

SEQUENCE LISTING

<110> MiraBiologics Inc.

<120> Artificial protein containing an antibody antigen-binding region,
fused with bioactive peptides

<130> M2694AKP0001

<150> US62/669,468

<151> 2018-05-10

<160> 53

<170> PatentIn version 3.5

<210> 1

<211> 469

<212> PRT

<213> Artificial Sequence

<220>

<223> YW64.3 (human, IgG1) heavy chain

<400> 1

Met Glu Ser Gln Thr Gln Val Leu Met Phe Leu Leu Leu Trp Val Ser
1 5 10 15

Gly Ala Ala Ala Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val
20 25 30

Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ser
35 40 45

Phe Ser Ser Glu Pro Ile Ser Trp Val Arg Gln Ala Pro Gly Lys Gly
50 55 60

Leu Glu Trp Val Ser Ser Ile Thr Gly Lys Asn Gly Tyr Thr Tyr Tyr
65 70 75 80

Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Ala Asp Thr Ser Lys
85 90 95

Asn Thr Ala Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala
 100 105 110

Val Tyr Tyr Cys Ala Arg Trp Gly Lys Lys Val Tyr Gly Met Asp Val
 115 120 125

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 130 135 140

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
 145 150 155 160

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 165 170 175

Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe
 180 185 190

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 195 200 205

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
 210 215 220

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys
 225 230 235 240

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu
 245 250 255

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

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 275 280 285

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 290 295 300

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 305 310 315 320

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 325 330 335

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
 340 345 350

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
 355 360 365

Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln
 370 375 380

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
 385 390 395 400

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
 405 410 415

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
 420 425 430

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
 435 440 445

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
 450 455 460

Leu Ser Pro Gly Lys
 465

<210> 2

<211> 255
 <212> PRT
 <213> Artificial Sequence

<220>

<223> YW64.3 (human, IgG1) heavy chain Fab construct

<400> 2

Met Glu Ser Gln Thr Gln Val Leu Met Phe Leu Leu Leu Trp Val Ser
 1 5 10 15

Gly Ala Ala Ala Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val
 20 25 30

Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ser
 35 40 45

Phe Ser Ser Glu Pro Ile Ser Trp Val Arg Gln Ala Pro Gly Lys Gly
 50 55 60

Leu Glu Trp Val Ser Ser Ile Thr Gly Lys Asn Gly Tyr Thr Tyr Tyr
 65 70 75 80

Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Ala Asp Thr Ser Lys
 85 90 95

Asn Thr Ala Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala
 100 105 110

Val Tyr Tyr Cys Ala Arg Trp Gly Lys Lys Val Tyr Gly Met Asp Val
 115 120 125

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 130 135 140

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
 145 150 155 160

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 165 170 175

Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe
 180 185 190

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 195 200 205

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
 210 215 220

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys
 225 230 235 240

Ser Cys Asp Lys Thr His Thr Ser Arg His His His His His His
 245 250 255

<210> 3
 <211> 234
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> YW64.3 (human, kappa) light chain

<400> 3

Met Glu Ser Gln Thr Gln Val Leu Met Phe Leu Leu Leu Trp Val Ser
 1 5 10 15

Gly Ala Ala Ala Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser
 20 25 30

Ala Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser
 35 40 45

Ile Ser Ser Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro
 50 55 60

Lys Leu Leu Ile Tyr Gly Ala Ser Ser Arg Ala Ser Gly Val Pro Ser
65 70 75 80

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser
85 90 95

Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Met
100 105 110

Ser Val Pro Ile Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
115 120 125

Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln
130 135 140

Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr
145 150 155 160

Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser
165 170 175

Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr
180 185 190

Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys
195 200 205

His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro
210 215 220

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
225 230

<210> 4

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> mP6-9

<400> 4

Arg	Pro	Tyr	Ile	Glu	Arg	Trp	Thr	Gly	Arg	Leu	Ile	Val	Cys
1				5				10					

<210> 5

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> inserted peptide (mP6-8)

<400> 5

Trp	Arg	Pro	Tyr	Ile	Glu	Arg	Trp	Thr	Gly	Arg	Leu	Ile	Val
1				5					10				

<210> 6

<211> 26

<212> PRT

<213> Artificial Sequence

<220>

<223> partial amino acid sequence (mP6-8 insertion)

<400> 6

Val	Glu	Ile	Lys	Arg	Gly	Trp	Arg	Pro	Tyr	Ile	Glu	Arg	Trp	Thr	Gly
1				5					10					15	

Arg	Leu	Ile	Val	Gly	Thr	Val	Ala	Ala	Pro
			20				25		

<210> 7

<211> 27

<212> PRT

<213> Artificial Sequence

<220>

<223> partial amino acid sequence (mP6-8 insertion)

<400> 7

Glu Gln Leu Lys Ser Gly Trp Arg Pro Tyr Ile Glu Arg Trp Thr Gly
1 5 10 15

Arg Leu Ile Val Gly Gly Gly Thr Ala Ser Val
20 25

<210> 8

<211> 27

<212> PRT

<213> Artificial Sequence

<220>

<223> partial amino acid sequence (mP6-8 insertion)

<400> 8

Gln Trp Lys Val Asp Gly Trp Arg Pro Tyr Ile Glu Arg Trp Thr Gly
1 5 10 15

Arg Leu Ile Val Gly Gly Asn Ala Leu Gln Ser
20 25

<210> 9

<211> 27

<212> PRT

<213> Artificial Sequence

<220>

<223> partial amino acid sequence (mP6-8 insertion)

<400> 9

Asn Ala Leu Gln Ser Gly Trp Arg Pro Tyr Ile Glu Arg Trp Thr Gly
1 5 10 15

Arg Leu Ile Val Gly Gly Gly Asn Ser Gln Glu
20 25

<210> 10

<211> 27

<212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (mP6-8 insertion)

<400> 10

Ala	Asp	Tyr	Glu	Lys	Gly	Trp	Arg	Pro	Tyr	Ile	Glu	Arg	Trp	Thr	Gly
1				5					10					15	

Arg	Leu	Ile	Val	Gly	Gly	His	Lys	Val	Tyr	Ala
			20					25		

<210> 11
 <211> 27
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (mP6-8 insertion)

<400> 11

Leu	Ser	Ala	Ser	Val	Gly	Trp	Arg	Pro	Tyr	Ile	Glu	Arg	Trp	Thr	Gly
1				5					10					15	

Arg	Leu	Ile	Val	Gly	Gly	Gly	Asp	Arg	Val	Thr
			20					25		

<210> 12
 <211> 27
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (mP6-8 insertion)

<400> 12

Ser	Ser	Arg	Ala	Ser	Gly	Trp	Arg	Pro	Tyr	Ile	Glu	Arg	Trp	Thr	Gly
1				5					10					15	

Arg	Leu	Ile	Val	Gly	Gly	Gly	Val	Pro	Ser	Arg
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

20

25

<210> 13
 <211> 27
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (mP6-8 insertion)

<400> 13

Ser Gly Val Pro Ser Gly Trp Arg Pro Tyr Ile Glu Arg Trp Thr Gly
 1 5 10 15

Arg Leu Ile Val Gly Gly Arg Phe Ser Gly Ser
 20 25

<210> 14
 <211> 27
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (mP6-8 insertion)

<400> 14

Thr Leu Thr Ile Ser Gly Trp Arg Pro Tyr Ile Glu Arg Trp Thr Gly
 1 5 10 15

Arg Leu Ile Val Gly Gly Ser Leu Gln Pro Glu
 20 25

<210> 15
 <211> 27
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (mP6-8 insertion)

<400> 15

Ser Ser Leu Gln Pro Gly Trp Arg Pro Tyr Ile Glu Arg Trp Thr Gly
 1 5 10 15

Arg Leu Ile Val Gly Gly Glu Asp Phe Ala Thr
 20 25

<210> 16
 <211> 27
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (mP6-8 insertion)

<400> 16

Glu Gln Asp Ser Lys Gly Trp Arg Pro Tyr Ile Glu Arg Trp Thr Gly
 1 5 10 15

Arg Leu Ile Val Gly Gly Asp Ser Thr Tyr Ser
 20 25

<210> 17
 <211> 27
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (mP6-8 insertion)

<400> 17

His Gln Gly Leu Ser Gly Trp Arg Pro Tyr Ile Glu Arg Trp Thr Gly
 1 5 10 15

Arg Leu Ile Val Gly Gly Ser Pro Val Thr Lys
 20 25

<210> 18
 <211> 27
 <212> PRT
 <213> Artificial Sequence

<220>

<223> partial amino acid sequence (mP6-8 insertion)

<400> 18

Glu	Val	Thr	His	Gln	Gly	Trp	Arg	Pro	Tyr	Ile	Glu	Arg	Trp	Thr	Gly
1				5					10					15	

Arg	Leu	Ile	Val	Gly	Gly	Gly	Leu	Ser	Ser	Pro
			20					25		

<210> 19

<211> 27

<212> PRT

<213> Artificial Sequence

<220>

<223> partial amino acid sequence (mP6-8 insertion)

<400> 19

Tyr	Gln	Gln	Lys	Pro	Gly	Trp	Arg	Pro	Tyr	Ile	Glu	Arg	Trp	Thr	Gly
1				5					10					15	

Arg	Leu	Ile	Val	Gly	Gly	Gly	Lys	Ala	Pro	Lys
			20					25		

<210> 20

<211> 26

<212> PRT

<213> Artificial Sequence

<220>

<223> partial amino acid sequence (mP6-8 insertion)

<400> 20

Val	Thr	Val	Ser	Ser	Gly	Trp	Arg	Pro	Tyr	Ile	Glu	Arg	Trp	Thr	Gly
1				5					10					15	

Arg	Leu	Ile	Val	Gly	Ala	Ser	Thr	Lys	Gly
			20					25	

<210> 21
 <211> 27
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (mP6-8 insertion)

<400> 21

Ser	Lys	Ser	Thr	Ser	Gly	Trp	Arg	Pro	Tyr	Ile	Glu	Arg	Trp	Thr	Gly
1				5					10					15	

Arg	Leu	Ile	Val	Gly	Gly	Gly	Gly	Thr	Ala	Ala
			20					25		

<210> 22
 <211> 27
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (mP6-8 insertion)

<400> 22

Val	Ser	Trp	Asn	Ser	Gly	Trp	Arg	Pro	Tyr	Ile	Glu	Arg	Trp	Thr	Gly
1				5					10					15	

Arg	Leu	Ile	Val	Gly	Gly	Gly	Ala	Leu	Thr	Ser
			20					25		

<210> 23
 <211> 27
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (mP6-8 insertion)

<400> 23

Ser	Gly	Ala	Leu	Thr	Gly	Trp	Arg	Pro	Tyr	Ile	Glu	Arg	Trp	Thr	Gly
1				5					10					15	

Arg Leu Ile Val Gly Gly Ser Gly Val His Thr
 20 25

<210> 24
 <211> 27
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (mP6-8 insertion)

<400> 24

Ser Ser Ser Leu Gly Gly Trp Arg Pro Tyr Ile Glu Arg Trp Thr Gly
 1 5 10 15

Arg Leu Ile Val Gly Gly Thr Gln Thr Tyr Ile
 20 25

<210> 25
 <211> 27
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (mP6-8 insertion)

<400> 25

Gly Leu Val Gln Pro Gly Trp Arg Pro Tyr Ile Glu Arg Trp Thr Gly
 1 5 10 15

Arg Leu Ile Val Gly Gly Gly Gly Ser Leu Arg
 20 25

<210> 26
 <211> 27
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (mP6-8 insertion)

<400> 26

Thr Tyr Tyr Ala Asp Gly Trp Arg Pro Tyr Ile Glu Arg Trp Thr Gly
1 5 10 15

Arg Leu Ile Val Gly Gly Ser Val Lys Gly Arg
20 25

<210> 27

<211> 27

<212> PRT

<213> Artificial Sequence

<220>

<223> partial amino acid sequence (mP6-8 insertion)

<400> 27

Asp Ser Val Lys Gly Gly Trp Arg Pro Tyr Ile Glu Arg Trp Thr Gly
1 5 10 15

Arg Leu Ile Val Gly Gly Arg Phe Thr Ile Ser
20 25

<210> 28

<211> 29

<212> PRT

<213> Artificial Sequence

<220>

<223> partial amino acid sequence (mP6-8 insertion)

<400> 28

Tyr Leu Gln Met Asn Ala Gly Trp Arg Pro Tyr Ile Glu Arg Trp Thr
1 5 10 15

Gly Arg Leu Ile Val Gly Gly Ser Asx Leu Arg Ala Glu
20 25

<210> 29

<211> 27

<212> PRT

<213> Artificial Sequence

<220>

<223> partial amino acid sequence (mP6-8 insertion)

<400> 29

Met	Asn	Ser	Leu	Arg	Gly	Trp	Arg	Pro	Tyr	Ile	Glu	Arg	Trp	Thr	Gly
1				5					10					15	

Arg	Leu	Ile	Val	Gly	Gly	Ala	Glu	Asp	Thr	Ala
			20					25		

<210> 30

<211> 27

<212> PRT

<213> Artificial Sequence

<220>

<223> partial amino acid sequence (mP6-8 insertion)

<400> 30

Ala	Val	Leu	Gln	Ser	Gly	Trp	Arg	Pro	Tyr	Ile	Glu	Arg	Trp	Thr	Gly
1				5					10					15	

Arg	Leu	Ile	Val	Gly	Gly	Ser	Gly	Leu	Tyr	Ser
			20					25		

<210> 31

<211> 27

<212> PRT

<213> Artificial Sequence

<220>

<223> partial amino acid sequence (mP6-8 insertion)

<400> 31

Asn	His	Lys	Pro	Ser	Gly	Trp	Arg	Pro	Tyr	Ile	Glu	Arg	Trp	Thr	Gly
1				5					10					15	

Arg	Leu	Ile	Val	Gly	Gly	Asn	Thr	Lys	Val	Asp
			20					25		

<210> 32
 <211> 27
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (mP6-8 insertion)

<400> 32

Val Arg Gln Ala Pro Gly Trp Arg Pro Tyr Ile Glu Arg Trp Thr Gly
 1 5 10 15

Arg Leu Ile Val Gly Gly Gly Lys Gly Leu Glu
 20 25

<210> 33
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> FLAG tag

<400> 33

Asp Tyr Lys Asp Asp Asp Asp Lys
 1 5

<210> 34
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> aMD4

<400> 34

Arg Gln Phe Asn Arg Arg Thr His Glu Val Trp Asn Leu Asp Cys
 1 5 10 15

<210> 35

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

<220>
 <223> inserted peptide (aMD4)

<400> 35

Tyr	Arg	Gln	Phe	Asn	Arg	Arg	Thr	His	Glu	Val	Trp	Asn	Leu	Asp
1				5					10					15

<210> 36
 <211> 29
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (aMD4 insertion)

<400> 36

Val	Glu	Ile	Lys	Arg	Gly	Gly	Tyr	Arg	Gln	Phe	Asn	Arg	Arg	Thr	His
1				5					10					15	

Glu	Val	Trp	Asn	Leu	Asp	Gly	Gly	Thr	Val	Ala	Ala	Pro
			20					25				

<210> 37
 <211> 29
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (aMD4 insertion)

<400> 37

Asn	Ala	Leu	Gln	Ser	Gly	Gly	Tyr	Arg	Gln	Phe	Asn	Arg	Arg	Thr	His
1				5					10					15	

Glu	Val	Trp	Asn	Leu	Asp	Gly	Gly	Gly	Asn	Ser	Gln	Glu
			20					25				

<210> 38
 <211> 29
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (aMD4 insertion)

<400> 38

Leu Ser Ala Ser Val Gly Gly Tyr Arg Gln Phe Asn Arg Arg Thr His
 1 5 10 15

Glu Val Trp Asn Leu Asp Gly Gly Gly Asp Arg Val Thr
 20 25

<210> 39
 <211> 29
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (aMD4 insertion)

<400> 39

Ser Ser Arg Ala Ser Gly Gly Tyr Arg Gln Phe Asn Arg Arg Thr His
 1 5 10 15

Glu Val Trp Asn Leu Asp Gly Gly Gly Val Pro Ser Arg
 20 25

<210> 40
 <211> 29
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (aMD4 insertion)

<400> 40

Ser Gly Val Pro Ser Gly Gly Tyr Arg Gln Phe Asn Arg Arg Thr His
 1 5 10 15

Glu Val Trp Asn Leu Asp Gly Gly Arg Phe Ser Gly Ser
 20 25

<210> 41
 <211> 29
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (aMD4 insertion)

<400> 41

Ser Ser Leu Gln Pro Gly Gly Tyr Arg Gln Phe Asn Arg Arg Thr His
 1 5 10 15

Glu Val Trp Asn Leu Asp Gly Gly Glu Asp Phe Ala Thr
 20 25

<210> 42
 <211> 29
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (aMD4 insertion)

<400> 42

Glu Gln Asp Ser Lys Gly Gly Tyr Arg Gln Phe Asn Arg Arg Thr His
 1 5 10 15

Glu Val Trp Asn Leu Asp Gly Gly Asp Ser Thr Tyr Ser
 20 25

<210> 43
 <211> 29
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (aMD4 insertion)

<400> 43

Tyr Gln Gln Lys Pro Gly Gly Tyr Arg Gln Phe Asn Arg Arg Thr His
1 5 10 15

Glu Val Trp Asn Leu Asp Gly Gly Gly Lys Ala Pro Lys
20 25

<210> 44

<211> 29

<212> PRT

<213> Artificial Sequence

<220>

<223> partial amino acid sequence (aMD4 insertion)

<400> 44

Val Thr Val Ser Ser Gly Gly Tyr Arg Gln Phe Asn Arg Arg Thr His
1 5 10 15

Glu Val Trp Asn Leu Asp Gly Gly Ala Ser Thr Lys Gly
20 25

<210> 45

<211> 29

<212> PRT

<213> Artificial Sequence

<220>

<223> partial amino acid sequence (aMD4 insertion)

<400> 45

Ser Lys Ser Thr Ser Gly Gly Tyr Arg Gln Phe Asn Arg Arg Thr His
1 5 10 15

Glu Val Trp Asn Leu Asp Gly Gly Gly Gly Thr Ala Ala
20 25

<210> 46

<211> 29

<212> PRT

<213> Artificial Sequence

<220>

<223> partial amino acid sequence (aMD4 insertion)

<400> 46

Val	Ser	Trp	Asn	Ser	Gly	Gly	Tyr	Arg	Gln	Phe	Asn	Arg	Arg	Thr	His
1				5					10					15	

Glu	Val	Trp	Asn	Leu	Asp	Gly	Gly	Gly	Ala	Leu	Thr	Ser
			20					25				

<210> 47

<211> 29

<212> PRT

<213> Artificial Sequence

<220>

<223> partial amino acid sequence (aMD4 insertion)

<400> 47

Ser	Ser	Ser	Leu	Gly	Gly	Gly	Tyr	Arg	Gln	Phe	Asn	Arg	Arg	Thr	His
1				5					10					15	

Glu	Val	Trp	Asn	Leu	Asp	Gly	Gly	Thr	Gln	Thr	Tyr	Ile
			20					25				

<210> 48

<211> 29

<212> PRT

<213> Artificial Sequence

<220>

<223> partial amino acid sequence (aMD4 insertion)

<400> 48

Thr	Tyr	Tyr	Ala	Asp	Gly	Gly	Tyr	Arg	Gln	Phe	Asn	Arg	Arg	Thr	His
1				5					10					15	

Glu	Val	Trp	Asn	Leu	Asp	Gly	Gly	Ser	Val	Lys	Gly	Arg
			20					25				

<210> 49
 <211> 29
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (aMD4 insertion)

<400> 49

Ala Val Leu Gln Ser Gly Gly Tyr Arg Gln Phe Asn Arg Arg Thr His
 1 5 10 15

Glu Val Trp Asn Leu Asp Gly Gly Ser Gly Leu Tyr Ser
 20 25

<210> 50
 <211> 29
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (aMD4 insertion)

<400> 50

Asn His Lys Pro Ser Gly Gly Tyr Arg Gln Phe Asn Arg Arg Thr His
 1 5 10 15

Glu Val Trp Asn Leu Asp Gly Gly Asn Thr Lys Val Asp
 20 25

<210> 51
 <211> 29
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial amino acid sequence (aMD4 insertion)

<400> 51

Val Arg Gln Ala Pro Gly Gly Tyr Arg Gln Phe Asn Arg Arg Thr His

$\langle 210 \rangle$	52
$\langle 211 \rangle$	14
$\langle 212 \rangle$	PRT
$\langle 213 \rangle$	Artificial Sequence

<400> 52

$\langle 210 \rangle$	53
$\langle 211 \rangle$	14
$\langle 212 \rangle$	PRT
$\langle 213 \rangle$	Artificial Sequence

<400> 53

Tyr Trp Tyr Tyr Ala Trp Asp Gln Thr Tyr Lys Ala Phe Pro
1 5 10