro	Phe	Asp	Gly	Asn	Leu	Ser	Val	Ser
385					390					395					400
Glu	Arg	Ile	Ala	Asn	Thr	Cys	Thr	Asp	Leu	Gly	Leu	Ile	Cys	Arg	Pro
				405				410						415	
Leu	Gly	Gln	Ser	Val	Val	Leu	Ala	Pro	Pro	Tyr	Ile	Leu	Thr	Glu	Ala
			420					425					430		
Gln	Met	Asp	Glu	Met	Phe	Asp	Lys	Leu	Glu	Lys	Ala	Leu	Asp	Lys	Val
		435					440					445			
Phe	Ala	Glu	Val	Ala											
															450

<210> 357

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 357

atgaacaaac cgcagagctg ggaaacgcgt gcggaagagg tgagcctgta tgcctttacc 60

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gtcgtgggatg tgcattggccg tcgttatctg gatgcgaaca gcggcctgta taacattggtg 180
gcgggctttg atcataaagg cctgattgat gcggcgaaag cgcagtatga acgttttccg 240
ggctatcatg cgtttttacgg cctgatgagc gatcagaccg tgatgctggc ggaaaaactg 300
gtggaagtga gcccgtttga tagcggccgt gtgtttgtga ccaacagcgg cagcgaagcg 360
aacgaaacca tgggtgaaaat gctgtgggtt ctgcatcgtg cggaaggcaa accgcagaaa 420
cgtaaaattc tgaccctgaa gcaggcgtat catggctcca ccgcggtgag cgcgagcatg 480
accggcctgg gctataacag caaatgtggc ctgccgctgc cgggctttct gcattctgacc 540
tgcccgcatc attggcggtta tggcgaagaa ggcgaaaccg aagaacagtt tgtcgcgcgt 600
ctggcccgtg aactggaaga aaccattcag aaggaaggcg cggataccat tgcgggcttt 660
tttgcggaac cggatgatggc tgccggcggt gttattaccg cgccaaaagg ctatttttcag 720
gcgattctga ccatcctgcg caaatatgat attccggtga tcagcgatga agtgatttgc 780
ggctttggtc gtaccggcaa cacctggggc tgcgtgacct atgattttac cccggatgcg 840
attattagca gtaaaaacct aaccgcgggt ttttttccag taggagcggg gatatttgggg 900
ccggaactga gcaaactctt ggaaaccgcg attgaagcga tcgaagaatt tgatcatggt 960
tttaccacag gcggccatcc ggtgggttgt gcgattgcgc tgaaagcgat tgatgtggtg 1020
atgaacgaag gcctggccga aaacgtgcgt cgtctggccc cgcgttttga agaactctg 1080
aaacatattg cggaacttcc gaacattggc gaatatcgtg gtgtgggctt tatgtgggcg 1140
ctggaagtgg tgaaagataa agcagcaaaa gccccgtttg atggcaacct gagcgtgagc 1200
gaacgtattg cgaacacctg caccgatctg ggactgattt gccgccgct gggccagagc 1260
gtggttctgg caccgccgta cattctgacc gaagcgcaga tggatgaaat gttcgataaa 1320
ctggaaatgg cgctggataa agtgtttgcg gaagtggcgt aa 1362

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<210> 358

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Variant of Transaminase enzyme from *Vibrio fluvialis*

<400> 358

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Met Asn Lys Pro Gln Ser Trp Glu Thr Arg Ala Glu Glu Val Ser Leu
1           5           10           15
Tyr Ala Phe Thr His Met Pro Ser Leu Arg Gln Arg Gly Thr Met Val
20           25           30
Val Thr His Gly Glu Gly Pro Tyr Val Val Asp Val His Gly Arg Arg
35           40           45
Tyr Leu Asp Ala Asn Ser Gly Leu Tyr Asn Met Val Ala Gly Phe Asp
50           55           60
His Lys Gly Leu Ile Asp Ala Ala Lys Ala Gln Tyr Glu Arg Phe Pro
65           70           75           80
Gly Tyr His Ala Phe Tyr Gly Leu Met Ser Asp Gln Thr Val Met Leu
85           90           95
Ala Glu Lys Leu Val Glu Val Ser Pro Phe Asp Ser Gly Arg Val Phe
100          105          110
Val Thr Asn Ser Gly Ser Glu Ala Asn Glu Thr Met Val Lys Met Leu
115          120          125
Trp Phe Leu His Arg Ala Glu Gly Lys Pro Gln Lys Arg Lys Ile Leu
130          135          140
Thr Leu Lys Gln Ala Tyr His Gly Ser Thr Ala Val Ser Ala Ser Met
145          150          155          160
Thr Gly Leu Gly Tyr Asn Ser Lys Phe Gly Leu Pro Leu Pro Gly Phe

```

[illegible]