

SEQUENCE LISTING

<110> API Corporation

<120> Novel hydrolase

<130> 11423A

<160> 20

<170> PatentIn version 3.1

<210> 1

<211> 489

<212> PRT

<213> Bacillus subtilis

<400> 1

Met Thr His Gln Ile Val Thr Thr Gln Tyr Gly Lys Val Lys Gly Thr

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Thr Glu Asn Gly Val His Lys Trp Lys Gly Ile Pro Tyr Ala Lys Pro

20 25 30

Pro Val Gly Gln Trp Arg Phe Lys Ala Pro Glu Pro Pro Glu Val Trp

35 40 45

Glu Asp Val Leu Asp Ala Thr Ala Tyr Gly Ser Ile Cys Pro Gln Pro

50 55 60

Ser Asp Leu Leu Ser Leu Ser Tyr Thr Glu Leu Pro Arg Gln Ser Glu

65 70 75 80

Asp Cys Leu Tyr Val Asn Val Phe Ala Pro Asp Thr Pro Ser Lys Asn

85 90 95

Leu Pro Val Met Val Trp Ile His Gly Gly Ala Phe Tyr Leu Gly Ala

100 105 110

Gly Ser Glu Pro Leu Tyr Asp Gly Ser Lys Leu Ala Ala Gln Gly Glu

115 120 125

Val Ile Val Val Thr Leu Asn Tyr Arg Leu Gly Pro Phe Gly Phe Leu

130 135 140

His Leu Ser Ser Phe Asn Glu Ala Tyr Ser Asp Asn Leu Gly Leu Leu

145 150 155 160

Asp Gln Ala Ala Ala Leu Lys Trp Val Arg Glu Asn Ile Ser Ala Phe

165 170 175

Gly Gly Asp Pro Asp Asn Val Thr Val Phe Gly Glu Ser Ala Gly Gly

180 185 190

Met Ser Ile Ala Ala Leu Leu Ala Met Pro Ala Ala Lys Gly Leu Phe
 195 200 205
 Gln Lys Ala Ile Met Glu Ser Gly Ala Ser Arg Thr Met Thr Lys Glu
 210 215 220
 Gln Ala Ala Ser Thr Ser Ala Ala Phe Leu Gln Val Leu Gly Ile Asn
 225 230 235 240
 Glu Gly Gln Leu Asp Lys Leu His Thr Val Ser Ala Glu Asp Leu Leu
 245 250 255
 Lys Ala Ala Asp Gln Leu Arg Ile Ala Glu Lys Glu Asn Ile Phe Gln
 260 265 270
 Leu Phe Phe Gln Pro Ala Leu Asp Pro Lys Thr Leu Pro Glu Glu Pro
 275 280 285
 Glu Lys Ala Ile Ala Glu Gly Ala Ala Ser Gly Ile Pro Leu Leu Ile
 290 295 300
 Gly Thr Thr Arg Asp Glu Gly Tyr Leu Phe Phe Thr Pro Asp Ser Asp
 305 310 315 320
 Val His Ser Gln Glu Thr Leu Asp Ala Ala Leu Glu Tyr Leu Leu Gly
 325 330 335
 Lys Pro Leu Ala Glu Lys Val Ala Asp Leu Tyr Pro Arg Ser Leu Glu
 340 345 350
 Ser Gln Ile His Met Met Thr Asp Leu Leu Phe Trp Arg Pro Ala Val
 355 360 365
 Ala Tyr Ala Ser Ala Gln Ser His Tyr Ala Pro Val Trp Met Tyr Arg
 370 375 380
 Phe Asp Trp His Pro Lys Lys Pro Pro Tyr Asn Lys Ala Phe His Ala
 385 390 395 400
 Leu Glu Leu Pro Phe Val Phe Gly Asn Leu Asp Gly Leu Glu Arg Met
 405 410 415
 Ala Lys Ala Glu Ile Thr Asp Glu Val Lys Gln Leu Ser His Thr Ile
 420 425 430
 Gln Ser Ala Trp Ile Thr Phe Ala Lys Thr Gly Asn Pro Ser Thr Glu
 435 440 445
 Ala Val Asn Trp Pro Ala Tyr His Glu Glu Thr Arg Glu Thr Leu Ile
 450 455 460
 Leu Asp Ser Glu Ile Thr Ile Glu Asn Asp Pro Glu Ser Glu Lys Arg

465 470 475 480
 Gln Lys Leu Phe Pro Ser Lys Gly Glu
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 <211> 489
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 <213> Bacillus subtilis
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 Pro Val Gly Gln Trp Arg Phe Lys Ala Pro Glu Pro Pro Glu Val Trp
 35 40 45
 Glu Asp Val Leu Asp Ala Thr Ala Tyr Gly Pro Val Cys Pro Gln Pro
 50 55 60
 Ser Asp Leu Leu Ser Leu Ser Tyr Thr Glu Leu Pro Arg Gln Ser Glu
 65 70 75 80
 Asp Cys Leu Phe Val Asn Val Phe Ala Pro Asp Thr Pro Ser Gln Asn
 85 90 95
 Leu Pro Val Met Val Trp Ile His Gly Gly Ala Phe Tyr Leu Gly Ala
 100 105 110
 Gly Ser Glu Pro Leu Tyr Asp Gly Ser Lys Leu Ala Ala Gln Gly Glu
 115 120 125
 Val Ile Val Val Thr Leu Asn Tyr Arg Leu Gly Pro Phe Gly Phe Leu
 130 135 140
 His Leu Ser Ser Phe Asp Glu Ala Tyr Ser Asp Asn Leu Gly Leu Leu
 145 150 155 160
 Asp Gln Val Ala Ala Leu Lys Trp Val Arg Glu Asn Ile Ser Ala Phe
 165 170 175
 Gly Gly Asp Pro Asp Asn Val Thr Val Phe Gly Glu Ser Ala Gly Gly
 180 185 190
 Met Ser Ile Ala Ala Leu Leu Ala Met Pro Ala Ala Lys Gly Leu Phe
 195 200 205
 Gln Lys Ala Val Met Glu Ser Gly Ala Ser Arg Thr Met Thr Lys Glu

210	215	220	
Gln Ala Ala Ser Thr Ser Ala Ala Phe Leu Gln Val Leu Gly Ile Asn			
225	230	235	240
Glu Gly Gln Leu Asp Lys Leu His Thr Val Ser Ala Glu Asp Leu Leu			
245	250	255	
Lys Ala Ala Asp Gln Leu Arg Ile Ala Glu Lys Glu Asn Ile Phe Gln			
260	265	270	
Leu Phe Phe Gln Pro Ala Leu Asp Pro Lys Thr Leu Pro Ala Glu Pro			
275	280	285	
Glu Lys Ala Ile Ala Glu Gly Ala Ala Ser Gly Ile Pro Leu Leu Ile			
290	295	300	
Gly Thr Thr Arg Asp Glu Gly Tyr Leu Phe Phe Thr Pro Asp Ser Asp			
305	310	315	320
Val His Ser Gln Glu Thr Leu Asp Ala Ala Leu Glu Tyr Leu Leu Gly			
325	330	335	
Lys Pro Leu Ala Glu Lys Ala Ala Asp Leu Tyr Pro Arg Ser Leu Glu			
340	345	350	
Ser Gln Ile His Met Met Thr Asp Leu Leu Phe Trp Arg Pro Ala Val			
355	360	365	
Ala Tyr Ala Ser Ala His Ser His Tyr Ala Pro Val Trp Met Tyr Arg			
370	375	380	
Phe Asp Trp His Pro Glu Lys Pro Pro Tyr Asn Lys Ala Phe His Ala			
385	390	395	400
Leu Glu Leu Pro Phe Val Phe Gly Asn Leu Asp Gly Leu Glu Arg Met			
405	410	415	
Ala Lys Ala Glu Val Thr Asp Glu Val Lys Gln Leu Ser His Ser Ile			
420	425	430	
Gln Ser Ala Trp Ile Thr Phe Ala Lys Thr Gly Asn Pro Ser Thr Glu			
435	440	445	
Ala Val Asn Trp Pro Ala Tyr Gln Glu Glu Thr Arg Glu Thr Leu Ile			
450	455	460	
Leu Asp Ser Glu Ile Thr Ile Glu Asn Asp Pro Glu Ser Glu Lys Arg			
465	470	475	480
Gln Lys Leu Phe Pro Ser Lys Gly Glu			
485			

<210> 3

<211> 489

<212> PRT

<213> Bacillus subtilis

<400> 3

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

Glu Ser Gln Leu Asp Arg Leu His Thr Val Ser Thr Glu Asp Leu Leu
 245 250 255
 Asn Ala Ala Asp Gln Leu Arg Lys Ala Glu Asn Glu Asn Leu Phe Gln
 260 265 270
 Leu Leu Phe Gln Pro Ala Leu Asp Pro Lys Thr Leu Pro Ala Glu Pro
 275 280 285
 Glu Lys Ala Ile Ala Glu Gly Thr Ala Ala Gly Ile Pro Leu Leu Ile
 290 295 300
 Gly Thr Asn Arg Asp Glu Gly Tyr Leu Phe Phe Thr Pro Asp Ser Asp
 305 310 315 320
 Val His Ser Gln Glu Thr Phe Asp Ala Ala Leu Glu Tyr Leu Leu Gly
 325 330 335
 Gln Pro Leu Ala Lys Lys Ala Ala Asp Leu Tyr Pro Arg Phe Leu Glu
 340 345 350
 Ser Gln Ile His Met Met Thr Asp Leu Leu Phe Trp Arg Pro Ala Val
 355 360 365
 Ala Tyr Ala Ser Ala Gln Ser His Tyr Ala Pro Val Trp Met Tyr Arg
 370 375 380
 Phe Asp Trp His Ser Asp Lys Pro Pro Tyr Asn Lys Ala Phe His Ala
 385 390 395 400
 Leu Glu Leu Pro Phe Val Phe Gly Asn Leu Asp Gly Leu Glu Leu Met
 405 410 415
 Ala Lys Ala Glu Val Thr Asp Glu Val Lys Gln Leu Phe His Thr Ile
 420 425 430
 Gln Ser Ala Trp Thr Thr Phe Ala Lys Thr Gly Asn Pro Ser Thr Glu
 435 440 445
 Asp Val Lys Trp Pro Ala Tyr His Glu Glu Thr Arg Glu Thr Leu Ile
 450 455 460
 Leu Glu Ser Glu Ile Trp Met Glu Asn Asp Pro Glu Cys Glu Lys Arg
 465 470 475 480
 Gln Lys Leu Phe Pro Ser Lys Gly Glu
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<210> 4

<211> 489

<212> PRT

<213> Bacillus subtilis

<400> 4

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

260	265	270
Leu Leu Phe Gln Pro Ala Leu Asp Pro Lys Thr Leu Pro Ala Glu Pro		
275	280	285
Glu Lys Ala Ile Ala Gly Gly Ala Ala Ala Asp Ile Pro Leu Leu Ile		
290	295	300
Gly Thr Asn Arg Asp Glu Gly Tyr Leu Phe Phe Thr Pro Asp Ser Asp		
305	310	315
Val His Ser Gln Glu Thr Phe Asn Ala Ala Leu Glu Tyr Leu Leu Glu		
325	330	335
Gln Pro Leu Ala Lys Lys Ala Ala Asp Leu Tyr Pro Arg Ser Leu Glu		
340	345	350
Ser Gln Ile His Met Met Thr Asp Leu Leu Phe Trp Arg Pro Ala Val		
355	360	365
Ala Tyr Ala Ser Ala Gln Ser Gln Tyr Ala Pro Val Trp Met Tyr Arg		
370	375	380
Phe Asp Trp His Ser Asp Lys Pro Pro Tyr Asn Lys Ala Phe His Ala		
385	390	395
Leu Glu Leu Pro Phe Val Phe Gly Asn Leu Asp Gly Leu Glu Arg Met		
405	410	415
Ala Lys Ala Glu Val Thr Asp Glu Val Lys Arg Leu Ser His Thr Ile		
420	425	430
Gln Ser Ala Trp Ile Thr Phe Ala Lys Thr Gly Asn Pro Ser Thr Glu		
435	440	445
Asp Val Lys Trp Pro Ala Tyr His Glu Glu Thr Arg Gln Thr Leu Ile		
450	455	460
Leu Asp Ser Glu Ile Thr Ile Glu Asn Asp Pro Glu Ser Glu Lys Arg		
465	470	475
Gln Lys Leu Phe Pro Ser Lys Gly Glu		
485		

<210> 5

<211> 489

<212> PRT

<213> *Bacillus subtilis*

<400> 5

Met Thr His Gln Ile Val Thr Thr Gln Tyr Gly Lys Val Lys Gly Thr

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

Glu Lys Ala Ile Ala Glu Gly Ala Ala Ser Gly Ile Pro Leu Leu Ile
 290 295 300
 Gly Thr Thr Arg Asp Glu Gly Tyr Leu Phe Phe Thr Pro Asp Ser Asp
 305 310 315 320
 Val His Ser Gln Glu Thr Leu Asp Ala Ala Leu Glu Ser Leu Leu Gly
 325 330 335
 Lys Pro Leu Ala Glu Lys Val Ala Asp Leu Tyr Pro Arg Ser Leu Glu
 340 345 350
 Ser Gln Ile His Met Met Thr Asp Leu Leu Phe Trp Arg Pro Ala Val
 355 360 365
 Ala Tyr Ala Ser Ala Gln Ser His Tyr Ala Pro Val Trp Met Tyr Arg
 370 375 380
 Phe Asp Trp His Pro Lys Lys Pro Pro Tyr Asn Lys Ala Phe His Ala
 385 390 395 400
 Leu Glu Leu Pro Phe Val Phe Gly Asn Leu Asp Gly Leu Glu Arg Met
 405 410 415
 Ala Lys Ala Glu Ile Thr Asp Glu Val Lys Gln Leu Ser His Thr Ile
 420 425 430
 Gln Ser Ala Trp Ile Thr Phe Ala Lys Thr Gly Asn Pro Ser Thr Glu
 435 440 445
 Ala Val Asn Trp Pro Thr Tyr His Glu Glu Thr Arg Glu Thr Leu Ile
 450 455 460
 Leu Asp Ser Glu Ile Thr Ile Glu Lys Asp Pro Glu Ser Glu Lys Arg
 465 470 475 480
 Gln Lys Leu Phe Pro Ser Lys Gly Glu
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<210> 6

<211> 1470

<212> DNA

<213> *Bacillus subtilis*

<400> 6

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gcacctgagc	cgctgaagt	gtgggaagat	gtgcttgatg	ccacagcgta	cggctctatt	180
tgcccgccgc	cgtctgattt	gctgtcactt	tcgtataactg	agctgccccg	ccagtccgag	240

gattgcttgt atgtcaatgt atttgcgcct gacaccccaa gtaaaaatct tcctgtcatg 300
 gtgtggattc acggaggcgc tttttatcta ggagcgggca gtgagccatt gtaigacgga 360
 tcaaaacttg cggcacaggg agaagtcatt gtcgttacat tgaactatcg gctggggccg 420
 tttggctttt tgcacttgtc ttcatttaat gaggcgtatt ctgataacct tgggctttta 480
 gaccaagccg ccgcgcigaa atgggtgcga gagaatattt cagcgtttgg cggatgatccc 540
 gataacgtaa cagtatttgg agaatccgcc ggccgggatga gcattgccgc gctgcttgct 600
 atgcctgcgg caaaaggcct gttccagaaa gcaatcatgg aaagcggcgc ttctcgaacg 660
 atgacgaaag aacaagcggc gagcacctcg gcagcctttt tacaggtcct tgggattaac 720
 gagggccaac tggataaatt gcatacgggtt tctgcggaag atttgctaaa agcggctgat 780
 cagcttcgga ttgcagaaaa agaaaatata tttcagctgt tcttccagcc cggccttgat 840
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 aaaacaggaa acccaagcac cgaagctgtg aattggcctg cgtatcatga agaaacgaga 1380
 gagacgtga ttttagactc agagattacg atcgaaaacg atcccgaatc tgaaaaaagg 1440
 cagaagctat tcccttcaaa aggagaataa 1470

<210> 7

<211> 1470

<212> DNA

<213> *Bacillus subtilis*

<400> 7

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 gcacctgagc cgcctgaagt gtgggaagat gtccttgatg ccacagcgta cggccctggt 180
 tgcccgagc cgtctgattt gctgtcactt tcgtatactg agctgccccg ccagtccgag 240
 gattgcttgt ttgtcaatgt atttgcgcct gacactccaa gccaaaacct gcctgtcatg 300
 gtttggattc acggaggcgc tttttatctc ggccggggca gtgagccatt gtaigacgga 360
 tcaaaacttg cggcgcaggg agaggtcatt gtcgttacac tgaactatcg gctggggccg 420
 tttggctttt tgcacttgtc ttcgtttgat gaggcgtatt ccgataacct tgggctttta 480
 gaccaagtcg ccgcactgaa atgggtgcgg gagaatattt cagcgtttgg cggatgatccc 540

gataacgtaa cagtatttgg agaatccgcc ggccggatga gcattgccgc gcttctcgt	600
atgcctgcgg caaaaggcct gttccagaaa gcagtcattg aaagcggcgc ttctcgaacg	660
atgacgaaag aacaagcggc gagcacctcg gcagcctttt tacaggtcct tgggattaac	720
gagggccaat tggataaatt gcatacggtt tctgcggaag atttgctaaa agcggccgat	780
cagcttcgga tcgcagaaaa agaaaatata tticagctgt tcttcagcc cgccttgat	840
ccaaaaacgc tgcctgctga accagaaaaa gcgatcgag aaggggccgc ttccggcatt	900
ccgctattaa tcggaacaac ccgtgatgaa ggatatttat tttcacccc ggattcagac	960
gttcattctc aggaacgcct tgatgcagcg ctgcagtatt tactaggga gccgctggca	1020
gagaaagctg ccgatttgta tccgcgttct ctggaaagcc aaattcatat gatgactgat	1080
tigtattttt ggcccccgc tgctgcctat gcacccgac attcccatta tgcccctgtc	1140
tgatgtacc ggttcgattg gcacccggag aagccgccgt acaataaagc gtttcacgca	1200
ttagagcttc cttttgtctt tggaaatctg gacggattag aacgaatggc aaaagcggag	1260
gttacggatg aggtgaaaca gctttctcac tcgatacaat cagcatggat cacattcgcc	1320
aaaacaggaa acccaagcac ggaagctgtg aattggccgg cgtatcagga agaaacaaga	1380
gagacgctga ttttagattc agagattacg atcgaaaacg atcccgaatc tgaaaaaagg	1440
cagaagctat tcccttcaaa aggagaataa	1470

<210> 8

<211> 1470

<212> DNA

<213> *Bacillus subtilis*

<400> 8

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gtacatatat ggaaaggcat tccttatgca aagccgccta tcggacaatt gcgttttaaa	120
gcaccggagc cccctgaagt gtgggaggac atactggatg caacagcgta cggcccatt	180
tgcccgagc cgcctgattt gctgtcactt tcatatgccg agcttccca gcagtcgag	240
gattgcctgt atgtcaatgt atttgcgcct gacactccga gtcaaaactt gcctgtcatg	300
gtgtggattc acggcggcgc tttttatctc ggccgggca gtgagccatt atatgatggg	360
tcaagacttg cagcacaggg agaagtcatt gtcgttacac tgaattatcg tctggggcca	420
tttgattttt tacatttgtc ttcgtttgat gagcgctatt ccgataacct tggcctgttg	480
gaccaagccg ccgactgaa atgggtgcga gacaatatct ctgcgtttgg cggatgacca	540
gataacgtaa cggattttgg agaatccgca ggccggcatga gcattgccgc actgctcgt	600
atgcctgcgg caaaaggcct tttccagaaa gcgatcatgg aaagcggagc ttcccgaacg	660
atgacgaagg aaaaagcggc aagcaccgcg gcagcctttt tacaggtcct tgggatttcc	720
gagagccaat tggacagatt gcatactgta tctacggaag atttgcttaa tgcggccgat	780
cagcttcgga aagcagaaaa tgaatatctc tticagctgc tcttcagcc tgctcttgat	840

ccgaaaacgc tgcctgctga accagaaaaa gcgatcgag aaggcactgc tgccggcatt	900
ccgctgttaa tcggaacaaa ccgcgatgaa ggatatttat ttttcacccc ggactcagac	960
gttcattctc aggaaacgtt tgatgctgcg cttagagtatt tattaggga gccgctggcc	1020
aagaaagctg ccgatctgta ccacgctttt ctgaaagcc aaattcatat gatgactgat	1080
ttattatttt ggcccccgcg cgtcgctac gcctccgcc agtcccatta cgcgcctgtt	1140
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ttagagcttc cttttgtttt tggaaatctg gacgggttag aactgatggc aaaagcggag	1260
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aaaacaggaa acccaagcac tgaagatgta aaatggccgg cgtatcatga agaaacgaga	1380
gagacgttga ttttagaatc agagatttgg atggaaaacg atcctgaatg tgaaaaaagg	1440
caaaarctat tcccttcaaa aggagaataa	1470

<210> 9

<211> 1470

<212> DNA

<213> *Bacillus subtilis*

<400> 9

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gcaccggaac ctccggaagc gtgggagaac gaactggacg caacagcgta cgccctatt	180
tgcccgagc cgtctgattt gctgtcactt tcgtataatg agctgccccg ccagtctgag	240
aattgcttgt atgtcaatgt atttgcgcct gatactccaa gtcaaaacct gcctgtcatg	300
gtgtggattc acggcggcgc tttttatctt ggagcgggca gtgagccatt attcgatggg	360
tcaagacttg cggcgaggg agaagtcatt gtctttacac tgaattatcg actggggccg	420
tttgattttt tacatttgtc ttcgtttgat gaggcgtatt ccgataacct tggctttttg	480
gaccaagccg ccgcactgaa atgggtgcga gacaatatct cagcatttgg cgtgatccg	540
gataacgtaa cgttatttgg agaatccgct ggccgcatga gcattgccgc gctgctcgca	600
atgcctgcgg caaaaggcct gttccagaaa gcgatcatgg aaagcggcgc ttctagaaca	660
atgacaacag aaaaaggcgc tagcactgca gcagcctttt tacaggctct tgggattaac	720
gagagccaat tggacagact gcacactgta tctgcggaag atttgcttaa agcggccgat	780
aagcttcgga aagcagaaaa tgaaaatctc tttcagctgt tattccagcc cgccttgat	840
ccgaaaacgc tgcctgctga accagaaaaa gcaatcgag gagtgctgc tgccgacatt	900
ccgctgttaa tcggaacaaa ccgcgatgaa ggatatttat ttttcacccc ggactcagac	960
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35