

AMBX_0174_00PCT_ST25.txt
SEQUENCE

LISTING

<110> Kraynov, Vadim
Knudsen, Nick
Hewet, Amha
de Dios, Kristine
Pinkstaff, Jason
Sullivan, Lorraine

<120> Modified Relaxin Polypeptides and
Their Uses

<130> AMBX-0174.00PCT

<150> 61/374,582

<151> 2010-08-17

<160> 34

<170> PatentIn version 3.4

<210> 1

<211> 53

<212> PRT

<213> Homo sapiens

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Cys	His	Val	Gly	Cys	Thr				
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			15						

AMBX_0174_00PCT_ST25.txt

Lys Arg Ser Leu Ala Arg Phe Cys Asp Ser
Trp Met Glu Glu Val Ile
20 25
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Lys Leu Cys Gly Arg Glu Leu Val Arg Ala
Gln Ile Ala Ile Cys Gly
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Met Ser Thr Trp Ser
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<213>	Homo sapiens

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Gln Leu Tyr Ser Ala Leu Ala Asn Lys Cys
Cys His Val Gly Cys Thr
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Lys Arg Ser Leu Ala Arg Phe Cys Ala Ser
Trp Met Glu Glu Val Ile
Page 2

AMBX_0174_00PCT_ST25.txt

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Lys Leu Cys Gly Arg Glu Leu Val Arg Ala
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Met Ser Thr Trp Ser
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Arg Ala Gln Ile Ala Ile Cys Gly Met Ser
Thr Trp Ser Arg Arg Glu
20 25
30

AMBX_0174_00PCT_ST25.txt

Ala Glu Asp Leu Gln Val Gly Gln Val Glu
Leu Gly Gly Gly Pro Gly

35 40
45

Ala Gly Ser Leu Gln Pro Leu Ala Leu Glu
Gly Ser Leu Gln Lys Arg

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60

Gln Leu Tyr Ser Ala Leu Ala Asn Lys Cys
Cys His Val Gly Cys Thr

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Lys Arg Ser Leu Ala Arg Phe Cys
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Cys His Val Gly Cys Thr

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AMBX_0174_00PCT_ST25.txt

Lys Arg Ser Leu Ala Arg Phe Cys
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1 5 10
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Arg Ala Gln Ile Ala Ile Cys Gly Met Ser
Thr Trp Ser
20 25

<210> 6
<211> 29
<212> PRT
<213> Homo sapiens

<400> 6

Ala Ser Trp Met Glu Glu Val Ile Lys Leu
Page 5

AMBX_0174_00PCT_ST25.txt

Cys Gly Arg Glu Leu Val
 1 5 10
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Arg Ala Gln Ile Ala Ile Cys Gly Met Ser
 Thr Trp Ser 20 25

<210> 7
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Gln Lys Arg
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AMBX_0174_00PCT_ST25.txt

<210> 8
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Met Lys Lys Asn Ile Ala Phe Leu Leu Lys
Arg
1 5 10

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1 5

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AMBX_0174_00PCT_ST25.txt

gctagatttt gc

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<213> Homo sapiens

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gttattaaat tatgcggccg cgaattagtt 120
cgcgcgcaga ttgccatttg cggcatgagc
acctggagc 159

AMBX_0174_00PCT_ST25.txt

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			15						

AMBX_0174_00PCT_ST25.txt

Cys	Gly	Arg	Glu	Leu	Val	Arg	Ala	Gln	Ile
Ala	Ile	Cys	Gly	Met	Ser				
			20					25	
			30						

Thr	Trp	Ser	Arg	Arg	Glu	Ala	Glu	Asp	Leu
Gln	Val	Gly	Gln	Val	Glu				
		35					40		
		45							

Leu	Gly	Gly	Gly	Pro	Gly	Ala	Gly	Ser	Leu
Gln	Pro	Leu	Ala	Leu	Glu				
	50					55			
	60								

Gly	Ser	Leu	Gln	Lys	Arg	Gln	Leu	Tyr	Ser
Ala	Leu	Ala	Asn	Lys	Cys				
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75					80				

Cys	His	Val	Gly	Cys	Thr	Lys	Arg	Ser	Leu
Ala	Arg	Phe	Cys						
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AMBX_0174_00PCT_ST25.txt

<212> PRT

<213> Artificial

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<223> Mutant synthetase derived from
Methanococcus jannaschii
synthetase

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				15					

Glu	Glu	Glu	Leu	Arg	Glu	Val	Leu	Lys	Lys
Asp	Glu	Lys	Ser	Ala	Val				
			20					25	
			30						

Ile	Gly	Phe	Glu	Pro	Ser	Gly	Lys	Ile	His
Leu	Gly	His	Tyr	Leu	Gln				
		35					40		
		45							

Ile	Lys	Lys	Met	Ile	Asp	Leu	Gln	Asn	Ala
Gly	Phe	Asp	Ile	Ile	Ile				
	50					55			
60									

AMBX_0174_00PCT_ST25.txt

Tyr	Leu	Ala	Asp	Leu	His	Ala	Tyr	Leu	Asn
Gln	Lys	Gly	Glu	Leu	Asp				
65					70				
75					80				

Glu	Ile	Arg	Lys	Ile	Gly	Asp	Tyr	Asn	Lys
Lys	Val	Phe	Glu	Ala	Met				
				85					90
				95					

Gly	Leu	Lys	Ala	Lys	Tyr	Val	Tyr	Gly	Ser
Glu	His	Gly	Leu	Asp	Lys				
			100					105	
			110						

Asp	Tyr	Thr	Leu	Asn	Val	Tyr	Arg	Leu	Ala
Leu	Lys	Thr	Thr	Leu	Lys				
		115					120		
		125							

Arg	Ala	Arg	Arg	Ser	Met	Glu	Leu	Ile	Ala
Arg	Glu	Asp	Glu	Asn	Pro				
	130					135			
	140								

Lys	Val	Ala	Glu	Val	Ile	Tyr	Pro	Ile	Met
Gln	Val	Asn	Gly	Ile	His				

AMBX_0174_00PCT_ST25.txt

145
155

150
160

Tyr	Glu	Gly	Val	Asp	Val	Ala	Val	Gly	Gly
Met	Glu	Gln	Arg	Lys	Ile				
				165					170
				175					

His	Met	Leu	Ala	Arg	Glu	Leu	Leu	Pro	Lys
Lys	Val	Val	Cys	Ile	His				
			180					185	
			190						

Asn	Pro	Val	Leu	Thr	Gly	Leu	Asp	Gly	Glu
Gly	Lys	Met	Ser	Ser	Ser				
		195					200		
		205							

Lys	Gly	Asn	Phe	Ile	Ala	Val	Asp	Asp	Ser
Pro	Glu	Glu	Ile	Arg	Ala				
	210					215			
	220								

Lys	Ile	Lys	Lys	Ala	Tyr	Cys	Pro	Ala	Gly
Val	Val	Glu	Gly	Asn	Pro				
225					230				
235					240				

AMBX_0174_00PCT_ST25.txt

Ile	Met	Glu	Ile	Ala	Lys	Tyr	Phe	Leu	Glu
Tyr	Pro	Leu	Thr	Ile	Lys				
				245					250
				255					

Arg	Pro	Glu	Lys	Phe	Gly	Gly	Asp	Leu	Thr
Val	Asn	Ser	Tyr	Glu	Glu				
			260					265	
			270						

Leu	Glu	Ser	Leu	Phe	Lys	Asn	Lys	Glu	Leu
His	Pro	Met	Asp	Leu	Lys				
		275					280		
		285							

Asn	Ala	Val	Ala	Glu	Glu	Leu	Ile	Lys	Ile
Leu	Glu	Pro	Ile	Arg	Lys				
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Arg	Leu
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<210>	17
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AMBX_0174_00PCT_ST25.txt

<220>

<223> Mutant tRNA derived from
Methanococcus jannaschii tRNA

<400> 17

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gactctaaat ccgcatggcg ctgggttcaaa 60

tccagcccg cggacca

77

<210> 18

<211> 77

<212> DNA

<213> Methanococcus jannaschii

<400> 18

ccggcggttag ttcagcaggg cagaacggcg
gactctaaat ccgcatggcg ctgggttcaaa 60

tccggcccg cggacca

77

<210> 19

<211> 88

<212> DNA

<213> Artificial

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<223> An optimized amber supressor tRNA

AMBX_0174_00PCT_ST25.txt

<400> 19
cccagggtag ccaagctcgg ccaacggcga
cggactctaa atccgttctc gtaggagttc 60

gaggggttcga atcccttccc tgggacca
88

<210> 20
<211> 89
<212> DNA
<213> Artificial

<220>
<223> An optimized AGGA frameshift
supressor tRNA

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cggacttcct aatccgttct cgtaggagtt 60

cgaggggttcg aatccctccc ctcgcacca
89

<210> 21
<211> 306
<212> PRT
<213> Artificial

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<223> Aminoacyl tRNA synthetase for the
Page 16

AMBX_0174_00PCT_ST25.txt
 incorporation of
 p-azido-L-phenylalanine

<400> 21

Met	Asp	Glu	Phe	Glu	Met	Ile	Lys	Arg	Asn
Thr	Ser	Glu	Ile	Ile	Ser				
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				15					

Glu	Glu	Glu	Leu	Arg	Glu	Val	Leu	Lys	Lys
Asp	Glu	Lys	Ser	Ala	Gly				
			20					25	
			30						

Ile	Gly	Phe	Glu	Pro	Ser	Gly	Lys	Ile	His
Leu	Gly	His	Tyr	Leu	Gln				
		35					40		
		45							

Ile	Lys	Lys	Met	Ile	Asp	Leu	Gln	Asn	Ala
Gly	Phe	Asp	Ile	Ile	Ile				
	50					55			
60									

Leu	Leu	Ala	Asp	Leu	His	Ala	Tyr	Leu	Asn
Gln	Lys	Gly	Glu	Leu	Asp				
65					70				
75					80				

AMBX_0174_00PCT_ST25.txt

Glu Ile Arg Lys Ile Gly Asp Tyr Asn Lys
Lys Val Phe Glu Ala Met
85 90
95

Gly Leu Lys Ala Lys Tyr Val Tyr Gly Ser
Thr Phe Gln Leu Asp Lys
100 105
110

Asp Tyr Thr Leu Asn Val Tyr Arg Leu Ala
Leu Lys Thr Thr Leu Lys
115 120
125

Arg Ala Arg Arg Ser Met Glu Leu Ile Ala
Arg Glu Asp Glu Asn Pro
130 135
140

Lys	Val	Ala	Glu	Val	Ile	Tyr	Pro	Ile	Met
Gln	Val	Asn	Thr	Tyr	Tyr				
145					150				
155					160				

Tyr Leu Gly Val Asp Val Ala Val Gly Gly
Page 18

AMBX_0174_00PCT_ST25.txt

Met	Glu	Gln	Arg	Lys	Ile				
				165					170
				175					

His	Met	Leu	Ala	Arg	Glu	Leu	Leu	Pro	Lys
Lys	Val	Val	Cys	Ile	His				
			180					185	
			190						

Asn	Pro	Val	Leu	Thr	Gly	Leu	Asp	Gly	Glu
Gly	Lys	Met	Ser	Ser	Ser				
		195					200		
		205							

Lys	Gly	Asn	Phe	Ile	Ala	Val	Asp	Asp	Ser
Pro	Glu	Glu	Ile	Arg	Ala				
	210					215			
	220								

Lys	Ile	Lys	Lys	Ala	Tyr	Cys	Pro	Ala	Gly
Val	Val	Glu	Gly	Asn	Pro				
225					230				
235					240				

Ile	Met	Glu	Ile	Ala	Lys	Tyr	Phe	Leu	Glu
Tyr	Pro	Leu	Thr	Ile	Lys				
				245					250
				255					

AMBX_0174_00PCT_ST25.txt

Arg Pro Glu Lys Phe Gly Gly Asp Leu Thr
Val Asn Ser Tyr Glu Glu
260 265
270

Leu Glu Ser Leu Phe Lys Asn Lys Glu Leu
His Pro Met Asp Leu Lys
275 280
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Asn Ala Val Ala Glu Glu Leu Ile Lys Ile
Leu Glu Pro Ile Arg Lys
290 295
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Arg Leu
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<210> 22
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<212> PRT
<213> Artificial

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<223> Aminoacyl tRNA synthetase for the
incorporation of
p-benzoyl-L-phenylalanine

AMBX_0174_00PCT_ST25.txt

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Thr	Ser	Glu	Ile	Ile	Ser				
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				15					

Glu	Glu	Glu	Leu	Arg	Glu	Val	Leu	Lys	Lys
Asp	Glu	Lys	Ser	Ala	Gly				
			20					25	
			30						

Ile	Gly	Phe	Glu	Pro	Ser	Gly	Lys	Ile	His
Leu	Gly	His	Tyr	Leu	Gln				
		35					40		
		45							

Ile	Lys	Lys	Met	Ile	Asp	Leu	Gln	Asn	Ala
Gly	Phe	Asp	Ile	Ile	Ile				
	50					55			
	60								

Leu	Leu	Ala	Asp	Leu	His	Ala	Tyr	Leu	Asn
Gln	Lys	Gly	Glu	Leu	Asp				
65					70				
75					80				

AMBX_0174_00PCT_ST25.txt

Glu	Ile	Arg	Lys	Ile	Gly	Asp	Tyr	Asn	Lys
Lys	Val	Phe	Glu	Ala	Met				

85 90
95

Gly	Leu	Lys	Ala	Lys	Tyr	Val	Tyr	Gly	Ser
Ser	Phe	Gln	Leu	Asp	Lys				

100 105
110

Asp	Tyr	Thr	Leu	Asn	Val	Tyr	Arg	Leu	Ala
Leu	Lys	Thr	Thr	Leu	Lys				

115 120
125

Arg	Ala	Arg	Arg	Ser	Met	Glu	Leu	Ile	Ala
Arg	Glu	Asp	Glu	Asn	Pro				

130 135
140

Lys	Val	Ala	Glu	Val	Ile	Tyr	Pro	Ile	Met
Gln	Val	Asn	Thr	Ser	His				

145 150
155 160

Tyr	Leu	Gly	Val	Asp	Val	Ala	Val	Gly	Gly
Met	Glu	Gln	Arg	Lys	Ile				

165 170

AMBX_0174_00PCT_ST25.txt
175

His	Met	Leu	Ala	Arg	Glu	Leu	Leu	Pro	Lys
Lys	Val	Val	Cys	Ile	His				
			180					185	
			190						

Asn	Pro	Val	Leu	Thr	Gly	Leu	Asp	Gly	Glu
Gly	Lys	Met	Ser	Ser	Ser				
		195					200		
		205							

Lys	Gly	Asn	Phe	Ile	Ala	Val	Asp	Asp	Ser
Pro	Glu	Glu	Ile	Arg	Ala				
	210					215			
	220								

Lys	Ile	Lys	Lys	Ala	Tyr	Cys	Pro	Ala	Gly
Val	Val	Glu	Gly	Asn	Pro				
225					230				
235					240				

Ile	Met	Glu	Ile	Ala	Lys	Tyr	Phe	Leu	Glu
Tyr	Pro	Leu	Thr	Ile	Lys				
				245					250
				255					

AMBX_0174_00PCT_ST25.txt

Arg	Pro	Glu	Lys	Phe	Gly	Gly	Asp	Leu	Thr
Val	Asn	Ser	Tyr	Glu	Glu				
			260					265	
			270						

Leu	Glu	Ser	Leu	Phe	Lys	Asn	Lys	Glu	Leu
His	Pro	Met	Asp	Leu	Lys				
		275					280		
		285							

Asn	Ala	Val	Ala	Glu	Glu	Leu	Ile	Lys	Ile
Leu	Glu	Pro	Ile	Arg	Lys				
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	300								

Arg	Leu
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<210>	23
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<212>	PRT
<213>	Artificial

<220>	
<223>	Aminoacyl tRNA synthetase for the incorporation of propargyl-phenylalanine

<400>	23
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AMBX_0174_00PCT_ST25.txt

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Thr	Ser	Glu	Ile	Ile	Ser				
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				15					

Glu	Glu	Glu	Leu	Arg	Glu	Val	Leu	Lys	Lys
Asp	Glu	Lys	Ser	Ala	Ala				
			20					25	
			30						

Ile	Gly	Phe	Glu	Pro	Ser	Gly	Lys	Ile	His
Leu	Gly	His	Tyr	Leu	Gln				
		35					40		
		45							

Ile	Lys	Lys	Met	Ile	Asp	Leu	Gln	Asn	Ala
Gly	Phe	Asp	Ile	Ile	Ile				
	50					55			
60									

Leu	Leu	Ala	Asp	Leu	His	Ala	Tyr	Leu	Asn
Gln	Lys	Gly	Glu	Leu	Asp				
65					70				
75					80				

Glu	Ile	Arg	Lys	Ile	Gly	Asp	Tyr	Asn	Lys
Lys	Val	Phe	Glu	Ala	Met				

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85
95

Gly	Leu	Lys	Ala	Lys	Tyr	Val	Tyr	Gly	Ser
Pro	Phe	Gln	Leu	Asp	Lys				
			100					105	
			110						

Asp	Tyr	Thr	Leu	Asn	Val	Tyr	Arg	Leu	Ala
Leu	Lys	Thr	Thr	Leu	Lys				
		115					120		
		125							

Arg	Ala	Arg	Arg	Ser	Met	Glu	Leu	Ile	Ala
Arg	Glu	Asp	Glu	Asn	Pro				
	130					135			
	140								

Lys	Val	Ala	Glu	Val	Ile	Tyr	Pro	Ile	Met
Gln	Val	Asn	Ala	Ile	Tyr				
145					150				
155					160				

Leu	Ala	Val	Asp	Val	Ala	Val	Gly	Gly	Met
Glu	Gln	Arg	Lys	Ile	His				
				165					170
				175					

AMBX_0174_00PCT_ST25.txt

Met	Leu	Ala	Arg	Glu	Leu	Leu	Pro	Lys	Lys
Val	Val	Cys	Ile	His	Asn				
			180					185	
			190						

Pro	Val	Leu	Thr	Gly	Leu	Asp	Gly	Glu	Gly
Lys	Met	Ser	Ser	Ser	Lys				
		195					200		
		205							

Gly	Asn	Phe	Ile	Ala	Val	Asp	Asp	Ser	Pro
Glu	Glu	Ile	Arg	Ala	Lys				
	210					215			
	220								

Ile	Lys	Lys	Ala	Tyr	Cys	Pro	Ala	Gly	Val
Val	Glu	Gly	Asn	Pro	Ile				
225					230				
235					240				

Met	Glu	Ile	Ala	Lys	Tyr	Phe	Leu	Glu	Tyr
Pro	Leu	Thr	Ile	Lys	Arg				
				245					250
				255					

Pro	Glu	Lys	Phe	Gly	Gly	Asp	Leu	Thr	Val
Asn	Ser	Tyr	Glu	Glu	Leu				

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AMBX_0174_00PCT_ST25.txt

260 265
270

Glu Ser Leu Phe Lys Asn Lys Glu Leu His
Pro Met Asp Leu Lys Asn
275 280
285

Ala Val Ala Glu Glu Leu Ile Lys Ile Leu
Glu Pro Ile Arg Lys Arg
290 295
300

Leu
305

<210> 24
<211> 305
<212> PRT
<213> Artificial

<220>
<223> Aminoacyl tRNA synthetase for the
incorporation of
propargyl-phenylalanine

<400> 24

Met Asp Glu Phe Glu Met Ile Lys Arg Asn
Page 28

AMBX_0174_00PCT_ST25.txt

Thr	Ser	Glu	Ile	Ile	Ser				
1				5					10
				15					

Glu	Glu	Glu	Leu	Arg	Glu	Val	Leu	Lys	Lys
Asp	Glu	Lys	Ser	Ala	Ala				
			20					25	
			30						

Ile	Gly	Phe	Glu	Pro	Ser	Gly	Lys	Ile	His
Leu	Gly	His	Tyr	Leu	Gln				
		35					40		
		45							

Ile	Lys	Lys	Met	Ile	Asp	Leu	Gln	Asn	Ala
Gly	Phe	Asp	Ile	Ile	Ile				
	50					55			
	60								

Leu	Leu	Ala	Asp	Leu	His	Ala	Tyr	Leu	Asn
Gln	Lys	Gly	Glu	Leu	Asp				
65					70				
75					80				

Glu	Ile	Arg	Lys	Ile	Gly	Asp	Tyr	Asn	Lys
Lys	Val	Phe	Glu	Ala	Met				
				85					90
				95					

AMBX_0174_00PCT_ST25.txt

Gly	Leu	Lys	Ala	Lys	Tyr	Val	Tyr	Gly	Ser
Pro	Phe	Gln	Leu	Asp	Lys				
			100					105	
			110						

Asp	Tyr	Thr	Leu	Asn	Val	Tyr	Arg	Leu	Ala
Leu	Lys	Thr	Thr	Leu	Lys				
		115					120		
		125							

Arg	Ala	Arg	Arg	Ser	Met	Glu	Leu	Ile	Ala
Arg	Glu	Asp	Glu	Asn	Pro				
	130					135			
	140								

Lys	Val	Ala	Glu	Val	Ile	Tyr	Pro	Ile	Met
Gln	Val	Asn	Ile	Pro	Tyr				
145					150				
155					160				

Leu	Pro	Val	Asp	Val	Ala	Val	Gly	Gly	Met
Glu	Gln	Arg	Lys	Ile	His				
				165					170
				175					

Met	Leu	Ala	Arg	Glu	Leu	Leu	Pro	Lys	Lys
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AMBX_0174_00PCT_ST25.txt

Val	Val	Cys	Ile	His	Asn				
			180						185
			190						

Pro	Val	Leu	Thr	Gly	Leu	Asp	Gly	Glu	Gly
Lys	Met	Ser	Ser	Ser	Lys				
		195						200	
		205							

Gly	Asn	Phe	Ile	Ala	Val	Asp	Asp	Ser	Pro
Glu	Glu	Ile	Arg	Ala	Lys				
	210					215			
	220								

Ile	Lys	Lys	Ala	Tyr	Cys	Pro	Ala	Gly	Val
Val	Glu	Gly	Asn	Pro	Ile				
225					230				
235					240				

Met	Glu	Ile	Ala	Lys	Tyr	Phe	Leu	Glu	Tyr
Pro	Leu	Thr	Ile	Lys	Arg				
				245					250
				255					

Pro	Glu	Lys	Phe	Gly	Gly	Asp	Leu	Thr	Val
Asn	Ser	Tyr	Glu	Glu	Leu				
			260					265	
			270						

AMBX_0174_00PCT_ST25.txt

Glu	Ser	Leu	Phe	Lys	Asn	Lys	Glu	Leu	His
Pro	Met	Asp	Leu	Lys	Asn				
		275					280		
		285							

Ala	Val	Ala	Glu	Glu	Leu	Ile	Lys	Ile	Leu
Glu	Pro	Ile	Arg	Lys	Arg				
	290					295			
	300								

Leu
305

<210> 25
<211> 305
<212> PRT
<213> Artificial

<220>
<223> Aminoacyl tRNA synthetase for the
incorporation of
propargyl-phenylalanine

<400> 25

Met	Asp	Glu	Phe	Glu	Met	Ile	Lys	Arg	Asn
Thr	Ser	Glu	Ile	Ile	Ser				
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AMBX_0174_00PCT_ST25.txt

15

Glu	Glu	Glu	Leu	Arg	Glu	Val	Leu	Lys	Lys
Asp	Glu	Lys	Ser	Ala	Ala				
			20					25	
			30						

Ile	Gly	Phe	Glu	Pro	Ser	Gly	Lys	Ile	His
Leu	Gly	His	Tyr	Leu	Gln				
		35					40		
		45							

Ile	Lys	Lys	Met	Ile	Asp	Leu	Gln	Asn	Ala
Gly	Phe	Asp	Ile	Ile	Ile				
	50					55			
	60								

Leu	Leu	Ala	Asp	Leu	His	Ala	Tyr	Leu	Asn
Gln	Lys	Gly	Glu	Leu	Asp				
65					70				
75					80				

Glu	Ile	Arg	Lys	Ile	Gly	Asp	Tyr	Asn	Lys
Lys	Val	Phe	Glu	Ala	Met				
				85					90
				95					

AMBX_0174_00PCT_ST25.txt

Gly	Leu	Lys	Ala	Lys	Tyr	Val	Tyr	Gly	Ser
Lys	Phe	Gln	Leu	Asp	Lys				

100

105

110

Asp	Tyr	Thr	Leu	Asn	Val	Tyr	Arg	Leu	Ala
Leu	Lys	Thr	Thr	Leu	Lys				

115

120

125

Arg	Ala	Arg	Arg	Ser	Met	Glu	Leu	Ile	Ala
Arg	Glu	Asp	Glu	Asn	Pro				

130

135

140

Lys	Val	Ala	Glu	Val	Ile	Tyr	Pro	Ile	Met
Gln	Val	Asn	Ala	Ile	Tyr				

145

150

155

160

Leu	Ala	Val	Asp	Val	Ala	Val	Gly	Gly	Met
Glu	Gln	Arg	Lys	Ile	His				

165

170

175

Met	Leu	Ala	Arg	Glu	Leu	Leu	Pro	Lys	Lys
Val	Val	Cys	Ile	His	Asn				

180

185

AMBX_0174_00PCT_ST25.txt

190

Pro	Val	Leu	Thr	Gly	Leu	Asp	Gly	Glu	Gly
Lys	Met	Ser	Ser	Ser	Lys				
		195					200		
		205							

Gly	Asn	Phe	Ile	Ala	Val	Asp	Asp	Ser	Pro
Glu	Glu	Ile	Arg	Ala	Lys				
	210					215			
	220								

Ile	Lys	Lys	Ala	Tyr	Cys	Pro	Ala	Gly	Val
Val	Glu	Gly	Asn	Pro	Ile				
225					230				
235					240				

Met	Glu	Ile	Ala	Lys	Tyr	Phe	Leu	Glu	Tyr
Pro	Leu	Thr	Ile	Lys	Arg				
				245					250
				255					

Pro	Glu	Lys	Phe	Gly	Gly	Asp	Leu	Thr	Val
Asn	Ser	Tyr	Glu	Glu	Leu				
			260					265	
			270						

AMBX_0174_00PCT_ST25.txt

Glu Ser Leu Phe Lys Asn Lys Glu Leu His
Pro Met Asp Leu Lys Asn

275 280
285

Ala Val Ala Glu Glu Leu Ile Lys Ile Leu
Glu Pro Ile Arg Lys Arg

290 295
300

Leu
305

<210> 26
<211> 306
<212> PRT
<213> Artificial

<220>
<223> Aminoacyl tRNA synthetase for
the incorporation of
p-azido-phenylalanine

<400> 26

Met Asp Glu Phe Glu Met Ile Lys Arg Asn
Thr Ser Glu Ile Ile Ser

1 5 10
15

AMBX_0174_00PCT_ST25.txt

Glu	Glu	Glu	Leu	Arg	Glu	Val	Leu	Lys	Lys
Asp	Glu	Lys	Ser	Ala	Thr				
			20					25	
			30						

Ile	Gly	Phe	Glu	Pro	Ser	Gly	Lys	Ile	His
Leu	Gly	His	Tyr	Leu	Gln				
		35					40		
		45							

Ile	Lys	Lys	Met	Ile	Asp	Leu	Gln	Asn	Ala
Gly	Phe	Asp	Ile	Ile	Ile				
	50					55			
	60								

Leu	Leu	Ala	Asp	Leu	His	Ala	Tyr	Leu	Asn
Gln	Lys	Gly	Glu	Leu	Asp				
65					70				
75					80				

Glu	Ile	Arg	Lys	Ile	Gly	Asp	Tyr	Asn	Lys
Lys	Val	Phe	Glu	Ala	Met				
				85					90
				95					

Gly	Leu	Lys	Ala	Lys	Tyr	Val	Tyr	Gly	Ser
Asn	Phe	Gln	Leu	Asp	Lys				

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AMBX_0174_00PCT_ST25.txt

100 105
110

Asp Tyr Thr Leu Asn Val Tyr Arg Leu Ala
Leu Lys Thr Thr Leu Lys
115 120
125

Arg Ala Arg Arg Ser Met Glu Leu Ile Ala
Arg Glu Asp Glu Asn Pro
130 135
140

Lys Val Ala Glu Val Ile Tyr Pro Ile Met
Gln Val Asn Pro Leu His
145 150
155 160

Tyr Gln Gly Val Asp Val Ala Val Gly Gly
Met Glu Gln Arg Lys Ile
165 170
175

His Met Leu Ala Arg Glu Leu Leu Pro Lys
Lys Val Val Cys Ile His
180 185
190

AMBX_0174_00PCT_ST25.txt

Asn	Pro	Val	Leu	Thr	Gly	Leu	Asp	Gly	Glu
Gly	Lys	Met	Ser	Ser	Ser				
		195					200		
		205							

Lys	Gly	Asn	Phe	Ile	Ala	Val	Asp	Asp	Ser
Pro	Glu	Glu	Ile	Arg	Ala				
	210					215			
	220								

Lys	Ile	Lys	Lys	Ala	Tyr	Cys	Pro	Ala	Gly
Val	Val	Glu	Gly	Asn	Pro				
225					230				
235					240				

Ile	Met	Glu	Ile	Ala	Lys	Tyr	Phe	Leu	Glu
Tyr	Pro	Leu	Thr	Ile	Lys				
				245					250
				255					

Arg	Pro	Glu	Lys	Phe	Gly	Gly	Asp	Leu	Thr
Val	Asn	Ser	Tyr	Glu	Glu				
			260					265	
			270						

Leu	Glu	Ser	Leu	Phe	Lys	Asn	Lys	Glu	Leu
His	Pro	Met	Asp	Leu	Lys				

AMBX_0174_00PCT_ST25.txt
275 280
285

Asn Ala Val Ala Glu Glu Leu Ile Lys Ile
Leu Glu Pro Ile Arg Lys
290 295
300

Arg Leu
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<210> 27
<211> 306
<212> PRT
<213> Artificial

<220>
<223> Aminoacyl tRNA synthetase for
the incorporation of
p-azido-phenylalanine

<400> 27

Met Asp Glu Phe Glu Met Ile Lys Arg Asn
Thr Ser Glu Ile Ile Ser
1 5 10
15

Glu Glu Glu Leu Arg Glu Val Leu Lys Lys
Page 40

AMBX_0174_00PCT_ST25.txt

Asp	Glu	Lys	Ser	Ala	Thr						
			20							25	
			30								

Ile	Gly	Phe	Glu	Pro	Ser	Gly	Lys	Ile	His		
Leu	Gly	His	Tyr	Leu	Gln					40	
		35									
		45									

Ile	Lys	Lys	Met	Ile	Asp	Leu	Gln	Asn	Ala		
Gly	Phe	Asp	Ile	Ile	Ile					55	
	50										
	60										

Leu	Leu	Ala	Asp	Leu	His	Ala	Tyr	Leu	Asn		
Gln	Lys	Gly	Glu	Leu	Asp						
65					70						
75					80						

Glu	Ile	Arg	Lys	Ile	Gly	Asp	Tyr	Asn	Lys		
Lys	Val	Phe	Glu	Ala	Met					90	
				85							
				95							

Gly	Leu	Lys	Ala	Lys	Tyr	Val	Tyr	Gly	Ser		
Ser	Phe	Gln	Leu	Asp	Lys					105	
			100								
			110								

AMBX_0174_00PCT_ST25.txt

Asp	Tyr	Thr	Leu	Asn	Val	Tyr	Arg	Leu	Ala
Leu	Lys	Thr	Thr	Leu	Lys				
		115					120		
		125							

Arg	Ala	Arg	Arg	Ser	Met	Glu	Leu	Ile	Ala
Arg	Glu	Asp	Glu	Asn	Pro				
	130					135			
	140								

Lys	Val	Ala	Glu	Val	Ile	Tyr	Pro	Ile	Met
Gln	Val	Asn	Pro	Leu	His				
145					150				
155					160				

Tyr	Gln	Gly	Val	Asp	Val	Ala	Val	Gly	Gly
Met	Glu	Gln	Arg	Lys	Ile				
				165					170
				175					

His	Met	Leu	Ala	Arg	Glu	Leu	Leu	Pro	Lys
Lys	Val	Val	Cys	Ile	His				
			180					185	
			190						

Asn	Pro	Val	Leu	Thr	Gly	Leu	Asp	Gly	Glu
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Page 42

AMBX_0174_00PCT_ST25.txt

Gly	Lys	Met	Ser	Ser	Ser				
		195						200	
		205							

Lys	Gly	Asn	Phe	Ile	Ala	Val	Asp	Asp	Ser
Pro	Glu	Glu	Ile	Arg	Ala				
	210					215			
	220								

Lys	Ile	Lys	Lys	Ala	Tyr	Cys	Pro	Ala	Gly
Val	Val	Glu	Gly	Asn	Pro				
225					230				
235					240				

Ile	Met	Glu	Ile	Ala	Lys	Tyr	Phe	Leu	Glu
Tyr	Pro	Leu	Thr	Ile	Lys				
				245					250
				255					

Arg	Pro	Glu	Lys	Phe	Gly	Gly	Asp	Leu	Thr
Val	Asn	Ser	Tyr	Glu	Glu				
			260					265	
			270						

Leu	Glu	Ser	Leu	Phe	Lys	Asn	Lys	Glu	Leu
His	Pro	Met	Asp	Leu	Lys				
		275					280		
		285							

AMBX_0174_00PCT_ST25.txt

Asn Ala Val Ala Glu Glu Leu Ile Lys Ile
 Leu Glu Pro Ile Arg Lys
 290 295
 300

Arg Leu
 305

<210> 28
 <211> 306
 <212> PRT
 <213> Artificial

<220>
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 incorporation of
 p-azido-phenylalanine

<400> 28

Met Asp Glu Phe Glu Met Ile Lys Arg Asn
 Thr Ser Glu Ile Ile Ser
 1 5 10
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Glu Glu Glu Leu Arg Glu Val Leu Lys Lys
 Asp Glu Lys Ser Ala Leu
 20 25

AMBX_0174_00PCT_ST25.txt

30

Ile	Gly	Phe	Glu	Pro	Ser	Gly	Lys	Ile	His
Leu	Gly	His	Tyr	Leu	Gln				
		35					40		
		45							

Ile	Lys	Lys	Met	Ile	Asp	Leu	Gln	Asn	Ala
Gly	Phe	Asp	Ile	Ile	Ile				
	50					55			
	60								

Leu	Leu	Ala	Asp	Leu	His	Ala	Tyr	Leu	Asn
Gln	Lys	Gly	Glu	Leu	Asp				
65					70				
75					80				

Glu	Ile	Arg	Lys	Ile	Gly	Asp	Tyr	Asn	Lys
Lys	Val	Phe	Glu	Ala	Met				
				85					90
				95					

Gly	Leu	Lys	Ala	Lys	Tyr	Val	Tyr	Gly	Ser
Thr	Phe	Gln	Leu	Asp	Lys				
			100					105	
			110						

AMBX_0174_00PCT_ST25.txt

Asp	Tyr	Thr	Leu	Asn	Val	Tyr	Arg	Leu	Ala
Leu	Lys	Thr	Thr	Leu	Lys				

115

120

125

Arg	Ala	Arg	Arg	Ser	Met	Glu	Leu	Ile	Ala
Arg	Glu	Asp	Glu	Asn	Pro				

130

135

140

Lys	Val	Ala	Glu	Val	Ile	Tyr	Pro	Ile	Met
Gln	Val	Asn	Pro	Val	His				

145

150

155

160

Tyr	Gln	Gly	Val	Asp	Val	Ala	Val	Gly	Gly
Met	Glu	Gln	Arg	Lys	Ile				

165

170

175

His	Met	Leu	Ala	Arg	Glu	Leu	Leu	Pro	Lys
Lys	Val	Val	Cys	Ile	His				

180

185

190

Asn	Pro	Val	Leu	Thr	Gly	Leu	Asp	Gly	Glu
Gly	Lys	Met	Ser	Ser	Ser				

195

200

AMBX_0174_00PCT_ST25.txt
205

Lys	Gly	Asn	Phe	Ile	Ala	Val	Asp	Asp	Ser
Pro	Glu	Glu	Ile	Arg	Ala				
	210					215			
	220								

Lys	Ile	Lys	Lys	Ala	Tyr	Cys	Pro	Ala	Gly
Val	Val	Glu	Gly	Asn	Pro				
225					230				
235					240				

Ile	Met	Glu	Ile	Ala	Lys	Tyr	Phe	Leu	Glu
Tyr	Pro	Leu	Thr	Ile	Lys				
				245					250
				255					

Arg	Pro	Glu	Lys	Phe	Gly	Gly	Asp	Leu	Thr
Val	Asn	Ser	Tyr	Glu	Glu				
			260					265	
			270						

Leu	Glu	Ser	Leu	Phe	Lys	Asn	Lys	Glu	Leu
His	Pro	Met	Asp	Leu	Lys				
		275					280		
		285							

AMBX_0174_00PCT_ST25.txt

Asn Ala Val Ala Glu Glu Leu Ile Lys Ile
 Leu Glu Pro Ile Arg Lys
 290 295
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Arg Leu
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<210> 29
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 <213> Artificial

<220>
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 the incorporation of
 p-azido-phenylalanine

<400> 29

Met Asp Glu Phe Glu Met Ile Lys Arg Asn
 Thr Ser Glu Ile Ile Ser
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Glu Glu Glu Leu Arg Glu Val Leu Lys Lys
 Asp Glu Lys Ser Ala Thr
 20 25
 30

AMBX_0174_00PCT_ST25.txt

Ile	Gly	Phe	Glu	Pro	Ser	Gly	Lys	Ile	His
Leu	Gly	His	Tyr	Leu	Gln				
		35					40		
		45							

Ile	Lys	Lys	Met	Ile	Asp	Leu	Gln	Asn	Ala
Gly	Phe	Asp	Ile	Ile	Ile				
	50					55			
	60								

Leu	Leu	Ala	Asp	Leu	His	Ala	Tyr	Leu	Asn
Gln	Lys	Gly	Glu	Leu	Asp				
65					70				
75					80				

Glu	Ile	Arg	Lys	Ile	Gly	Asp	Tyr	Asn	Lys
Lys	Val	Phe	Glu	Ala	Met				
				85					90
				95					

Gly	Leu	Lys	Ala	Lys	Tyr	Val	Tyr	Gly	Ser
Ser	Phe	Gln	Leu	Asp	Lys				
			100					105	
			110						

Asp	Tyr	Thr	Leu	Asn	Val	Tyr	Arg	Leu	Ala
Leu	Lys	Thr	Thr	Leu	Lys				

115 120
125

Arg	Ala	Arg	Arg	Ser	Met	Glu	Leu	Ile	Ala
Arg	Glu	Asp	Glu	Asn	Pro				
	130					135			
	140								

Lys	Val	Ala	Glu	Val	Ile	Tyr	Pro	Ile	Met
Gln	Val	Asn	Pro	Ser	His				
145					150				
155					160				

Tyr	Gln	Gly	Val	Asp	Val	Ala	Val	Gly	Gly
Met	Glu	Gln	Arg	Lys	Ile				
				165					170
				175					

His	Met	Leu	Ala	Arg	Glu	Leu	Leu	Pro	Lys
Lys	Val	Val	Cys	Ile	His				
			180					185	
			190						

Asn	Pro	Val	Leu	Thr	Gly	Leu	Asp	Gly	Glu
Gly	Lys	Met	Ser	Ser	Ser				
		195					200		
		205							

AMBX_0174_00PCT_ST25.txt

Lys Gly Asn Phe Ile Ala Val Asp Asp Ser
Pro Glu Glu Ile Arg Ala
210 215
220

Lys	Ile	Lys	Lys	Ala	Tyr	Cys	Pro	Ala	Gly
Val	Val	Glu	Gly	Asn	Pro				
225					230				
235					240				

Ile	Met	Glu	Ile	Ala	Lys	Tyr	Phe	Leu	Glu
Tyr	Pro	Leu	Thr	Ile	Lys				
				245					250
				255					

Arg Pro Glu Lys Phe Gly Gly Asp Leu Thr
Val Asn Ser Tyr Glu Glu
260 265
270

Leu	Glu	Ser	Leu	Phe	Lys	Asn	Lys	Glu	Leu
His	Pro	Met	Asp	Leu	Lys				
		275					280		
		285							

Asn Ala Val Ala Glu Glu Leu Ile Lys Ile
Leu Glu Pro Ile Arg Lys
Page 51

290
300

295

Arg Leu
305

<210> 30
<211> 306
<212> PRT
<213> Artificial

<220>
<223> Aminoacyl tRNA synthetase for
the incorporation of
p-acetyl-phenylalanine

<400> 30

Met	Asp	Glu	Phe	Glu	Met	Ile	Lys	Arg	Asn
Thr	Ser	Glu	Ile	Ile	Ser				
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				15					

Glu	Glu	Glu	Leu	Arg	Glu	Val	Leu	Lys	Lys
Asp	Glu	Lys	Ser	Ala	Leu				
			20					25	
			30						

Ile	Gly	Phe	Glu	Pro	Ser	Gly	Lys	Ile	His
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AMBX_0174_00PCT_ST25.txt

Leu Gly His Tyr Leu Gln

35 40
45

Ile Lys Lys Met Ile Asp Leu Gln Asn Ala
Gly Phe Asp Ile Ile Ile

50 55
60

Leu Leu Ala Asp Leu His Ala Tyr Leu Asn
Gln Lys Gly Glu Leu Asp

65 70
75 80

Glu Ile Arg Lys Ile Gly Asp Tyr Asn Lys
Lys Val Phe Glu Ala Met

85 90
95

Gly Leu Lys Ala Lys Tyr Val Tyr Gly Ser
Glu Phe Gln Leu Asp Lys

100 105
110

Asp Tyr Thr Leu Asn Val Tyr Arg Leu Ala
Leu Lys Thr Thr Leu Lys

115 120
125

AMBX_0174_00PCT_ST25.txt

Arg	Ala	Arg	Arg	Ser	Met	Glu	Leu	Ile	Ala
Arg	Glu	Asp	Glu	Asn	Pro				
	130					135			
	140								

Lys	Val	Ala	Glu	Val	Ile	Tyr	Pro	Ile	Met
Gln	Val	Asn	Gly	Cys	His				
145					150				
155					160				

Tyr	Arg	Gly	Val	Asp	Val	Ala	Val	Gly	Gly
Met	Glu	Gln	Arg	Lys	Ile				
				165					170
				175					

His	Met	Leu	Ala	Arg	Glu	Leu	Leu	Pro	Lys
Lys	Val	Val	Cys	Ile	His				
			180					185	
			190						

Asn	Pro	Val	Leu	Thr	Gly	Leu	Asp	Gly	Glu
Gly	Lys	Met	Ser	Ser	Ser				
		195					200		
		205							

Lys	Gly	Asn	Phe	Ile	Ala	Val	Asp	Asp	Ser
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Page 54

AMBX_0174_00PCT_ST25.txt

Pro	Glu	Glu	Ile	Arg	Ala				
	210					215			
	220								

Lys	Ile	Lys	Lys	Ala	Tyr	Cys	Pro	Ala	Gly
Val	Val	Glu	Gly	Asn	Pro				
225					230				
235					240				

Ile	Met	Glu	Ile	Ala	Lys	Tyr	Phe	Leu	Glu
Tyr	Pro	Leu	Thr	Ile	Lys				
				245					250
				255					

Arg	Pro	Glu	Lys	Phe	Gly	Gly	Asp	Leu	Thr
Val	Asn	Ser	Tyr	Glu	Glu				
			260					265	
			270						

Leu	Glu	Ser	Leu	Phe	Lys	Asn	Lys	Glu	Leu
His	Pro	Met	Asp	Leu	Lys				
		275					280		
		285							

Asn	Ala	Val	Ala	Glu	Glu	Leu	Ile	Lys	Ile
Leu	Glu	Pro	Ile	Arg	Lys				
	290					295			
	300								

AMBX_0174_00PCT_ST25.txt

Arg Leu
305

<210> 31
<211> 306
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<213> Artificial

<220>
<223> Aminoacyl tRNA synthetase for
the incorporation of p-acetyl
-phenylalanine

<400> 31

Met	Asp	Glu	Phe	Glu	Met	Ile	Lys	Arg	Asn
Thr	Ser	Glu	Ile	Ile	Ser				
1				5					10
				15					

Glu	Glu	Glu	Leu	Arg	Glu	Val	Leu	Lys	Lys
Asp	Glu	Lys	Ser	Ala	Leu				
			20					25	
			30						

Ile	Gly	Phe	Glu	Pro	Ser	Gly	Lys	Ile	His
Leu	Gly	His	Tyr	Leu	Gln				
		35					40		

AMBX_0174_00PCT_ST25.txt
45

Ile	Lys	Lys	Met	Ile	Asp	Leu	Gln	Asn	Ala
Gly	Phe	Asp	Ile	Ile	Ile				
	50					55			
60									

Leu	Leu	Ala	Asp	Leu	His	Ala	Tyr	Leu	Asn
Gln	Lys	Gly	Glu	Leu	Asp				
65					70				
75					80				

Glu	Ile	Arg	Lys	Ile	Gly	Asp	Tyr	Asn	Lys
Lys	Val	Phe	Glu	Ala	Met				
				85					90
				95					

Gly	Leu	Lys	Ala	Lys	Tyr	Val	Tyr	Gly	Ser
Glu	Phe	Gln	Leu	Asp	Lys				
			100					105	
			110						

Asp	Tyr	Thr	Leu	Asn	Val	Tyr	Arg	Leu	Ala
Leu	Lys	Thr	Thr	Leu	Lys				
		115					120		
		125							

AMBX_0174_00PCT_ST25.txt

Arg	Ala	Arg	Arg	Ser	Met	Glu	Leu	Ile	Ala
Arg	Glu	Asp	Glu	Asn	Pro				
	130					135			
	140								

Lys	Val	Ala	Glu	Val	Ile	Tyr	Pro	Ile	Met
Gln	Val	Asn	Gly	Thr	His				
145					150				
155					160				

Tyr	Arg	Gly	Val	Asp	Val	Ala	Val	Gly	Gly
Met	Glu	Gln	Arg	Lys	Ile				
				165					170
				175					

His	Met	Leu	Ala	Arg	Glu	Leu	Leu	Pro	Lys
Lys	Val	Val	Cys	Ile	His				
			180					185	
			190						

Asn	Pro	Val	Leu	Thr	Gly	Leu	Asp	Gly	Glu
Gly	Lys	Met	Ser	Ser	Ser				
		195					200		
		205							

Lys	Gly	Asn	Phe	Ile	Ala	Val	Asp	Asp	Ser
Pro	Glu	Glu	Ile	Arg	Ala				
	210					215			

220

Lys	Ile	Lys	Lys	Ala	Tyr	Cys	Pro	Ala	Gly
Val	Val	Glu	Gly	Asn	Pro				
225					230				
235					240				

Ile	Met	Glu	Ile	Ala	Lys	Tyr	Phe	Leu	Glu
Tyr	Pro	Leu	Thr	Ile	Lys				
				245					250
				255					

Arg	Pro	Glu	Lys	Phe	Gly	Gly	Asp	Leu	Thr
Val	Asn	Ser	Tyr	Glu	Glu				
			260					265	
			270						

Leu	Glu	Ser	Leu	Phe	Lys	Asn	Lys	Glu	Leu
His	Pro	Met	Asp	Leu	Lys				
		275					280		
		285							

Asn	Ala	Val	Ala	Glu	Glu	Leu	Ile	Lys	Ile
Leu	Glu	Pro	Ile	Arg	Lys				
	290					295			
300									

AMBX_0174_00PCT_ST25.txt

Arg Leu
305

<210> 32
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<213> Artificial

<220>
<223> Aminoacyl tRNA synthetase for
the incorporation of
p-acetyl-phenylalanine

<400> 32

Met	Asp	Glu	Phe	Glu	Met	Ile	Lys	Arg	Asn
Thr	Ser	Glu	Ile	Ile	Ser				
1				5					10
				15					

Glu	Glu	Glu	Leu	Arg	Glu	Val	Leu	Lys	Lys
Asp	Glu	Lys	Ser	Ala	Ala				
			20					25	
			30						

Ile	Gly	Phe	Glu	Pro	Ser	Gly	Lys	Ile	His
Leu	Gly	His	Tyr	Leu	Gln				
		35					40		
		45							

AMBX_0174_00PCT_ST25.txt

Ile Lys Lys Met Ile Asp Leu Gln Asn Ala
Gly Phe Asp Ile Ile Ile
50 55
60

Leu Leu Ala Asp Leu His Ala Tyr Leu Asn
Gln Lys Gly Glu Leu Asp
65 70
75 80

Glu Ile Arg Lys Ile Gly Asp Tyr Asn Lys
Lys Val Phe Glu Ala Met
85 90
95

Gly Leu Lys Ala Lys Tyr Val Tyr Gly Ser
Glu Phe Gln Leu Asp Lys
100 105
110

Asp	Tyr	Thr	Leu	Asn	Val	Tyr	Arg	Leu	Ala
Leu	Lys	Thr	Thr	Leu	Lys				
		115					120		
		125							

Arg Ala Arg Arg Ser Met Glu Leu Ile Ala
Arg Glu Asp Glu Asn Pro
Page 61

130
140

135

Lys	Val	Ala	Glu	Val	Ile	Tyr	Pro	Ile	Met
Gln	Val	Asn	Gly	Gly	His				
145					150				
155					160				

Tyr	Leu	Gly	Val	Asp	Val	Ile	Val	Gly	Gly
Met	Glu	Gln	Arg	Lys	Ile				
				165					170
				175					

His	Met	Leu	Ala	Arg	Glu	Leu	Leu	Pro	Lys
Lys	Val	Val	Cys	Ile	His				
			180					185	
			190						

Asn	Pro	Val	Leu	Thr	Gly	Leu	Asp	Gly	Glu
Gly	Lys	Met	Ser	Ser	Ser				
		195					200		
		205							

Lys	Gly	Asn	Phe	Ile	Ala	Val	Asp	Asp	Ser
Pro	Glu	Glu	Ile	Arg	Ala				
	210					215			
220									

AMBX_0174_00PCT_ST25.txt

Lys	Ile	Lys	Lys	Ala	Tyr	Cys	Pro	Ala	Gly
Val	Val	Glu	Gly	Asn	Pro				
225					230				
235					240				

Ile	Met	Glu	Ile	Ala	Lys	Tyr	Phe	Leu	Glu
Tyr	Pro	Leu	Thr	Ile	Lys				
				245					250
				255					

Arg	Pro	Glu	Lys	Phe	Gly	Gly	Asp	Leu	Thr
Val	Asn	Ser	Tyr	Glu	Glu				
			260					265	
			270						

Leu	Glu	Ser	Leu	Phe	Lys	Asn	Lys	Glu	Leu
His	Pro	Met	Asp	Leu	Lys				
		275					280		
		285							

Asn	Ala	Val	Ala	Glu	Glu	Leu	Ile	Lys	Ile
Leu	Glu	Pro	Ile	Arg	Lys				
	290					295			
	300								

Arg	Leu
305	

AMBX_0174_00PCT_ST25.txt

<210> 33
 <211> 306
 <212> PRT
 <213> Artificial

<220>
 <223> Aminoacyl tRNA synthetase for
 the incorporation of
 p-azido-phenylalanine

<400> 33

Met	Asp	Glu	Phe	Glu	Met	Ile	Lys	Arg	Asn
Thr	Ser	Glu	Ile	Ile	Ser				
1				5					10
				15					

Glu	Glu	Glu	Leu	Arg	Glu	Val	Leu	Lys	Lys
Asp	Glu	Lys	Ser	Ala	Ala				
			20					25	
			30						

Ile	Gly	Phe	Glu	Pro	Ser	Gly	Lys	Ile	His
Leu	Gly	His	Tyr	Leu	Gln				
		35					40		
		45							

Ile	Lys	Lys	Met	Ile	Asp	Leu	Gln	Asn	Ala
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

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AMBX_0174_00PCT_ST25.txt

Gly	Phe	Asp	Ile	Ile	Ile				
	50					55			
60									

Leu	Leu	Ala	Asp	Leu	His	Ala	Tyr	Leu	Asn
Gln	Lys	Gly	Glu	Leu	Asp				
65					70				
75					80				

Glu	Ile	Arg	Lys	Ile	Gly	Asp	Tyr	Asn	Lys
Lys	Val	Phe	Glu	Ala	Met				
				85					90
				95					

Gly	Leu	Lys	Ala	Lys	Tyr	Val	Tyr	Gly	Ser
Arg	Phe	Gln	Leu	Asp	Lys				
			100					105	
			110						

Asp	Tyr	Thr	Leu	Asn	Val	Tyr	Arg	Leu	Ala
Leu	Lys	Thr	Thr	Leu	Lys				
		115					120		
		125							

Arg	Ala	Arg	Arg	Ser	Met	Glu	Leu	Ile	Ala
Arg	Glu	Asp	Glu	Asn	Pro				
	130					135			
140									

AMBX_0174_00PCT_ST25.txt

Lys	Val	Ala	Glu	Val	Ile	Tyr	Pro	Ile	Met
Gln	Val	Asn	Val	Ile	His				
145					150				
155					160				

Tyr	Asp	Gly	Val	Asp	Val	Ala	Val	Gly	Gly
Met	Glu	Gln	Arg	Lys	Ile				
				165					170
				175					

His	Met	Leu	Ala	Arg	Glu	Leu	Leu	Pro	Lys
Lys	Val	Val	Cys	Ile	His				
			180					185	
			190						

Asn	Pro	Val	Leu	Thr	Gly	Leu	Asp	Gly	Glu
Gly	Lys	Met	Ser	Ser	Ser				
		195					200		
		205							

Lys Gly Asn Phe Ile Ala Val Asp Asp Ser
Pro Glu Glu Ile Arg Ala
210 215
220

Lys Ile Lys Lys Ala Tyr Cys Pro Ala Gly
Page 66

AMBX_0174_00PCT_ST25.txt

Val	Val	Glu	Gly	Asn	Pro
225					230
235					240

Ile	Met	Glu	Ile	Ala	Lys	Tyr	Phe	Leu	Glu
Tyr	Pro	Leu	Thr	Ile	Lys				
				245					250
				255					

Arg	Pro	Glu	Lys	Phe	Gly	Gly	Asp	Leu	Thr
Val	Asn	Ser	Tyr	Glu	Glu				
			260					265	
			270						

Leu	Glu	Ser	Leu	Phe	Lys	Asn	Lys	Glu	Leu
His	Pro	Met	Asp	Leu	Lys				
		275						280	
		285							

Asn	Ala	Val	Ala	Glu	Glu	Leu	Ile	Lys	Ile
Leu	Glu	Pro	Ile	Arg	Lys				
	290					295			
	300								

Arg	Leu
305	

AMBX_0174_00PCT_ST25.txt

<210> 34
<211> 306
<212> PRT
<213> Artificial

<220>
<223> Aminoacyl tRNA synthetase for
the incorporation of
p-azido-phenylalanine

<400> 34

Met	Asp	Glu	Phe	Glu	Met	Ile	Lys	Arg	Asn
Thr	Ser	Glu	Ile	Ile	Ser				
1				5					10
				15					

Glu	Glu	Glu	Leu	Arg	Glu	Val	Leu	Lys	Lys
Asp	Glu	Lys	Ser	Ala	Gly				
			20					25	
			30						

Ile	Gly	Phe	Glu	Pro	Ser	Gly	Lys	Ile	His
Leu	Gly	His	Tyr	Leu	Gln				
		35					40		
		45							

Ile	Lys	Lys	Met	Ile	Asp	Leu	Gln	Asn	Ala
Gly	Phe	Asp	Ile	Ile	Ile				
	50					55			

60

Leu	Leu	Ala	Asp	Leu	His	Ala	Tyr	Leu	Asn
Gln	Lys	Gly	Glu	Leu	Asp				
65					70				
75					80				

Glu	Ile	Arg	Lys	Ile	Gly	Asp	Tyr	Asn	Lys
Lys	Val	Phe	Glu	Ala	Met				
				85					90
				95					

Gly	Leu	Lys	Ala	Lys	Tyr	Val	Tyr	Gly	Ser
Thr	Phe	Gln	Leu	Asp	Lys				
			100					105	
			110						

Asp	Tyr	Thr	Leu	Asn	Val	Tyr	Arg	Leu	Ala
Leu	Lys	Thr	Thr	Leu	Lys				
		115					120		
		125							

Arg	Ala	Arg	Arg	Ser	Met	Glu	Leu	Ile	Ala
Arg	Glu	Asp	Glu	Asn	Pro				
	130					135			
140									

AMBX_0174_00PCT_ST25.txt

Lys	Val	Ala	Glu	Val	Ile	Tyr	Pro	Ile	Met
Gln	Val	Asn	Thr	Tyr	Tyr				
145					150				
155					160				

Tyr	Leu	Gly	Val	Asp	Val	Ala	Val	Gly	Gly
Met	Glu	Gln	Arg	Lys	Ile				
				165					170
				175					

His	Met	Leu	Ala	Arg	Glu	Leu	Leu	Pro	Lys
Lys	Val	Val	Cys	Ile	His				
			180					185	
			190						

Asn	Pro	Val	Leu	Thr	Gly	Leu	Asp	Gly	Glu
Gly	Lys	Met	Ser	Ser	Ser				
		195					200		
		205							

Lys	Gly	Asn	Phe	Ile	Ala	Val	Asp	Asp	Ser
Pro	Glu	Glu	Ile	Arg	Ala				
	210					215			
	220								

Lys	Ile	Lys	Lys	Ala	Tyr	Cys	Pro	Ala	Gly
Val	Val	Glu	Gly	Asn	Pro				
225					230				

235

240

Ile	Met	Glu	Ile	Ala	Lys	Tyr	Phe	Leu	Glu
Tyr	Pro	Leu	Thr	Ile	Lys				
				245					250
				255					

Arg	Pro	Glu	Lys	Phe	Gly	Gly	Asp	Leu	Thr
Val	Asn	Ser	Tyr	Glu	Glu				
			260					265	
			270						

Leu	Glu	Ser	Leu	Phe	Lys	Asn	Lys	Glu	Leu
His	Pro	Met	Asp	Leu	Lys				
		275					280		
		285							

Asn	Ala	Val	Ala	Glu	Glu	Leu	Ile	Lys	Ile
Leu	Glu	Pro	Ile	Arg	Lys				
	290					295			
	300								

Arg	Leu
305	