

SEQUENCE LISTING

<110> Erber Aktiengesellschaft

<120> TETRAMERIC ALPHA/BETA HYDROLASE VARIANTS WITH INCREASED
TEMPERATURE STABILITY AND METHODS OF USING AND PRODUCING THEREOF

<130> ERB17181PCT

<160> 39

<170> PatentIn version 3.5

<210> 1

<211> 316

<212> PRT

<213> Aeromicrobium sp.

<400> 1

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Asn Phe Leu Gly Asp Gln Trp Ser Val Ala
165 170 175

Asp Trp Asp Gly Phe Ala Ala Ala Lys Ala Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Phe Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 2

<211> 316

<212> PRT

<213> Artificial Sequence

<220>

<223> variant alpha/beta hydrolase

<400> 2

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Asp Gly Phe Ala Ala Ala Ala Lys Ala Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 3

<211> 316

<212> PRT

<213> Artificial Sequence

<220>

<223> variant alpha/beta hydrolase

<400> 3

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Phe Leu Gly Asp Gln Trp Ser Val Ala
165 170 175

Asp Trp Asp Gly Phe Ala Ala Ala Ala Lys Ala Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Phe Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 4

<211> 316

<212> PRT

<213> Artificial Sequence

<220>

<223> variant alpha/beta hydrolase

<400> 4

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Ser Phe Leu Gly Asp Gln Trp Ser Val Ala
165 170 175

Asp Trp Asp Gly Phe Ala Ala Ala Lys Ala Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Phe Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 5

<211> 316

<212> PRT

<213> Artificial Sequence

<220>

<223> variant alpha/beta hydrolase

<400> 5

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Ala Phe Leu Gly Asp Gln Trp Ser Val Ala
165 170 175

Asp Trp Asp Gly Phe Ala Ala Ala Ala Lys Ala Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Phe Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 6
<211> 316
<212> PRT
<213> Artificial Sequence

<220>
<223> variant alpha/beta hydrolase

<400> 6

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Cys Phe Leu Gly Asp Gln Trp Ser Val Ala
165 170 175

Asp Trp Asp Gly Phe Ala Ala Ala Ala Lys Ala Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Phe Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 7

<211> 316

<212> PRT

<213> Artificial Sequence

<220>

<223> variant alpha/beta hydrolase

<400> 7

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Leu Phe Leu Gly Asp Gln Trp Ser Val Ala
165 170 175

Asp Trp Asp Gly Phe Ala Ala Ala Lys Ala Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Phe Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 8

<211> 316

<212> PRT

<213> Artificial Sequence

<220>

<223> variant alpha/beta hydrolase

<400> 8

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Phe Leu Gly Asp Gln Trp Thr Val Ala
165 170 175

Asp Trp Asp Gly Phe Ala Ala Ala Ala Lys Ala Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Phe Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 9

<211> 316

<212> PRT

<213> Artificial Sequence

<220>

<223> variant alpha/beta hydrolase

<400> 9

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Phe Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Asp Gly Phe Ala Ala Ala Ala Lys Ala Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Phe Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 10
<211> 316
<212> PRT
<213> Artificial Sequence

<220>
<223> variant alpha/beta hydrolase

<400> 10

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Lys Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Phe Leu Gly Asp Gln Trp Cys Ala Ala
165 170 175

Asp Trp Asp Gly Phe Ala Ala Ala Ala Lys Ala Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Phe Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 11

<211> 316

<212> PRT

<213> Artificial Sequence

<220>

<223> variant alpha/beta hydrolase

<400> 11

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Lys Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Phe Leu Gly Asp Gln Trp Cys Thr Ala
165 170 175

Asp Trp Asp Gly Phe Ala Ala Ala Ala Lys Ala Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Phe Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 12
<211> 316
<212> PRT
<213> Artificial Sequence

<220>
<223> variant alpha/beta hydrolase

<400> 12

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Ser Phe Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Asp Gly Phe Ala Ala Ala Ala Lys Ala Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Phe Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 13
<211> 316
<212> PRT
<213> Artificial Sequence

<220>
<223> variant alpha/beta hydrolase

<400> 13

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Phe Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Asp Gly Phe Ala Ala Ala Ala Lys Ala Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 14

<211> 316

<212> PRT

<213> Artificial Sequence

<220>

<223> variant alpha/beta hydrolase

<400> 14

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Asp Gly Phe Ala Ala Ala Ala Lys Ala Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Phe Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 15
<211> 316
<212> PRT
<213> Artificial Sequence

<220>
<223> variant alpha/beta hydrolase

<400> 15

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Glu Gly Phe Cys Arg Ala Ala Arg Arg Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 16
<211> 316
<212> PRT
<213> Artificial Sequence

<220>
<223> variant alpha/beta hydrolase

<400> 16

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Glu Gly Phe Cys Arg Ala Ala Arg Arg Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Leu Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Ile Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 17

<211> 316

<212> PRT

<213> Artificial Sequence

<220>

<223> variant alpha/beta hydrolase

<400> 17

Met Thr Asp Gln Ser Pro Glu Thr Arg Asn Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Glu Gly Phe Cys Arg Ala Ala Arg Arg Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 18
<211> 316
<212> PRT
<213> Artificial Sequence

<220>
<223> variant alpha/beta hydrolase

<400> 18

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Tyr Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Met Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Glu Gly Phe Cys Arg Ala Ala Arg Arg Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 19
<211> 316
<212> PRT
<213> Artificial Sequence

<220>
<223> variant alpha/beta hydrolase

<400> 19

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Thr Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Glu Gly Phe Cys Arg Ala Ala Arg Arg Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 20

<211> 316

<212> PRT

<213> Artificial Sequence

<220>

<223> variant alpha/beta hydrolase

<400> 20

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp Arg Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Glu Gly Phe Cys Arg Ala Ala Arg Arg Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 21
<211> 316
<212> PRT
<213> Artificial Sequence

<220>
<223> variant alpha/beta hydrolase

<400> 21

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Ser Gln
35 40 45

Thr Glu Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Glu Gly Phe Cys Arg Ala Ala Arg Arg Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 22
<211> 316
<212> PRT
<213> Artificial Sequence

<220>
<223> variant alpha/beta hydrolase

<400> 22

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Glu Ala Met Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Glu Gly Phe Cys Arg Ala Ala Arg Arg Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 23

<211> 316

<212> PRT

<213> Artificial Sequence

<220>

<223> variant alpha/beta hydrolase

<400> 23

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ser Glu
50 55 60

His Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Glu Gly Phe Cys Arg Ala Ala Arg Arg Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 24
<211> 316
<212> PRT
<213> Artificial Sequence

<220>
<223> variant alpha/beta hydrolase

<400> 24

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Tyr Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Glu Gly Phe Cys Arg Ala Ala Arg Arg Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 25

<211> 316

<212> PRT

<213> Artificial Sequence

<220>

<223> variant alpha/beta hydrolase

<400> 25

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ser Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Glu Gly Phe Cys Arg Ala Ala Arg Arg Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 26

<211> 316

<212> PRT

<213> Artificial Sequence

<220>

<223> variant alpha/beta hydrolase

<400> 26

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Pro Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Glu Gly Phe Cys Arg Ala Ala Arg Arg Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 27
<211> 316
<212> PRT
<213> Artificial Sequence

<220>
<223> variant alpha/beta hydrolase

<400> 27

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Glu Gly Phe Cys Arg Ala Ala Arg Arg Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

Ser Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 28
<211> 316
<212> PRT
<213> Artificial Sequence

<220>
<223> variant alpha/beta hydrolase

<400> 28

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Glu Gly Phe Cys Arg Ala Ala Arg Arg Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Arg Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 29

<211> 316

<212> PRT

<213> Artificial Sequence

<220>

<223> variant alpha/beta hydrolase

<400> 29

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Glu Gly Phe Cys Arg Ala Ala Arg Arg Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Val Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 30

<211> 316

<212> PRT

<213> Artificial Sequence

<220>

<223> variant alpha/beta hydrolase

<400> 30

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Glu Gly Phe Cys Arg Ala Ala Arg Arg Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro Glu Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 31

<211> 316

<212> PRT

<213> Artificial Sequence

<220>

<223> variant alpha/beta hydrolase

<400> 31

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Glu Gly Phe Cys Arg Ala Ala Arg Arg Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Glu Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 32

<211> 316

<212> PRT

<213> Artificial Sequence

<220>

<223> variant alpha/beta hydrolase

<400> 32

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Glu Gly Phe Cys Arg Ala Ala Arg Arg Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Thr His
275 280 285

Ser Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 33
<211> 316
<212> PRT
<213> Artificial Sequence

<220>
<223> variant alpha/beta hydrolase

<400> 33

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Glu Gly Phe Cys Arg Ala Ala Arg Arg Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Ser Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Ser
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 34

<211> 316

<212> PRT

<213> Artificial Sequence

<220>

<223> variant alpha/beta hydrolase

<400> 34

Met Thr Asp Gln Ser Pro Glu Thr Arg Asp Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Val Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp His Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Pro Val Ile Gly Leu Leu Ala Glu
50 55 60

Ser Phe His Val Phe Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Thr Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Glu Gly Phe Cys Arg Ala Ala Arg Arg Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

His Cys Pro His Asp Leu Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Ala Ser Phe Pro Asp Ala Leu His
275 280 285

Met Met His Gln Phe Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Arg
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 35

<211> 316

<212> PRT

<213> Artificial Sequence

<220>

<223> variant alpha/beta hydrolase

<400> 35

Met Thr Asp Gln Ser Pro Glu Thr Arg Asn Ile Phe Val Pro His Ala
1 5 10 15

Phe Glu Glu Gln Gln Val Asp Leu Gly Glu Val Thr Met Asn Tyr Val
20 25 30

Glu Ala Gly Ser Ala Asp Arg Pro Ala Leu Leu Leu Leu Pro Glu Gln
35 40 45

Thr Gly Ser Trp Trp Ser Tyr Glu Glu Ala Met Gly Leu Leu Ser Glu
50 55 60

His Phe His Val Tyr Ala Val Asp Ile Arg Gly Gln Gly Arg Ser Thr
65 70 75 80

Trp Thr Pro Lys Arg Tyr Ser Leu Asp Asn Phe Gly Asn Asp Leu Val
85 90 95

Arg Phe Ile Ser Leu Val Val Lys Arg Pro Val Ile Val Ser Gly Asn
100 105 110

Ser Ser Gly Gly Val Leu Ala Ala Trp Leu Ser Ala Tyr Ala Met Pro
115 120 125

Gly Gln Ile Arg Ala Ala Leu Cys Glu Asp Pro Pro Phe Phe Ala Ser
130 135 140

Glu Leu Val Pro Ala His Gly His Ser Val Arg Gln Ala Ala Gly Pro
145 150 155 160

Ala Phe Glu Leu Tyr Arg Thr Tyr Leu Gly Asp Gln Trp Cys Val Ala
165 170 175

Asp Trp Glu Gly Phe Cys Arg Ala Ala Arg Arg Ser Pro Ser Lys Ile
180 185 190

Met Ser Leu Phe Pro Ser Ser Asp Glu Pro Pro Gln Asn Leu Lys Glu
195 200 205

Tyr Asp Pro Glu Trp Ala Arg Ala Phe Tyr Glu Gly Thr Val Ala Leu
210 215 220

Ser Cys Pro His Asp Arg Met Leu Ser Gln Val Lys Thr Pro Ile Leu
225 230 235 240

Ile Thr His His Ala Arg Ala Val Asp Pro His Ser Gly Asp Leu Leu
245 250 255

Gly Ala Leu Ser Asp Phe Gln Ala Glu Arg Ala Gln Ala Ile Ile Glu
260 265 270

Ser Ala Gly Val Pro Val Glu Tyr Glu Ser Phe Pro Asp Ala Thr His
275 280 285

Ser Met His Gln Ser Glu Pro Glu Arg Phe Ala Glu Val Leu Thr Arg
290 295 300

Trp Val Ala Arg Leu Pro Ala Asp Thr Pro Gly Ala
305 310 315

<210> 36
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> consensus amino acid motif 1

<220>
<221> VARIANT
<222> (7)..(7)
<223> Val or Ile

<220>
<221> VARIANT
<222> (8)..(8)
<223> Val or Thr

<400> 36

Gln Val Asp Leu Gly Glu Xaa Xaa Met Asn
1 5 10

<210> 37

<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> consensus amino acid motif 2

<220>
<221> VARIANT
<222> (7)..(7)
<223> Gly or Ala

<220>
<221> VARIANT
<222> (9)..(9)
<223> Ala or Val

<220>
<221> VARIANT
<222> (11)..(11)
<223> Phe or Tyr

<400> 37

Glu	Tyr	Asp	Pro	Glu	Trp	Xaa	Arg	Xaa	Phe	Xaa	Glu	Gly	Thr	Val
1				5				10						15

<210> 38
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> consensus amino acid motif 3

<220>
<221> VARIANT
<222> (3)..(3)
<223> Ser or Gly

<220>
<221> VARIANT
<222> (9)..(9)
<223> Ile or Val

<220>
<221> VARIANT
<222> (11)..(11)
<223> Ile or Leu

<400> 38

Met Leu Xaa Gln Val Lys Thr Pro Xaa Leu Xaa Thr His His
1 5 10

<210> 39
<211> 127
<212> PRT
<213> Artificial Sequence

<220>
<223> consensus amino acid motif 4

<220>
<221> VARIANT
<222> (3)..(3)
<223> Val or Leu

<220>
<221> VARIANT
<222> (6)..(6)
<223> Leu or Ile

<220>
<221> VARIANT
<222> (18)..(18)
<223> Pro or Glu

<220>
<221> VARIANT
<222> (19)..(19)
<223> Val or Ala

<220>
<221> VARIANT
<222> (20)..(20)
<223> Ile or Met

<220>
<221> VARIANT
<222> (24)..(24)
<223> Ala or Ser

<220>
<221> VARIANT
<222> (26)..(26)
<223> Ser or Asn or His

<220>
<221> VARIANT
<222> (30)..(30)
<223> Phe or Tyr

<220>
<221> VARIANT
<222> (34)..(34)
<223> Ile or Leu

<220>
<221> VARIANT
<222> (41)..(41)
<223> Thr or Ser

<220>
<221> VARIANT
<222> (45)..(45)
<223> Lys or Arg

<220>
<221> VARIANT
<222> (61)..(61)
<223> Ser or Ala or Asn

<220>
<221> VARIANT
<222> (64)..(64)
<223> Val or Ile

<220>
<221> VARIANT
<222> (69)..(69)
<223> Ile or Val

<220>
<221> VARIANT
<222> (71)..(71)
<223> Ser or Ala

<220>
<221> VARIANT
<222> (78)..(78)
<223> Val or Leu

<220>
<221> VARIANT
<222> (87)..(87)
<223> Ala or Ser

<220>
<221> VARIANT
<222> (92)..(92)
<223> Ile or Leu

<220>
<221> VARIANT
<222> (94)..(94)
<223> Ala or Gly

<220>
 <221> VARIANT
 <222> (95)..(95)
 <223> Ala or Val

 <220>
 <221> VARIANT
 <222> (100)..(100)
 <223> Thr or Ala or Pro

<220>
 <221> VARIANT
 <222> (101)..(101)
 <223> Pro or Ala

<220>
 <221> VARIANT
 <222> (111)..(111)
 <223> Tyr or His

<220>
 <221> VARIANT
 <222> (116)..(116)
 <223> Leu or Arg

<220>
 <221> VARIANT
 <222> (118)..(118)
 <223> Ala or Gly

<220>
 <221> VARIANT
 <222> (122)..(122)
 <223> Ala or Val

<220>
 <221> VARIANT
 <222> (126)..(126)
 <223> Tyr or Phe

<400> 39

Pro	Ala	Xaa	Leu	Leu	Xaa	Pro	Glu	Gln	Thr	Gly	Ser	Trp	Trp	Ser	Tyr
1				5					10					15	

Glu	Xaa	Xaa	Xaa	Gly	Leu	Leu	Xaa	Glu	Xaa	Phe	His	Val	Xaa	Ala	Val
			20					25					30		

Asp	Xaa	Arg	Gly	Gln	Gly	Arg	Ser	Xaa	Trp	Thr	Pro	Xaa	Arg	Tyr	Ser
		35					40					45			

Leu Asp Asn Phe Gly Asn Asp Leu Val Arg Phe Ile Xaa Leu Val Xaa
50 55 60

Lys Arg Pro Val Xaa Val Xaa Gly Asn Ser Ser Gly Gly Xaa Leu Ala
65 70 75 80

Ala Trp Leu Ser Ala Tyr Xaa Met Pro Gly Gln Xaa Arg Xaa Xaa Leu
85 90 95

Cys Glu Asp Xaa Xaa Phe Phe Ala Ser Glu Leu Val Pro Ala Xaa Gly
100 105 110

His Ser Val Xaa Gln Xaa Ala Gly Pro Xaa Phe Glu Leu Xaa Arg
115 120 125