eolf-seql

SEQUENCE LISTING

<110> F. Hoffmann-La Roche AG

<120> Amino acid sequence presenting fusion polypeptide and its use

<130> 27452 WO

<150> EP11164957
<151> 2011-05-05

<150> EP12155742
<151> 2012-02-16

<160> 126

<170> PatentIn version 3.5

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Glu Thr Thr Ser Cys Glu Phe Ser Val Ser Pro Ser Gly Leu Ala Phe
1 5 10 15

Cys Asp Lys Val Val Gly Tyr Gly Pro Glu Ala Val Lys Gly Gln Leu
20 25 30

Ile Lys Ala His Tyr Val Gly Lys Leu Glu Asn Gly Lys Val Phe Asp
35 40 45

Ser Ser Tyr Asn Arg Gly Lys Pro Leu Thr Phe Arg Ile Gly Val Gly
50 55 60

Glu Val Ile Lys Gly Trp Asp Gln Gly Ile Leu Gly Ser Asp Gly Ile
65 70 75 80

Pro Pro Met Leu Thr Gly Gly Lys Arg Thr Leu Arg Ile Pro Pro Glu
85 90 95

Leu Ala Tyr Gly Asp Arg Gly Ala Gly Cys Lys Gly Gly Ser Cys Leu
100 105 110

Ile Pro Pro Ala Ser Val Leu Leu Phe Asp Ile Glu Tyr Ile Gly Lys
115 120 125

Ala

<210> 2
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<400> 2

Asp Arg Gly Ala Gly Cys
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<210> 3
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Cys Leu Ile Pro Pro Ala Ser Val
1 5

<210> 4
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Glu Thr Thr Ser Cys Glu Phe Ser Val Ser Pro Ser Gly Leu Ala Phe
1 5 10 15

Cys Asp Lys Val Val Gly Tyr Gly Pro Glu Ala Val Lys Gly Gln Leu
20 25 30

Ile Lys Ala His Tyr Val Gly Lys Leu Glu Asn Gly Lys Val Phe Asp
35 40 45

Ser Ser Tyr Asn Arg Gly Lys Pro Leu Thr Phe Arg Ile Gly Val Gly
50 55 60

Glu Val Ile Lys Gly Trp Asp Gln Gly Ile Leu Gly Ser Asp Gly Ile
65 70 75 80

Pro Pro Met Leu Thr Gly Gly Lys Arg Thr Leu Arg Ile Pro Pro Glu
85 90 95

Leu Ala Tyr Gly Asp Arg Gly Ala Gly Cys
100 105

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<213> Arabidopsis thaliana

<400> 5

Cys Leu Ile Pro Pro Ala Ser Val Leu Leu Phe Asp Ile Glu Tyr Ile

1 5 10 15

Gly Lys Ala

<210> 6
<211> 108
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<213> Homo sapiens

<400> 6

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

Pro Lys Arg Gly Gln Thr Cys Val Val His Tyr Thr Gly Met Leu Glu
20 25 30

Asp Gly Lys Lys Phe Asp Ser Ser Arg Asp Arg Asn Lys Pro Phe Lys
35 40 45

Phe Met Leu Gly Lys Gln Glu Val Ile Arg Gly Trp Glu Glu Gly Val
50 55 60

Ala Gln Met Ser Val Gly Gln Arg Ala Lys Leu Thr Ile Ser Pro Asp
65 70 75 80

Tyr Ala Tyr Gly Ala Thr Gly His Pro Gly Ile Ile Pro Pro His Ala
85 90 95

Thr Leu Val Phe Asp Val Glu Leu Leu Lys Leu Glu
100 105

<210> 7
<211> 83
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<213> Homo sapiens

<400> 7

Gly Val Gln Val Glu Thr Ile Ser Pro Gly Asp Gly Arg Thr Phe Pro
1 5 10 15

Lys Arg Gly Gln Thr Ala Val Val His Tyr Thr Gly Met Leu Glu Asp
20 25 30

Gly Lys Lys Phe Asp Ser Ser Arg Asp Arg Asn Lys Pro Phe Lys Phe
35 40 45

Met Leu Gly Lys Gln Glu Val Ile Arg Gly Trp Glu Glu Gly Val Ala
50 55 60

Gln Met Ser Val Gly Gln Arg Ala Lys Leu Thr Ile Ser Pro Asp Tyr
65 70 75 80

Ala Tyr Gly

<210> 8
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<213> Homo sapiens

<400> 8

Leu Val Phe Asp Val Glu Leu Leu Lys Leu Glu
1 5 10

<210> 9
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<213> Thermus thermophilus

<400> 9

Met Lys Val Gly Gln Asp Lys Val Val Thr Ile Arg Tyr Thr Leu Gln
1 5 10 15

Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu Ser Tyr Leu His Gly
20 25 30

His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala Leu Glu Gly Arg Glu
35 40 45

Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala Glu Lys Ala Tyr Gly
50 55 60

Pro His Asp Pro Glu Gly Val Gln Val Val Pro Leu Ser Ala Phe Pro
65 70 75 80

Glu Asp Ala Glu Val Val Pro Gly Ala Gln Phe Tyr Ala Gln Asp Met
85 90 95

Glu Gly Asn Pro Met Pro Leu Thr Val Val Ala Val Glu Gly Glu Glu
100 105 110

Val Thr Val Asp Phe Asn His Pro Leu Ala Gly Lys Asp Leu Asp Phe
115 120 125

Gln Val Glu Val Val Lys Val Arg Glu Ala Thr Pro Glu Glu Leu Leu
130 135 140

His Gly His Ala His
145

<210> 10
<211> 63
<212> PRT
<213> Thermus thermophilus

<400> 10

Lys Val Gly Gln Asp Lys Val Val Thr Ile Arg Tyr Thr Leu Gln Val
1 5 10 15

Glu Gly Glu Val Leu Asp Gln Gly Glu Leu Ser Tyr Leu His Gly His
20 25 30

Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala Leu Glu Gly Arg Glu Glu
35 40 45

Gly Glu Ala Phe Gln Ala His Val Pro Ala Glu Lys Ala Tyr Gly
50 55 60

<210> 11
<211> 27
<212> PRT
<213> Thermus thermophilus

<400> 11

Gly Lys Asp Leu Asp Phe Gln Val Glu Val Val Lys Val Arg Glu Ala
1 5 10 15

Thr Pro Glu Glu Leu Leu His Gly His Ala His
20 25

<210> 12
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<213> Escherichia coli

<400> 12

Met Lys Val Ala Lys Asp Leu Val Val Ser Leu Ala Tyr Gln Val Arg
1 5 10 15

Thr Glu Asp Gly Val Leu Val Asp Glu Ser Pro Val Ser Ala Pro Leu
20 25 30

Asp Tyr Leu His Gly His Gly Ser Leu Ile Ser Gly Leu Glu Thr Ala
35 40 45

Leu Glu Gly His Glu Val Gly Asp Lys Phe Asp Val Ala Val Gly Ala

50 55 60

Asn Asp Ala Tyr Gly Gln Tyr Asp Glu Asn Leu Val Gln Arg Val Pro
65 70 75 80

Lys Asp Val Phe Met Gly Val Asp Glu Leu Gln Val Gly Met Arg Phe
85 90 95

Leu Ala Glu Thr Asp Gln Gly Pro Val Pro Val Glu Ile Thr Ala Val
100 105 110

Glu Asp Asp His Val Val Val Asp Gly Asn His Met Leu Ala Gly Gln
115 120 125

Asn Leu Lys Phe Asn Val Glu Val Val Ala Ile Arg Glu Ala Thr Glu
130 135 140

Glu Glu Leu Ala His Gly His Val His Gly Ala His Asp His His His
145 150 155 160

Asp His Asp His Asp
165

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

<220>
<223> X2 linker polypeptide

<400> 13

Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser
1 5 10

<210> 14
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
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<400> 14

Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser
1 5 10 15

Gly Gly Gly Ser Gly Gly Gly
20

<210> 15
<211> 16
<212> PRT
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<220>
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<400> 15

Gly Gly Gly Ser Gly Gly Asn Pro Xaa Gly Pro Thr Gly Gly Gly Ser
1 5 10 15

<210> 16
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> purification tag

<400> 16

Gly Ser Arg Lys His His His His His His His His
1 5 10

<210> 17
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> peptidic linker

<400> 17

Gly Gly Gly Gly Ser
1 5

<210> 18
<211> 5
<212> PRT
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<220>
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<400> 18

Gln Gln Gln Gln Gly
1 5

<210> 19
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> peptidic linker

<400> 19

Ser Ser Ser Ser Gly
1 5

<210> 20
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> peptidic linker

<400> 20

Gly Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
1 5 10 15

Gly

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

<220>
<223> peptidic linker

<400> 21

Gly Gln Gln Gln Gln Gly Gln Gln Gln Gln Gly Gln Gln Gln Gln Gly
1 5 10 15

Asn Asn

<210> 22
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> peptidic linker

<400> 22

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
1 5 10 15

<210> 23
<211> 16
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<213> Artificial Sequence

<220>
<223> peptidic linker

<400> 23

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
1 5 10 15

<210> 24
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> peptidic linker

<400> 24

Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser
1 5 10 15

Gly Gly Gly Ser Gly Gly Gly
20

<210> 25
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
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<400> 25

Gly Gln Gln Gln Gln Gly Gln Gln Gln Gln Gly Gln Gln Gln Gln
1 5 10 15

<210> 26
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
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<400> 26

Gly Gln Gln Gln Gln Gly Gln Gln Gln Gln Gly Gln Gln Gln Gln Gly
1 5 10 15

<210> 27
<211> 18

<212> PRT
<213> Artificial Sequence

<220>
<223> Connector

<400> 27

Gly Gln Gln Gln Gln Gly Gln Gln Gln Gln Gly Gln Gln Gln Gln Gly
1 5 10 15

Asn Asn

<210> 28
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Connector

<400> 28

Gly Gly Ser Gly Gly Ser Gly Gly Ser
1 5

<210> 29
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Connector

<400> 29

Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser
1 5 10

<210> 30
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Connector

<400> 30

Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser
1 5 10 15

<210> 31
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Connector

<400> 31

Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser
1 5 10

<210> 32
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Connector

<400> 32

Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser
1 5 10 15

<210> 33
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Connector

<400> 33

Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser
1 5 10 15

Gly Gly Gly Ser
20

<210> 34
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> Connector

<400> 34

Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser
1 5 10 15

Gly Gly Gly Ser Gly Gly Gly
20

<210> 35
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> connector

<400> 35

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
1 5 10

<210> 36
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Connector

<400> 36

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
1 5 10

<210> 37
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Connector

<400> 37

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
1 5 10

<210> 38
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<212> PRT
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<220>
<223> Connector

<400> 38

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly
1 5 10

<210> 39
<211> 12
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<213> Artificial Sequence

<220>
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<400> 39

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Asn

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1 5 10

<210> 40
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> connector

<400> 40

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
1 5 10 15

<210> 41
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Connector

<400> 41

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
1 5 10 15

<210> 42
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Connector

<400> 42

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Thr
1 5 10 15

<210> 43
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Connector

<400> 43

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
1 5 10 15

Gly

<210> 44
<211> 18
<212> PRT
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<220>
<223> Connector

<400> 44

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
1 5 10 15

Gly Thr

<210> 45
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Connector

<400> 45

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
1 5 10 15

Gly Asn

<210> 46
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
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<400> 46

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
1 5 10 15

Ala Ser

<210> 47
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Connector

<400> 47

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
1 5 10 15

Gly Gly Gly Ser
20

<210> 48
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Connector

<400> 48

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
1 5 10 15

Gly Gly Gly Ser Gly Gly Gly Gly Ser
20 25

<210> 49
<211> 26
<212> PRT
<213> Artificial Sequence

<220>
<223> Connector

<400> 49

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
1 5 10 15

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
20 25

<210> 50
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> Connector

<400> 50

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
1 5 10 15

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
20 25

<210> 51
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Connector

<400> 51

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
1 5 10 15

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Ala Ser
20 25

<210> 52
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Connector

<400> 52

Gly Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
1 5 10 15

Gly

<210> 53
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> Connector

<400> 53

Gly Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
1 5 10 15

Gly Ala Ser

<210> 54
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> FKBP12/13

<220>
<221> misc_feature
<222> (95)..(95)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (114)..(114)
<223> X=X1 is the amino acid sequence of a linker, or a peptide, or an antigen, or a secondary structure to be presented by the FKBP12/13 hybrid

<400> 54

Met Arg Ser Gly Val Gln Val Glu Thr Ile Ser Pro Gly Asp Gly Arg
1 5 10 15

Thr Phe Pro Lys Arg Gly Gln Thr Ala Val Val His Tyr Thr Gly Met
20 25 30

Leu Glu Asp Gly Lys Lys Phe Asp Ser Ser Arg Asp Arg Asn Lys Pro
35 40 45

Phe Lys Phe Met Leu Gly Lys Gln Glu Val Ile Arg Gly Trp Glu Glu
50 55 60

Gly Val Ala Gln Met Ser Val Gly Gln Arg Ala Lys Leu Thr Ile Ser
65 70 75 80

Pro Asp Tyr Ala Tyr Gly Asp Arg Gly Ala Gly Cys Gly Ser Xaa Gly
85 90 95

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

Leu Leu Lys Leu Glu
115

<210> 55
<211> 280
<212> PRT
<213> Artificial Sequence

<220>
<223> slyD-SKBP12/13 fusion polypeptide

<220>
<221> MISC_FEATURE
<222> (166)..(166)
<223> X=X2 = linker peptide

<220>
<221> MISC_FEATURE
<222> (258)..(258)

<223> X=X1 = amino acid sequence of a linker, or a peptide, or an antigen, or a secondary or tertiary structure to be presented by the SlyD-FKBP12/13 fusion polypeptide

<400> 55

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Met Lys Val Ala Lys Asp Leu Val Val Ser Leu Ala Tyr Gln Val Arg
1               5                  10                  15

Thr Glu Asp Gly Val Leu Val Asp Glu Ser Pro Val Ser Ala Pro Leu
            20                  25                  30

Asp Tyr Leu His Gly His Gly Ser Leu Ile Ser Gly Leu Glu Thr Ala
        35                  40                  45

Leu Glu Gly His Glu Val Gly Asp Lys Phe Asp Val Ala Val Gly Ala
    50                  55                  60

Asn Asp Ala Tyr Gly Gln Tyr Asp Glu Asn Leu Val Gln Arg Val Pro
65                  70                  75                  80

Lys Asp Val Phe Met Gly Val Asp Glu Leu Gln Val Gly Met Arg Phe
                85                  90                  95

Leu Ala Glu Thr Asp Gln Gly Pro Val Pro Val Glu Ile Thr Ala Val
            100                 105                 110

Glu Asp Asp His Val Val Val Asp Gly Asn His Met Leu Ala Gly Gln
        115                 120                 125

Asn Leu Lys Phe Asn Val Glu Val Val Ala Ile Arg Glu Ala Thr Glu
    130                 135                 140

Glu Glu Leu Ala His Gly His Val His Gly Ala His Asp His His His
145                 150                 155                 160

Asp His Asp His Asp Xaa Gly Val Gln Val Glu Thr Ile Ser Pro Gly
                165                 170                 175

Asp Gly Arg Thr Phe Pro Lys Arg Gly Gln Thr Ala Val Val His Tyr
            180                 185                 190

Thr Gly Met Leu Glu Asp Gly Lys Lys Phe Asp Ser Ser Arg Asp Arg
        195                 200                 205

Asn Lys Pro Phe Lys Phe Met Leu Gly Lys Gln Glu Val Ile Arg Gly
    210                 215                 220

Trp Glu Glu Gly Val Ala Gln Met Ser Val Gly Gln Arg Ala Lys Leu
```

225 230 235 240

Thr Ile Ser Pro Asp Tyr Ala Tyr Gly Asp Arg Gly Ala Gly Cys Gly
245 250 255

Ser Xaa Gly Ser Ser Cys Leu Ile Pro Pro Ala Ser Val Leu Val Phe
260 265 270

Asp Val Glu Leu Leu Lys Leu Glu
275 280

<210> 56
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<220>
<223> ttslyD fusion polypeptide

<220>
<221> MISC_FEATURE
<222> (66)..(66)
<223> X=X1 is the amino acid sequence of a linker, or a peptide, or an antigen, or a secondary structure to be presented by the T.thermophilus SlyD fusion polypeptide

<400> 56

Met Arg Ser Lys Val Gly Gln Asp Lys Val Val Thr Ile Arg Tyr Thr
1 5 10 15

Leu Gln Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu Ser Tyr Leu
20 25 30

His Gly His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala Leu Glu Gly
35 40 45

Arg Glu Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala Glu Lys Ala
50 55 60

Tyr Xaa Gly Lys Asp Leu Asp Phe Gln Val Glu Val Val Lys Val Arg
65 70 75 80

Glu Ala Thr Pro Glu Glu Leu Leu His Gly His Ala His
85 90

<210> 57
<211> 256
<212> PRT
<213> Artificial Sequence

<220>

<223> ttslyD-ecslyD fusion

<220>
<221> MISC_FEATURE
<222> (166)..(166)
<223> X2 is the amino acid sequence of a linker

<220>
<221> MISC_FEATURE
<222> (229)..(229)
<223> X=X1 is the amino acid sequence of a linker, or a peptide, or an antigen, or a secondary structure to be presented by the SlyD-T.thermophilus SlyD fusion polypeptide

<400> 57

```
Met Lys Val Ala Lys Asp Leu Val Val Ser Leu Ala Tyr Gln Val Arg
1               5                  10                  15

Thr Glu Asp Gly Val Leu Val Asp Glu Ser Pro Val Ser Ala Pro Leu
            20                  25                  30

Asp Tyr Leu His Gly His Gly Ser Leu Ile Ser Gly Leu Glu Thr Ala
        35                  40                  45

Leu Glu Gly His Glu Val Gly Asp Lys Phe Asp Val Ala Val Gly Ala
    50                  55                  60

Asn Asp Ala Tyr Gly Gln Tyr Asp Glu Asn Leu Val Gln Arg Val Pro
65                  70                  75                  80

Lys Asp Val Phe Met Gly Val Asp Glu Leu Gln Val Gly Met Arg Phe
                85                  90                  95

Leu Ala Glu Thr Asp Gln Gly Pro Val Pro Val Glu Ile Thr Ala Val
            100                 105                 110

Glu Asp Asp His Val Val Val Asp Gly Asn His Met Leu Ala Gly Gln
        115                 120                 125

Asn Leu Lys Phe Asn Val Glu Val Val Ala Ile Arg Glu Ala Thr Glu
    130                 135                 140

Glu Glu Leu Ala His Gly His Val His Gly Ala His Asp His His His
145                 150                 155                 160

Asp His Asp His Asp Xaa Lys Val Gly Gln Asp Lys Val Val Thr Ile
                165                 170                 175

Arg Tyr Thr Leu Gln Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu
            180                 185                 190
```

```
Ser Tyr Leu His Gly His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala
        195                 200                 205

Leu Glu Gly Arg Glu Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala
    210                 215                 220

Glu Lys Ala Tyr Xaa Gly Lys Asp Leu Asp Phe Gln Val Glu Val Val
225                 230                 235                 240

Lys Val Arg Glu Ala Thr Pro Glu Glu Leu Leu His Gly His Ala His
                245                 250                 255
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<210> 58
<211> 110
<212> PRT
<213> Artificial Sequence

<220>
<223> T.thermophilus SlyD-FKBP13 fusion polypeptide

<220>
<221> MISC_FEATURE
<222> (75)..(75)
<223> X4 is the amino acid sequence of a linker, or a peptide, or an antigen, or a secondary structure to be presented

<400> 58

```
Met Arg Ser Lys Val Gly Gln Asp Lys Val Val Thr Ile Arg Tyr Thr
1               5                   10                  15

Leu Gln Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu Ser Tyr Leu
            20                  25                  30

His Gly His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala Leu Glu Gly
        35                  40                  45

Arg Glu Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala Glu Lys Ala
    50                  55                  60

Tyr Gly Asp Arg Gly Ala Gly Cys Gly Ser Xaa Gly Ser Ser Cys Leu
65                  70                  75                  80

Ile Pro Pro Ala Ser Val Leu Asp Phe Gln Val Glu Val Val Lys Val
                85                  90                  95

Arg Glu Ala Thr Pro Glu Glu Leu Leu His Gly His Ala His
            100                 105                 110
```

<210> 59
<211> 273
<212> PRT
<213> Artificial Sequence

<220>
<223> SlyD-T.thermophilus SlyD-FKBP13 fusion polypeptide

<220>
<221> MISC_FEATURE
<222> (166)..(166)
<223> X=X2 = amino acid sequence of a linker

<220>
<221> MISC_FEATURE
<222> (238)..(238)
<223> X=X1 = amino acid sequence of a linker, or a peptide, or an antigen, or a secondary or tertiary structure to be presented by the SlyD-Thermus thermophilus SlyD-FKBP13 fusion polypeptide

<400> 59

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Met Lys Val Ala Lys Asp Leu Val Val Ser Leu Ala Tyr Gln Val Arg
1               5                  10                  15

Thr Glu Asp Gly Val Leu Val Asp Glu Ser Pro Val Ser Ala Pro Leu
            20                  25                  30

Asp Tyr Leu His Gly His Gly Ser Leu Ile Ser Gly Leu Glu Thr Ala
        35                  40                  45

Leu Glu Gly His Glu Val Gly Asp Lys Phe Asp Val Ala Val Gly Ala
    50                  55                  60

Asn Asp Ala Tyr Gly Gln Tyr Asp Glu Asn Leu Val Gln Arg Val Pro
65                  70                  75                  80

Lys Asp Val Phe Met Gly Val Asp Glu Leu Gln Val Gly Met Arg Phe
                85                  90                  95

Leu Ala Glu Thr Asp Gln Gly Pro Val Pro Val Glu Ile Thr Ala Val
            100                 105                 110

Glu Asp Asp His Val Val Val Asp Gly Asn His Met Leu Ala Gly Gln
        115                 120                 125

Asn Leu Lys Phe Asn Val Glu Val Val Ala Ile Arg Glu Ala Thr Glu
    130                 135                 140

Glu Glu Leu Ala His Gly His Val His Gly Ala His Asp His His His
145                 150                 155                 160
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```
Asp His Asp His Asp Xaa Lys Val Gly Gln Asp Lys Val Val Thr Ile
               165                 170                 175

Arg Tyr Thr Leu Gln Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu
           180                 185                 190

Ser Tyr Leu His Gly His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala
       195                 200                 205

Leu Glu Gly Arg Glu Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala
   210                 215                 220

Glu Lys Ala Tyr Gly Asp Arg Gly Ala Gly Cys Gly Ser Xaa Gly Ser
225                 230                 235                 240

Ser Cys Leu Ile Pro Pro Ala Ser Val Leu Asp Phe Gln Val Glu Val
               245                 250                 255

Val Lys Val Arg Glu Ala Thr Pro Glu Glu Leu Leu His Gly His Ala
           260                 265                 270

His
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<210> 60
<211> 131
<212> PRT
<213> Artificial Sequence

<220>
<223> A.thaliana FKBP13 fusion polypeptide

<220>
<221> MISC_FEATURE
<222> (109)..(109)
<223> X4 is the amino acid sequence of a linker, or a peptide, or an antigen, or a secondary structure to be presented

<400> 60

```
Glu Thr Thr Ser Cys Glu Phe Ser Val Ser Pro Ser Gly Leu Ala Phe
1               5                   10                  15

Cys Asp Lys Val Val Gly Tyr Gly Pro Glu Ala Val Lys Gly Gln Leu
           20                  25                  30

Ile Lys Ala His Tyr Val Gly Lys Leu Glu Asn Gly Lys Val Phe Asp
       35                  40                  45

Ser Ser Tyr Asn Arg Gly Lys Pro Leu Thr Phe Arg Ile Gly Val Gly
   50                  55                  60
```

```
Glu Val Ile Lys Gly Trp Asp Gln Gly Ile Leu Gly Ser Asp Gly Ile
65                  70                  75                  80

Pro Pro Met Leu Thr Gly Gly Lys Arg Thr Leu Arg Ile Pro Pro Glu
                85                  90                  95

Leu Ala Tyr Gly Asp Arg Gly Ala Gly Cys Gly Ser Xaa Gly Ser Ser
            100                 105                 110

Cys Leu Ile Pro Pro Ala Ser Val Leu Leu Phe Asp Ile Glu Tyr Ile
        115                 120                 125

Gly Lys Ala
    130
```

<210> 61
<211> 297
<212> PRT
<213> Artificial Sequence

<220>
<223> SlyD-A.thaliana FKBP13 fusion polypeptide

<220>
<221> MISC_FEATURE
<222> (166)..(166)
<223> X=X2 is the amino acid sequence of a linker

<220>
<221> MISC_FEATURE
<222> (275)..(275)
<223> X=X1 = amino acid sequence of a linker, or a peptide, or an antigen, or a secondary or tertiary structure to be presented by the SlyD-Arabidopsis thaliana FKBP13 fusion polypeptide

<400> 61

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Met Lys Val Ala Lys Asp Leu Val Val Ser Leu Ala Tyr Gln Val Arg
1               5                   10                  15

Thr Glu Asp Gly Val Leu Val Asp Glu Ser Pro Val Ser Ala Pro Leu
            20                  25                  30

Asp Tyr Leu His Gly His Gly Ser Leu Ile Ser Gly Leu Glu Thr Ala
        35                  40                  45

Leu Glu Gly His Glu Val Gly Asp Lys Phe Asp Val Ala Val Gly Ala
    50                  55                  60

Asn Asp Ala Tyr Gly Gln Tyr Asp Glu Asn Leu Val Gln Arg Val Pro
65                  70                  75                  80
```

```
Lys Asp Val Phe Met Gly Val Asp Glu Leu Gln Val Gly Met Arg Phe
                85                  90                  95

Leu Ala Glu Thr Asp Gln Gly Pro Val Pro Val Glu Ile Thr Ala Val
            100                 105                 110

Glu Asp Asp His Val Val Val Asp Gly Asn His Met Leu Ala Gly Gln
        115                 120                 125

Asn Leu Lys Phe Asn Val Glu Val Val Ala Ile Arg Glu Ala Thr Glu
    130                 135                 140

Glu Glu Leu Ala His Gly His Val His Gly Ala His Asp His His His
145                 150                 155                 160

Asp His Asp His Asp Xaa Glu Thr Thr Ser Cys Glu Phe Ser Val Ser
                165                 170                 175

Pro Ser Gly Leu Ala Phe Cys Asp Lys Val Val Gly Tyr Gly Pro Glu
            180                 185                 190

Ala Val Lys Gly Gln Leu Ile Lys Ala His Tyr Val Gly Lys Leu Glu
        195                 200                 205

Asn Gly Lys Val Phe Asp Ser Ser Tyr Asn Arg Gly Lys Pro Leu Thr
    210                 215                 220

Phe Arg Ile Gly Val Gly Glu Val Ile Lys Gly Trp Asp Gln Gly Ile
225                 230                 235                 240

Leu Gly Ser Asp Gly Ile Pro Pro Met Leu Thr Gly Gly Lys Arg Thr
                245                 250                 255

Leu Arg Ile Pro Pro Glu Leu Ala Tyr Gly Asp Arg Gly Ala Gly Cys
            260                 265                 270

Gly Ser Xaa Gly Ser Ser Cys Leu Ile Pro Pro Ala Ser Val Leu Leu
        275                 280                 285

Phe Asp Ile Glu Tyr Ile Gly Lys Ala
    290                 295
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<210> 62
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> amino acid tag

<400> 62

Arg Arg Arg Arg Arg
1 5

<210> 63
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> amino acid tag

<400> 63

Arg Arg Arg Arg Arg Arg
1 5

<210> 64
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> amino acid tag

<400> 64

His His His His His His
1 5

<210> 65
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> amino acid tag

<400> 65

Lys Asp His Leu Ile His Asn Val His Lys Glu Phe His Ala His Ala
1 5 10 15

His Asn Lys

<210> 66
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> amino acid tag

<400> 66

Asp Tyr Lys Asp Asp Asp Asp Lys
1 5

<210> 67
<211> 22
<212> PRT
<213> Artificial Sequence

<220>
<223> amino acid tag

<400> 67

Asp Tyr Lys Asp His Asp Gly Asp Tyr Lys Asp His Asp Ile Asp Tyr
1 5 10 15

Lys Asp Asp Asp Asp Lys
20

<210> 68
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> amino acid tag#

<400> 68

Ala Trp Arg His Pro Gln Phe Gly Gly
1 5

<210> 69
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> amino acid tag

<400> 69

Trp Ser His Pro Gln Phe Glu Lys
1 5

<210> 70
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> amino acid tag

<400> 70

Met Asp Val Glu Ala Trp Leu Gly Ala Arg

1 5 10

<210> 71
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> amino acid tag

<400> 71

Met Asp Val Glu Ala Trp Leu Gly Ala Arg Val Pro Leu Val Glu Thr
1 5 10 15

<210> 72
<211> 38
<212> PRT
<213> Artificial Sequence

<220>
<223> amino acid tag

<400> 72

Met Asp Glu Lys Thr Thr Gly Trp Arg Gly Gly His Val Val Glu Gly
1 5 10 15

Leu Ala Gly Glu Leu Glu Gln Leu Arg Ala Arg Leu Glu His His Pro
20 25 30

Gln Gly Gln Arg Glu Pro
35

<210> 73
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> amino acid tag

<400> 73

Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
1 5 10

<210> 74
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> amino acid tag

<400> 74

Lys Glu Thr Ala Ala Ala Lys Phe Glu Arg Gln His Met Asp Ser
1 5 10 15

<210> 75
<211> 26
<212> PRT
<213> Artificial Sequence

<220>
<223> amino acid tag

<400> 75

Lys Arg Arg Trp Lys Lys Asn Phe Ile Ala Val Ser Ala Ala Asn Arg
1 5 10 15

Phe Lys Lys Ile Ser Ser Ser Gly Ala Leu
20 25

<210> 76
<211> 47
<212> PRT
<213> Artificial Sequence

<220>
<223> amino acid tag

<400> 76

Pro Ala Thr Thr Thr Gly Ser Ser Pro Gly Pro Thr Gln Ser His Tyr
1 5 10 15

Gly Gln Cys Gly Gly Ile Gly Tyr Ser Gly Pro Thr Val Cys Ala Ser
20 25 30

Gly Thr Thr Cys Gln Val Leu Asn Pro Tyr Tyr Ser Gln Cys Leu
35 40 45

<210> 77
<211> 32
<212> PRT
<213> Butyrivibrio fibrisolvens

<400> 77

Met Asp Trp Asn Ala Asn Ile Ala Pro Gly Asn Ser Val Glu Phe Gly
1 5 10 15

Ile Gln Gly Ala Gly Ser Val Gly Asn Val Ile Asp Ile Thr Val Glu
20 25 30

<210> 78
<211> 51
<212> PRT
<213> Artificial Sequence

<220>
<223> amino acid tag

<400> 78

Thr Asn Pro Gly Val Ser Ala Trp Gln Val Asn Thr Ala Tyr Thr Ala
1 5 10 15

Gly Gln Leu Val Thr Tyr Asn Gly Lys Thr Tyr Lys Cys Leu Gln Pro
20 25 30

His Thr Ser Leu Ala Gly Trp Glu Pro Ser Asn Val Pro Ala Leu Trp
35 40 45

Gln Leu Gln
50

<210> 79
<211> 209
<212> PRT
<213> Chondrus crispus

<400> 79

Met Pro Glu Ile Lys Leu Thr Tyr Phe Asp Met Arg Gly Arg Ala Glu
1 5 10 15

Ala Ser Arg Leu Ala Leu Val Val Gly Glu Ile Pro Phe Glu Asp Glu
20 25 30

Arg Val Val Phe Asp His Trp Lys Glu Ala Lys Pro Lys Thr Pro Tyr
35 40 45

Ala Ala Leu Pro Met Leu Thr Val Asp Gly Met Gln Val Ala Gln Ser
50 55 60

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

Asp Pro Leu Glu Ala Ala Lys Val Asp Glu Val Gly Gly Val Ile Asp
85 90 95

Asp Val Thr His Ala Met Tyr Arg Tyr Arg Gly Asp Asp Lys Asp Lys
100 105 110

Leu Arg Glu Glu Arg Asp Lys Phe Ser Lys Val Asp Val Pro Arg Tyr
115 120 125

Val Gly Ala Leu Glu Lys Arg Leu Glu Ala Phe Gly Asp Gly Pro Trp
130 135 140

```
Ala Val Gly Gly Asn Met Thr Ile Ala Asp Leu His Ile Cys His Leu
145                 150                 155                 160

Val Thr Asn Ile Arg Cys Gly Met Leu Asp Phe Val Asp Lys Asp Leu
                165                 170                 175

Leu Glu Gly Tyr Val Arg Ile Val Lys Ser Tyr Ser Ala Val Met Glu
            180                 185                 190

His Pro Lys Val Thr Glu Trp Tyr Glu Lys Lys Pro Val Lys Met Phe
        195                 200                 205

Ser
```

<210> 80
<211> 396
<212> PRT
<213> Escherichia coli

<400> 80

```
Met Lys Ile Lys Thr Gly Ala Arg Ile Leu Ala Leu Ser Ala Leu Thr
1               5                   10                  15

Thr Met Met Phe Ser Ala Ser Ala Leu Ala Lys Ile Glu Glu Gly Lys
            20                  25                  30

Leu Val Ile Trp Ile Asn Gly Asp Lys Gly Tyr Asn Gly Leu Ala Glu
        35                  40                  45

Val Gly Lys Lys Phe Glu Lys Asp Thr Gly Ile Lys Val Thr Val Glu
    50                  55                  60

His Pro Asp Lys Leu Glu Glu Lys Phe Pro Gln Val Ala Ala Thr Gly
65                  70                  75                  80

Asp Gly Pro Asp Ile Ile Phe Trp Ala His Asp Arg Phe Gly Gly Tyr
                85                  90                  95

Ala Gln Ser Gly Leu Leu Ala Glu Ile Thr Pro Asp Lys Ala Phe Gln
            100                 105                 110

Asp Lys Leu Tyr Pro Phe Thr Trp Asp Ala Val Arg Tyr Asn Gly Lys
        115                 120                 125

Leu Ile Ala Tyr Pro Ile Ala Val Glu Ala Leu Ser Leu Ile Tyr Asn
    130                 135                 140
```

```
Lys Asp Leu Leu Pro Asn Pro Pro Lys Thr Trp Glu Glu Ile Pro Ala
145                 150                 155                 160

Leu Asp Lys Glu Leu Lys Ala Lys Gly Lys Ser Ala Leu Met Phe Asn
                165                 170                 175

Leu Gln Glu Pro Tyr Phe Thr Trp Pro Leu Ile Ala Ala Asp Gly Gly
            180                 185                 190

Tyr Ala Phe Lys Tyr Glu Asn Gly Lys Tyr Asp Ile Lys Asp Val Gly
        195                 200                 205

Val Asp Asn Ala Gly Ala Lys Ala Gly Leu Thr Phe Leu Val Asp Leu
    210                 215                 220

Ile Lys Asn Lys His Met Asn Ala Asp Thr Asp Tyr Ser Ile Ala Glu
225                 230                 235                 240

Ala Ala Phe Asn Lys Gly Glu Thr Ala Met Thr Ile Asn Gly Pro Trp
                245                 250                 255

Ala Trp Ser Asn Ile Asp Thr Ser Lys Val Asn Tyr Gly Val Thr Val
            260                 265                 270

Leu Pro Thr Phe Lys Gly Gln Pro Ser Lys Pro Phe Val Gly Val Leu
        275                 280                 285

Ser Ala Gly Ile Asn Ala Ala Ser Pro Asn Lys Glu Leu Ala Lys Glu
    290                 295                 300

Phe Leu Glu Asn Tyr Leu Leu Thr Asp Glu Gly Leu Glu Ala Val Asn
305                 310                 315                 320

Lys Asp Lys Pro Leu Gly Ala Val Ala Leu Lys Ser Tyr Glu Glu Glu
                325                 330                 335

Leu Ala Lys Asp Pro Arg Ile Ala Ala Thr Met Glu Asn Ala Gln Lys
            340                 345                 350

Gly Glu Ile Met Pro Asn Ile Pro Gln Met Ser Ala Phe Trp Tyr Ala
        355                 360                 365

Val Arg Thr Ala Val Ile Asn Ala Ala Ser Gly Arg Gln Thr Val Asp
    370                 375                 380

Glu Ala Leu Lys Asp Ala Gln Thr Arg Ile Thr Lys
```

385 390 395

<210> 81
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> linker polypeptide

<400> 81

Gly Gly Gly Ser
1

<210> 82
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> linker polypeptide

<400> 82

Gly Gly Gly Ser Gly Gly Asn Pro
1 5

<210> 83
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide linker

<400> 83

Gly Pro Thr Gly Gly Gly Ser
1 5

<210> 84
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> FKBP12-antigen fusion polypeptide

<220>
<221> MISC_FEATURE
<222> (88)..(88)
<223> amino acid sequence of inserted antigen

<400> 84

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

Pro Lys Arg Gly Gln Thr Ala Trp His Tyr Thr Gly Met Leu Glu Asp
20 25 30

Gly Lys Lys Phe Asp Ser Ser Arg Asp Arg Asn Lys Pro Phe Lys Phe
35 40 45

Met Leu Gly Lys Gln Glu Val Ile Arg Gly Trp Glu Glu Gly Val Ala
50 55 60

Gln Met Ser Val Gly Gln Arg Ala Lys Leu Thr Ile Ser Pro Asp Tyr
65 70 75 80

Ala Tyr Gly Gly Gly Gly Ser Xaa Gly Gly Gly Ser Thr Leu Val Phe
85 90 95

Asp Val Glu Leu Leu Lys Leu Glu Gly Gly Gly Ser Arg Lys His His
100 105 110

His His His His His His
115

<210> 85
<211> 306
<212> PRT
<213> Artificial Sequence

<220>
<223> SlyD/FKBP12-antigen fusion polypeptide

<220>
<221> MISC_FEATURE
<222> (276)..(276)
<223> inserted amino acid sequence of the antigen

<400> 85

Met Lys Val Ala Lys Asp Leu Val Val Ser Leu Ala Tyr Gln Val Arg
1 5 10 15

Thr Glu Asp Gly Val Leu Val Asp Glu Ser Pro Val Ser Ala Pro Leu
20 25 30

Asp Tyr Leu His Gly His Gly Ser Leu Ile Ser Gly Leu Glu Thr Ala
35 40 45

Leu Glu Gly His Glu Val Gly Asp Lys Phe Asp Val Ala Val Gly Ala
50 55 60

Asn Asp Ala Tyr Gly Gln Tyr Asp Glu Asn Leu Val Gln Arg Val Pro

65 70 75 80

Lys Asp Val Phe Met Gly Val Asp Glu Leu Gln Val Gly Met Arg Phe
85 90 95

Leu Ala Glu Thr Asp Gln Gly Pro Val Pro Val Glu Ile Thr Ala Val
100 105 110

Glu Asp Asp His Val Val Val Asp Gly Asn His Met Leu Ala Gly Gln
115 120 125

Asn Leu Lys Phe Asn Val Glu Val Val Ala Ile Arg Glu Ala Thr Glu
130 135 140

Glu Glu Leu Ala His Gly His Val His Gly Ala His Asp His His His
145 150 155 160

Asp His Asp His Asp Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly
165 170 175

Ser Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Gly Val Gln Val
180 185 190

Glu Thr Ile Ser Pro Gly Asp Gly Arg Thr Phe Pro Lys Arg Gly Gln
195 200 205

Thr Ala Val Val His Tyr Thr Gly Met Leu Glu Asp Gly Lys Lys Phe
210 215 220

Asp Ser Ser Arg Asp Arg Asn Lys Pro Phe Lys Phe Met Leu Gly Lys
225 230 235 240

Gln Glu Val Ile Arg Gly Trp Glu Glu Gly Val Ala Gln Met Ser Val
245 250 255

Gly Gln Arg Ala Lys Leu Thr Ile Ser Pro Asp Tyr Ala Tyr Gly Gly
260 265 270

Gly Gly Ser Xaa Gly Gly Gly Ser Thr Leu Val Phe Asp Val Glu Leu
275 280 285

Leu Lys Leu Glu Gly Gly Gly Ser Arg Lys His His His His His His
290 295 300

His His
305

<210> 86
<211> 312
<212> PRT
<213> Artificial Sequence

<220>
<223> SlyD/FKBP12-control polypeptide

<400> 86

```
Met Lys Val Ala Lys Asp Leu Val Val Ser Leu Ala Tyr Gln Val Arg
1               5                  10                  15

Thr Glu Asp Gly Val Leu Val Asp Glu Ser Pro Val Ser Ala Pro Leu
            20                  25                  30

Asp Tyr Leu His Gly His Gly Ser Leu Ile Ser Gly Leu Glu Thr Ala
        35                  40                  45

Leu Glu Gly His Glu Val Gly Asp Lys Phe Asp Val Ala Val Gly Ala
    50                  55                  60

Asn Asp Ala Tyr Gly Gln Tyr Asp Glu Asn Leu Val Gln Arg Val Pro
65                  70                  75                  80

Lys Asp Val Phe Met Gly Val Asp Glu Leu Gln Val Gly Met Arg Phe
                85                  90                  95

Leu Ala Glu Thr Asp Gln Gly Pro Val Pro Val Glu Ile Thr Ala Val
            100                 105                 110

Glu Asp Asp His Val Val Val Asp Gly Asn His Met Leu Ala Gly Gln
        115                 120                 125

Asn Leu Lys Phe Asn Val Glu Val Val Ala Ile Arg Glu Ala Thr Glu
    130                 135                 140

Glu Glu Leu Ala His Gly His Val His Gly Ala His Asp His His His
145                 150                 155                 160

Asp His Asp His Asp Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly
                165                 170                 175

Ser Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Gly Val Gln Val
            180                 185                 190

Glu Thr Ile Ser Pro Gly Asp Gly Arg Thr Phe Pro Lys Arg Gly Gln
        195                 200                 205

Thr Ala Val Val His Tyr Thr Gly Met Leu Glu Asp Gly Lys Lys Phe
```

210 215 220

Asp Ser Ser Arg Asp Arg Asn Lys Pro Phe Lys Phe Met Leu Gly Lys
225 230 235 240

Gln Glu Val Ile Arg Gly Trp Glu Glu Gly Val Ala Gln Met Ser Val
245 250 255

Gly Gln Arg Ala Lys Leu Thr Ile Ser Pro Asp Tyr Ala Tyr Gly Gly
260 265 270

Gly Gly Ser Gly Gly Asn Pro Gly Pro Thr Gly Gly Gly Ser Thr Leu
275 280 285

Val Phe Asp Val Glu Leu Leu Lys Leu Glu Gly Gly Gly Ser Arg Lys
290 295 300

His His His His His His His His
305 310

<210> 87
<211> 114
<212> PRT
<213> Artificial Sequence

<220>
<223> Thermus Thermophilus-SlyD-antigen fusion polypeptide

<220>
<221> MISC_FEATURE
<222> (71)..(71)
<223> amino acid sequence of the inserted antigen

<400> 87

Met Arg Gly Ser Lys Val Gly Gln Asp Lys Val Val Thr Ile Arg Tyr
1 5 10 15

Thr Leu Gln Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu Ser Tyr
20 25 30

Leu His Gly His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala Leu Glu
35 40 45

Gly Arg Glu Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala Glu Lys
50 55 60

Ala Tyr Gly Pro His Gly Xaa Gly Ala Gly Lys Asp Leu Asp Phe Gln
65 70 75 80

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Val Glu Val Val Lys Val Arg Glu Ala Thr Pro Glu Glu Leu Leu His
85 90 95

Gly His Ala His Gly Gly Gly Ser Arg Lys His His His His His His
100 105 110

His His

<210> 88
<211> 114
<212> PRT
<213> Artificial Sequence

<220>
<223> disulfide stabilized Thermus Thermophilus-SlyD-antigen fusion polypeptide

<220>
<221> MISC_FEATURE
<222> (71)..(71)
<223> amino acid sequence of the inserted antigen

<400> 88

Met Arg Gly Ser Lys Val Gly Gln Asp Lys Val Val Thr Ile Arg Tyr
1 5 10 15

Thr Leu Gln Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu Ser Tyr
20 25 30

Leu His Gly His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala Leu Glu
35 40 45

Gly Arg Glu Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala Glu Lys
50 55 60

Ala Tyr Gly Pro Cys Gly Xaa Gly Cys Gly Lys Asp Leu Asp Phe Gln
65 70 75 80

Val Glu Val Val Lys Val Arg Glu Ala Thr Pro Glu Glu Leu Leu His
85 90 95

Gly His Ala His Gly Gly Gly Ser Arg Lys His His His His His His
100 105 110

His His

<210> 89
<211> 24

<212> PRT
<213> Homo sapiens

<400> 89

Ile Ala Ala Ser Arg Glu Asp Leu Ala Leu Ser Pro Gly Leu Gly Pro
1 5 10 15

Gln Lys Ala Arg Arg Leu Phe Asp
20

<210> 90
<211> 149
<212> PRT
<213> Artificial Sequence

<220>
<223> FKBP12-ERCC1 fusion polypeptide

<400> 90

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

Pro Lys Arg Gly Gln Thr Ala Val Val His Tyr Thr Gly Met Leu Glu
20 25 30

Asp Gly Lys Lys Phe Asp Ser Ser Arg Asp Arg Asn Lys Pro Phe Lys
35 40 45

Phe Met Leu Gly Lys Gln Glu Val Ile Arg Gly Trp Glu Glu Gly Val
50 55 60

Ala Gln Met Ser Val Gly Gln Arg Ala Lys Leu Thr Ile Ser Pro Asp
65 70 75 80

Tyr Ala Tyr Gly Gly Gly Gly Ser Gly Gly Asn Pro Ile Ala Ala Ser
85 90 95

Arg Glu Asp Leu Ala Leu Ser Pro Gly Leu Gly Pro Gln Lys Ala Arg
100 105 110

Arg Leu Phe Asp Gly Pro Thr Gly Gly Gly Ser Thr Leu Val Phe Asp
115 120 125

Val Glu Leu Leu Lys Leu Glu Gly Gly Gly Ser Arg Lys His His His
130 135 140

His His His His His
145

<210> 91
<211> 322
<212> PRT
<213> Artificial Sequence

<220>
<223> SlyD/FKBP12-ERCC1

<400> 91

Met Lys Val Ala Lys Asp Leu Trp Ser Leu Ala Tyr Val Arg Thr Glu
1 5 10 15

Asp Gly Val Leu Val Asp Glu Ser Pro Val Ser Ala Pro Leu Asp Tyr
20 25 30

Leu His Gly His Gly Ser Leu Ile Ser Gly Leu Glu Thr Ala Leu Glu
35 40 45

Gly His Glu Val Gly Asp Lys Phe Asp Val Ala Val Gly Ala Asn Asp
50 55 60

Ala Tyr Gly Tyr Asp Glu Asn Leu Val Arg Val Pro Lys Asp Val Phe
65 70 75 80

Met Gly Val Asp Glu Leu Val Gly Met Arg Phe Leu Ala Glu Thr Asp
85 90 95

Gly Pro Val Pro Val Glu Ile Thr Ala Val Glu Asp Asp His Val Trp
100 105 110

Asp Gly Asn His Met Leu Ala Gly Asn Leu Lys Phe Asn Val Glu Trp
115 120 125

Ala Ile Arg Glu Ala Thr Glu Glu Glu Leu Ala His Gly His Val His
130 135 140

Gly Ala His Asp His His His Asp His Asp His Asp Gly Gly Gly Ser
145 150 155 160

Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser
165 170 175

Gly Gly Gly Gly Val Val Glu Thr Ile Ser Pro Gly Asp Gly Arg Thr
180 185 190

Phe Pro Lys Arg Gly Thr Ala Trp His Tyr Thr Gly Met Leu Glu Asp
195 200 205

Gly Lys Lys Phe Asp Ser Ser Arg Asp Arg Asn Lys Pro Phe Lys Phe

210 215 220

Met Leu Gly Lys Glu Val Ile Arg Gly Trp Glu Glu Gly Val Ala Gln
225 230 235 240

Met Ser Val Gly Arg Ala Lys Leu Thr Ile Ser Pro Asp Tyr Ala Tyr
245 250 255

Gly Gly Gly Gly Ser Gly Gly Asn Pro Ile Ala Ala Ser Arg Glu Asp
260 265 270

Leu Ala Leu Ser Pro Gly Leu Gly Pro Gln Lys Ala Arg Arg Leu Phe
275 280 285

Asp Gly Pro Thr Gly Gly Gly Ser Thr Leu Val Phe Asp Val Glu Leu
290 295 300

Leu Lys Leu Glu Gly Gly Gly Ser Arg Lys His His His His His His
305 310 315 320

His His

<210> 92
<211> 17
<212> PRT
<213> Homo sapiens

<400> 92

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

Gly

<210> 93
<211> 134
<212> PRT
<213> Artificial Sequence

<220>
<223> FKBP12-IGF-1 fusion polypeptide

<400> 93

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

Pro Lys Arg Gly Gln Thr Ala Val Val His Tyr Thr Gly Met Leu Glu
20 25 30

```
Asp Gly Lys Lys Phe Asp Ser Ser Arg Asp Arg Asn Lys Pro Phe Lys
        35                  40                  45

Phe Met Leu Gly Lys Gln Glu Val Ile Arg Gly Trp Glu Glu Gly Val
    50                  55                  60

Ala Gln Met Ser Val Gly Gln Arg Ala Lys Leu Thr Ile Ser Pro Asp
65                  70                  75                  80

Tyr Ala Tyr Gly Gly Gly Gly Ser Asn Lys Pro Thr Gly Tyr Gly Ser
                85                  90                  95

Ser Ser Arg Arg Ala Pro Gln Thr Gly Gly Gly Ser Thr Leu Val Phe
            100                 105                 110

Asp Val Glu Leu Leu Lys Leu Glu Gly Gly Gly Ser Arg Lys His His
        115                 120                 125

His His His His His His
    130
```

<210> 94
<211> 322
<212> PRT
<213> Artificial Sequence

<220>
<223> SlyD/FKBP12-IGF-1 fusion polypeptide

<400> 94

```
Met Lys Val Ala Lys Asp Leu Val Val Ser Leu Ala Tyr Gln Val Arg
1               5                   10                  15

Thr Glu Asp Gly Val Leu Val Asp Glu Ser Pro Val Ser Ala Pro Leu
            20                  25                  30

Asp Tyr Leu His Gly His Gly Ser Leu Ile Ser Gly Leu Glu Thr Ala
        35                  40                  45

Leu Glu Gly His Glu Val Gly Asp Lys Phe Asp Val Ala Val Gly Ala
    50                  55                  60

Asn Asp Ala Tyr Gly Gln Tyr Asp Glu Asn Leu Val Gln Arg Val Pro
65                  70                  75                  80

Lys Asp Val Phe Met Gly Val Asp Glu Leu Gln Val Gly Met Arg Phe
                85                  90                  95
```

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```
Leu Ala Glu Thr Asp Gln Gly Pro Val Pro Val Glu Ile Thr Ala Val
            100                 105                 110

Glu Asp Asp His Val Val Val Asp Gly Asn His Met Leu Ala Gly Gln
        115                 120                 125

Asn Leu Lys Phe Asn Val Glu Val Val Ala Ile Arg Glu Ala Thr Glu
    130                 135                 140

Glu Glu Leu Ala His Gly His Val His Gly Ala His Asp His His His
145                 150                 155                 160

Asp His Asp His Asp Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly
                165                 170                 175

Ser Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Gly Val Gln Val
            180                 185                 190

Glu Thr Ile Ser Pro Gly Asp Gly Arg Thr Phe Pro Lys Arg Gly Gln
        195                 200                 205

Thr Ala Val Val His Tyr Thr Gly Met Leu Glu Asp Gly Lys Lys Phe
    210                 215                 220

Asp Ser Ser Arg Asp Arg Asn Lys Pro Phe Lys Phe Met Leu Gly Lys
225                 230                 235                 240

Gln Glu Val Ile Arg Gly Trp Glu Glu Gly Val Ala Gln Met Ser Val
                245                 250                 255

Gly Gln Arg Ala Lys Leu Thr Ile Ser Pro Asp Tyr Ala Tyr Gly Gly
            260                 265                 270

Gly Gly Ser Asn Lys Pro Thr Gly Tyr Gly Ser Ser Ser Arg Arg Ala
        275                 280                 285

Pro Gln Thr Gly Gly Gly Gly Ser Thr Leu Val Phe Asp Val Glu Leu
    290                 295                 300

Leu Lys Leu Glu Gly Gly Gly Ser Arg Lys His His His His His His
305                 310                 315                 320

His His
```

<210> 95
<211> 130
<212> PRT

<213> Artificial Sequence

<220>
<223> Thermus Thermophilus-SlyD-IGF-1 fusion polypeptide

<400> 95

```
Met Arg Gly Ser Lys Val Gly Gln Asp Lys Val Val Thr Ile Arg Tyr
1               5                  10                  15

Thr Leu Gln Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu Ser Tyr
            20                  25                  30

Leu His Gly His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala Leu Glu
        35                  40                  45

Gly Arg Glu Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala Glu Lys
    50                  55                  60

Ala Tyr Gly Pro His Gly Asn Lys Pro Thr Gly Tyr Gly Ser Ser Ser
65                  70                  75                  80

Arg Arg Ala Pro Gln Thr Gly Gly Ala Gly Lys Asp Leu Asp Phe Gln
                85                  90                  95

Val Glu Val Val Lys Val Arg Glu Ala Thr Pro Glu Glu Leu Leu His
            100                 105                 110

Gly His Ala His Gly Gly Gly Ser Arg Lys His His His His His His
        115                 120                 125

His His
    130
```

<210> 96
<211> 122
<212> PRT
<213> Artificial Sequence

<220>
<223> Thermus Thermophilus-SlyD-IGF-1 fusion polypeptide

<400> 96

```
Met Lys Val Gly Gln Asp Lys Val Val Thr Ile Arg Tyr Thr Leu Gln
1               5                  10                  15

Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu Ser Tyr Leu His Gly
            20                  25                  30

His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala Leu Glu Gly Arg Glu
        35                  40                  45
```

```
Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala Glu Lys Ala Tyr Gly
    50                  55                  60

Pro His Gly Asn Lys Pro Thr Gly Tyr Gly Ser Ser Arg Arg Ala
65                  70                  75                  80

Pro Gln Thr Gly Gly Ala Gly Lys Asp Leu Asp Phe Gln Val Glu Val
                85                  90                  95

Val Lys Val Arg Glu Ala Thr Pro Glu Glu Leu Leu His Gly His Ala
            100                 105                 110

His Pro Ser Gly His His His His His His
        115                 120
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<210> 97
<211> 166
<212> PRT
<213> Artificial Sequence

<220>
<223> Thermus Thermophilus-SlyD wild type polypeptide

<400> 97

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Met Arg Gly Ser Lys Val Gly Gln Asp Lys Val Val Thr Ile Arg Tyr
1               5                   10                  15

Thr Leu Gln Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu Ser Tyr
            20                  25                  30

Leu His Gly His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala Leu Glu
        35                  40                  45

Gly Arg Glu Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala Glu Lys
    50                  55                  60

Ala Tyr Gly Pro His Asp Pro Glu Gly Val Gln Val Val Pro Leu Ser
65                  70                  75                  80

Ala Phe Pro Glu Asp Ala Glu Val Val Pro Gly Ala Gln Phe Tyr Ala
                85                  90                  95

Gln Asp Met Glu Gly Asn Pro Met Pro Leu Thr Val Val Ala Val Glu
            100                 105                 110

Gly Glu Glu Val Thr Val Asp Phe Asn His Pro Leu Ala Gly Lys Asp
        115                 120                 125
```

Leu Asp Phe Gln Val Glu Val Val Lys Val Arg Glu Ala Thr Pro Glu
130 135 140

Glu Leu Leu His Gly His Ala His Gly Gly Gly Ser Arg Lys His His
145 150 155 160

His His His His His His
165

<210> 98
<211> 17
<212> PRT
<213> Homo sapiens

<400> 98

Asp Trp Ser Glu Tyr Pro Ser Glu Val Glu His Met Phe Ser Pro Ser
1 5 10 15

Ser

<210> 99
<211> 134
<212> PRT
<213> Artificial Sequence

<220>
<223> FKBP12-PLGF fusion polypeptide

<400> 99

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

Pro Lys Arg Gly Gln Thr Ala Trp His Tyr Thr Gly Met Leu Glu Asp
20 25 30

Gly Lys Lys Phe Asp Ser Ser Arg Asp Arg Asn Lys Pro Phe Lys Phe
35 40 45

Met Leu Gly Lys Gln Glu Val Ile Arg Gly Trp Glu Glu Gly Val Ala
50 55 60

Gln Met Ser Val Gly Gln Arg Ala Lys Leu Thr Ile Ser Pro Asp Tyr
65 70 75 80

Ala Tyr Gly Gly Gly Gly Ser Asp Trp Ser Glu Tyr Pro Ser Glu Val
85 90 95

Glu His Met Phe Ser Pro Ser Ser Gly Gly Gly Ser Thr Leu Val Phe

100 105 110

Asp Val Glu Leu Leu Lys Leu Glu Gly Gly Gly Ser Arg Lys His His
115 120 125

His His His His His His
130

<210> 100
<211> 323
<212> PRT
<213> Artificial Sequence

<220>
<223> SlyD/FKBP12-PLGF fusion polypeptide

<400> 100

Met Lys Val Ala Lys Asp Leu Val Val Ser Leu Ala Tyr Gln Val Arg
1 5 10 15

Thr Glu Asp Gly Val Leu Val Asp Glu Ser Pro Val Ser Ala Pro Leu
20 25 30

Asp Tyr Leu His Gly His Gly Ser Leu Ile Ser Gly Leu Glu Thr Ala
35 40 45

Leu Glu Gly His Glu Val Gly Asp Lys Phe Asp Val Ala Val Gly Ala
50 55 60

Asn Asp Ala Tyr Gly Gln Tyr Asp Glu Asn Leu Val Gln Arg Val Pro
65 70 75 80

Lys Asp Val Phe Met Gly Val Asp Glu Leu Gln Val Gly Met Arg Phe
85 90 95

Leu Ala Glu Thr Asp Gln Gly Pro Val Pro Val Glu Ile Thr Ala Val
100 105 110

Glu Asp Asp His Val Val Val Asp Gly Asn His Met Leu Ala Gly Gln
115 120 125

Asn Leu Lys Phe Asn Val Glu Val Val Ala Ile Arg Glu Ala Thr Glu
130 135 140

Glu Glu Leu Ala His Gly His Val His Gly Ala His Asp His His His
145 150 155 160

Asp His Asp His Asp Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly
165 170 175

Ser Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Gly Val Gln Val
180 185 190

Glu Thr Ile Ser Pro Gly Asp Gly Arg Thr Phe Pro Lys Arg Gly Gln
195 200 205

Thr Ala Val Val His Tyr Thr Gly Met Leu Glu Asp Gly Lys Lys Phe
210 215 220

Asp Ser Ser Arg Asp Arg Asn Lys Pro Phe Lys Phe Met Leu Gly Lys
225 230 235 240

Gln Glu Val Ile Arg Gly Trp Glu Glu Gly Val Ala Gln Met Ser Val
245 250 255

Gly Gln Arg Ala Lys Leu Thr Ile Ser Pro Asp Tyr Ala Tyr Gly Gly
260 265 270

Gly Gly Ser Asp Val Val Ser Glu Tyr Pro Ser Glu Val Glu His Met
275 280 285

Phe Ser Pro Ser Ser Gly Gly Gly Ser Thr Leu Val Phe Asp Val Glu
290 295 300

Leu Leu Lys Leu Glu Gly Gly Gly Ser Arg Lys His His His His His
305 310 315 320

His His His

<210> 101
<211> 130
<212> PRT
<213> Artificial Sequence

<220>
<223> FKBP12-IGF-1-fusion polypeptide

<400> 101

Met Arg Gly Ser Lys Val Gly Gln Asp Lys Val Val Thr Ile Arg Tyr
1 5 10 15

Thr Leu Gln Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu Ser Tyr
20 25 30

Leu His Gly His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala Leu Glu
35 40 45

Gly Arg Glu Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala Glu Lys
50 55 60

Ala Tyr Gly Pro His Gly Asn Lys Pro Thr Gly Tyr Gly Ser Ser Ser
65 70 75 80

Arg Arg Ala Pro Gln Thr Gly Gly Ala Gly Lys Asp Leu Asp Phe Gln
85 90 95

Val Glu Val Val Lys Val Arg Glu Ala Thr Pro Glu Glu Leu Leu His
100 105 110

Gly His Ala His Gly Gly Gly Ser Arg Lys His His His His His His
115 120 125

His His
130

<210> 102
<211> 130
<212> PRT
<213> Artificial Sequence

<220>
<223> FKBP12-IGF-1 fusion polypeptide

<400> 102

Met Arg Gly Ser Lys Val Gly Gln Asp Lys Val Val Thr Ile Arg Tyr
1 5 10 15

Thr Leu Gln Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu Ser Tyr
20 25 30

Leu His Gly His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala Leu Glu
35 40 45

Gly Arg Glu Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala Glu Lys
50 55 60

Ala Tyr Gly Pro Cys Gly Asn Lys Pro Thr Gly Tyr Gly Ser Ser Ser
65 70 75 80

Arg Arg Ala Pro Gln Thr Gly Gly Cys Gly Lys Asp Leu Asp Phe Gln
85 90 95

Val Glu Val Val Lys Val Arg Glu Ala Thr Pro Glu Glu Leu Leu His
100 105 110

eolf-seql

Gly His Ala His Gly Gly Gly Ser Arg Lys His His His His His His
115 120 125

His His
130

<210> 103
<211> 437
<212> DNA
<213> Artificial Sequence

<220>
<223> FKBP12-IGF-1 fusion polypeptide encoding nucleic acid

<400> 103
atgcgaattc attaaagagg agaaattaac tatgagagga tcgaaggttg gacaggacaa 60

ggttgtgacc atccgctaca ccctccaggt ggagggtgag gttctggacc agggggagct 120

ttcctacctc cacggccacc gtaacctcat cccgggcctc gaggaggccc tggagggccg 180

ggaggagggg gaggctttcc aggcccacgt ccccgccgag aaggcctacg gcccccacgg 240

caataaaccg accggttatg gcagcagttc tcgccgtgct ccacaaactg gtggtgcggg 300

caaggacctg gacttccagg tggaggtggt gaaggtccgc gaggccaccc ccgaggaact 360

cctgcacggc cacgcccacg gtggcggttc tcgtaaacac catcaccatc accatcacca 420

ttaatgaaag cttatgc 437

<210> 104
<211> 166
<212> PRT
<213> Artificial Sequence

<220>
<223> slyD control fusion polypeptide

<400> 104

Met Arg Gly Ser Lys Val Gly Gln Asp Lys Val Val Thr Ile Arg Tyr
1 5 10 15

Thr Leu Gln Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu Ser Tyr
20 25 30

Leu His Gly His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala Leu Glu
35 40 45

Gly Arg Glu Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala Glu Lys
50 55 60

Ala Tyr Gly Pro His Asp Pro Glu Gly Val Gln Val Val Pro Leu Ser
65 70 75 80

Ala Phe Pro Glu Asp Ala Glu Val Val Pro Gly Ala Gln Phe Tyr Ala
85 90 95

Gln Asp Met Glu Gly Asn Pro Met Pro Leu Thr Val Val Ala Val Glu
100 105 110

Gly Glu Glu Val Thr Val Asp Phe Asn His Pro Leu Ala Gly Lys Asp
115 120 125

Leu Asp Phe Gln Val Glu Val Val Lys Val Arg Glu Ala Thr Pro Glu
130 135 140

Glu Leu Leu His Gly His Ala His Gly Gly Gly Ser Arg Lys His His
145 150 155 160

His His His His His His
165

<210> 105
<211> 545
<212> DNA
<213> Artificial Sequence

<220>
<223> slyD control fusion polypeptide encoding nucleic acid

<400> 105
atgcgaattc attaaagagg agaaattaac tatgagagga tcgaaggttg gacaggacaa 60

ggttgtgacc atccgctaca ccctccaggt ggagggtgag gttctggacc agggggagct 120

ttcctacctc cacggccacc gtaacctcat cccgggcctc gaggaggccc tggagggccg 180

ggaggagggg gaggctttcc aggcccacgt ccccgccgag aaggcctacg gcccccacga 240

ccccgagggg gtccaggtgg tgccctctc cgccttcccc gaggacgccg aggtggttcc 300

cggggcccag ttctacgccc aggacatgga ggggaacccc atgcccctca ccgtggtggc 360

ggtggaaggg gaggaggtga ccgtggactt caaccacccc ctggcgggca aggacctgga 420

cttccaggtg gaggtggtga aggtccgcga ggccaccccc gaggaactcc tgcacggcca 480

cgcccacggt ggcggttctc gtaaacacca tcaccatcac catcaccatt aatgaaagct 540

tatgc 545

<210> 106
<211> 156
<212> PRT
<213> Artificial Sequence

<220>
<223> Thermococcus gammatolerans SlyD

<400> 106

Met Lys Val Glu Arg Gly Asp Phe Val Leu Phe Asn Tyr Val Gly Arg
1 5 10 15

Tyr Glu Asn Gly Glu Val Phe Asp Thr Ser Tyr Glu Ser Val Ala Arg
20 25 30

Glu Gln Gly Ile Phe Val Glu Glu Arg Glu Tyr Ser Pro Ile Gly Val
35 40 45

Thr Val Gly Ala Gly Glu Ile Ile Pro Gly Ile Glu Glu Ala Leu Leu
50 55 60

Gly Met Glu Leu Gly Glu Lys Lys Glu Val Val Val Pro Pro Glu Lys
65 70 75 80

Gly Tyr Gly Met Pro Arg Glu Asp Leu Ile Val Pro Val Pro Ile Glu
85 90 95

Gln Phe Thr Ser Ala Gly Leu Glu Pro Val Glu Gly Met Tyr Val Met
100 105 110

Thr Asp Ala Gly Ile Ala Lys Ile Leu Lys Val Glu Glu Lys Thr Val
115 120 125

Arg Leu Asp Phe Asn His Pro Leu Ala Gly Lys Thr Ala Ile Phe Glu
130 135 140

Ile Glu Val Val Glu Ile Lys Lys Ala Gly Glu Ala
145 150 155

<210> 107
<211> 84
<212> PRT
<213> Artificial Sequence

<220>
<223> Thermococcus gammatolerans SlyD N-terminal fragment

<400> 107

Lys Val Glu Arg Gly Asp Phe Val Leu Phe Asn Tyr Val Gly Arg Tyr
1 5 10 15

Glu Asn Gly Glu Val Phe Asp Thr Ser Tyr Glu Ser Val Ala Arg Glu
20 25 30

Gln Gly Ile Phe Val Glu Glu Arg Glu Tyr Ser Pro Ile Gly Val Thr
35 40 45

Val Gly Ala Gly Glu Ile Ile Pro Gly Ile Glu Glu Ala Leu Leu Gly
50 55 60

Met Glu Leu Gly Glu Lys Lys Glu Val Val Val Pro Pro Glu Lys Gly
65 70 75 80

Tyr Gly Met Pro

<210> 108
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Thermococcus gammatolerans C-terminal fragment

<400> 108

Ala Gly Lys Thr Ala Ile Phe Glu Ile Glu Val Val Glu Ile Lys Lys
1 5 10 15

Ala Gly Glu Ala
20

<210> 109
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> FKBP12 fusion polypeptide

<220>
<221> MISC_FEATURE
<222> (87)..(87)
<223> X=X1 X1 is the amino acid sequence of a linker, or a peptide, or an antigen, or a secondary or tertiary structure to be presented by the FKBP12 fusion polypeptide

<400> 109

Met Arg Ser Gly Val Gln Val Glu Thr Ile Ser Pro Gly Asp Gly Arg
1 5 10 15

Thr Phe Pro Lys Arg Gly Gln Thr Ala Val Val His Tyr Thr Gly Met
20 25 30

Leu Glu Asp Gly Lys Lys Phe Asp Ser Ser Arg Asp Arg Asn Lys Pro
35 40 45

Phe Lys Phe Met Leu Gly Lys Gln Glu Val Ile Arg Gly Trp Glu Glu
50 55 60

Gly Val Ala Gln Met Ser Val Gly Gln Arg Ala Lys Leu Thr Ile Ser
65 70 75 80

Pro Asp Tyr Ala Tyr Gly Xaa Thr Leu Val Phe Asp Val Glu Leu Leu
85 90 95

Lys Leu Glu

<210> 110
<211> 264
<212> PRT
<213> Artificial Sequence

<220>
<223> SlyD-FKBP12 fusion polypeptide

<220>
<221> MISC_FEATURE
<222> (166)..(166)
<223> X=X2 which is the amino acid sequence of a linker

<220>
<221> MISC_FEATURE
<222> (252)..(252)
<223> X=X1 which is the amino acid sequence of a linker, or a peptide, or an antigen, or a secondary or tertiary structure to be presented by the SlyD-FKBP12 fusion polypeptide

<400> 110

Met Lys Val Ala Lys Asp Leu Val Val Ser Leu Ala Tyr Gln Val Arg
1 5 10 15

Thr Glu Asp Gly Val Leu Val Asp Glu Ser Pro Val Ser Ala Pro Leu
20 25 30

Asp Tyr Leu His Gly His Gly Ser Leu Ile Ser Gly Leu Glu Thr Ala
35 40 45

Leu Glu Gly His Glu Val Gly Asp Lys Phe Asp Val Ala Val Gly Ala
50 55 60

Asn Asp Ala Tyr Gly Gln Tyr Asp Glu Asn Leu Val Gln Arg Val Pro
65 70 75 80

Lys Asp Val Phe Met Gly Val Asp Glu Leu Gln Val Gly Met Arg Phe
85 90 95

Leu Ala Glu Thr Asp Gln Gly Pro Val Pro Val Glu Ile Thr Ala Val
100 105 110

```
Glu Asp Asp His Val Val Val Asp Gly Asn His Met Leu Ala Gly Gln
        115                 120                 125

Asn Leu Lys Phe Asn Val Glu Val Val Ala Ile Arg Glu Ala Thr Glu
    130                 135                 140

Glu Glu Leu Ala His Gly His Val His Gly Ala His Asp His His His
145                 150                 155                 160

Asp His Asp His Asp Xaa Arg Ser Gly Val Gln Val Glu Thr Ile Ser
                165                 170                 175

Pro Gly Asp Gly Arg Thr Phe Pro Lys Arg Gly Gln Thr Ala Val Val
            180                 185                 190

His Tyr Thr Gly Met Leu Glu Asp Gly Lys Lys Phe Asp Ser Ser Arg
        195                 200                 205

Asp Arg Asn Lys Pro Phe Lys Phe Met Leu Gly Lys Gln Glu Val Ile
    210                 215                 220

Arg Gly Trp Glu Glu Gly Val Ala Gln Met Ser Val Gly Gln Arg Ala
225                 230                 235                 240

Lys Leu Thr Ile Ser Pro Asp Tyr Ala Tyr Gly Xaa Thr Leu Val Phe
                245                 250                 255

Asp Val Glu Leu Leu Lys Leu Glu
            260
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<210> 111
<211> 106
<212> PRT
<213> Artificial Sequence

<220>
<223> T.gammatolerans SlyD fusion polypeptide

<220>
<221> MISC_FEATURE
<222> (86)..(86)
<223> X=X1 is the amino acid sequence of a linker, or a peptide, or an antigen, or a secondary or tertiary structure to be presented by the T.gammatolerans SlyD fusion polypeptide

<400> 111

```
Met Lys Val Glu Arg Gly Asp Phe Val Leu Phe Asn Tyr Val Gly Arg
1               5                   10                  15
```

Tyr Glu Asn Gly Glu Val Phe Asp Thr Ser Tyr Glu Ser Val Ala Arg
20 25 30

Glu Gln Gly Ile Phe Val Glu Glu Arg Glu Tyr Ser Pro Ile Gly Val
35 40 45

Thr Val Gly Ala Gly Glu Ile Ile Pro Gly Ile Glu Glu Ala Leu Leu
50 55 60

Gly Met Glu Leu Gly Glu Lys Lys Glu Val Val Val Pro Pro Glu Lys
65 70 75 80

Gly Tyr Gly Met Pro Xaa Ala Gly Lys Thr Ala Ile Phe Glu Ile Glu
85 90 95

Val Val Glu Ile Lys Lys Ala Gly Glu Ala
100 105

<210> 112
<211> 271
<212> PRT
<213> Artificial Sequence

<220>
<223> SlyD-T.gammatolerans SlyD fusion polypeptide

<220>
<221> MISC_FEATURE
<222> (166)..(166)
<223> X=X2 amino acid sequence of a linker

<220>
<221> MISC_FEATURE
<222> (251)..(251)
<223> X=X1 is the amino acid sequence of a linker, or a peptide, or an antigen, or a secondary or tertiary structure to be presented by the T.gammatolerans SlyD fusion polypeptide

<400> 112

Met Lys Val Ala Lys Asp Leu Val Val Ser Leu Ala Tyr Gln Val Arg
1 5 10 15

Thr Glu Asp Gly Val Leu Val Asp Glu Ser Pro Val Ser Ala Pro Leu
20 25 30

Asp Tyr Leu His Gly His Gly Ser Leu Ile Ser Gly Leu Glu Thr Ala
35 40 45

Leu Glu Gly His Glu Val Gly Asp Lys Phe Asp Val Ala Val Gly Ala
50 55 60

```
Asn Asp Ala Tyr Gly Gln Tyr Asp Glu Asn Leu Val Gln Arg Val Pro
65                  70                  75                  80

Lys Asp Val Phe Met Gly Val Asp Glu Leu Gln Val Gly Met Arg Phe
                85                  90                  95

Leu Ala Glu Thr Asp Gln Gly Pro Val Pro Val Glu Ile Thr Ala Val
            100                 105                 110

Glu Asp Asp His Val Val Val Asp Gly Asn His Met Leu Ala Gly Gln
        115                 120                 125

Asn Leu Lys Phe Asn Val Glu Val Val Ala Ile Arg Glu Ala Thr Glu
    130                 135                 140

Glu Glu Leu Ala His Gly His Val His Gly Ala His Asp His His His
145                 150                 155                 160

Asp His Asp His Asp Xaa Lys Val Glu Arg Gly Asp Phe Val Leu Phe
                165                 170                 175

Asn Tyr Val Gly Arg Tyr Glu Asn Gly Glu Val Phe Asp Thr Ser Tyr
            180                 185                 190

Glu Ser Val Ala Arg Glu Gln Gly Ile Phe Val Glu Glu Arg Glu Tyr
        195                 200                 205

Ser Pro Ile Gly Val Thr Val Gly Ala Gly Glu Ile Ile Pro Gly Ile
    210                 215                 220

Glu Glu Ala Leu Leu Gly Met Glu Leu Gly Glu Lys Lys Glu Val Val
225                 230                 235                 240

Val Pro Pro Glu Lys Gly Tyr Gly Met Pro Xaa Ala Gly Lys Thr Ala
                245                 250                 255

Ile Phe Glu Ile Glu Val Val Glu Ile Lys Lys Ala Gly Glu Ala
            260                 265                 270
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<210> 113
<211> 239
<212> PRT
<213> Artificial Sequence

<220>
<223> SlyD-FKBP12/13 fusion polypeptide

<220>

<221> MISC_FEATURE
<222> (116)..(116)
<223> X=X2 is the amino acid sequence of a linker

<220>
<221> MISC_FEATURE
<222> (206)..(206)
<223> X=X1 is the amino acid sequence of a linker, or a peptide, or an antigen, or a secondary or tertiary structure to be presented by the SlyD-FKBP12/13 fusion polypeptide

<400> 113

```
Gly His Glu Val Gly Asp Lys Phe Asp Val Ala Val Gly Ala Asn Asp
1               5                  10                  15

Ala Tyr Gly Gln Tyr Asp Glu Asn Leu Val Gln Arg Val Pro Lys Asp
            20                  25                  30

Val Phe Met Gly Val Asp Glu Leu Gln Val Gly Met Arg Phe Leu Ala
        35                  40                  45

Glu Thr Asp Gln Gly Pro Val Pro Val Glu Ile Thr Ala Val Glu Asp
    50                  55                  60

Asp His Val Val Val Asp Gly Asn His Met Leu Ala Gly Gln Asn Leu
65                  70                  75                  80

Lys Phe Asn Val Glu Val Val Ala Ile Arg Glu Ala Thr Glu Glu Glu
                85                  90                  95

Leu Ala His Gly His Val His Gly Ala His Asp His His His Asp His
            100                 105                 110

Asp His Asp Xaa Gly Val Gln Val Glu Thr Ile Ser Pro Gly Asp Gly
        115                 120                 125

Arg Thr Phe Pro Lys Arg Gly Gln Thr Ala Val Val His Tyr Thr Gly
    130                 135                 140

Met Leu Glu Asp Gly Lys Lys Phe Asp Ser Ser Arg Asp Arg Asn Lys
145                 150                 155                 160

Pro Phe Lys Phe Met Leu Gly Lys Gln Glu Val Ile Arg Gly Trp Glu
                165                 170                 175

Glu Gly Val Ala Gln Met Ser Val Gly Gln Arg Ala Lys Leu Thr Ile
            180                 185                 190

Ser Pro Asp Tyr Ala Tyr Gly Asp Arg Gly Ala Gly Cys Xaa Cys Leu
        195                 200                 205
```

```
Ile Pro Pro Ala Ser Val Leu Val Phe Asp Val Glu Leu Leu Lys Leu
    210                 215                 220

Glu Gly Gly Gly Ser Arg Pro Leu Leu Pro Pro Leu Pro Gly Gly
225                 230                 235
```

<210> 114
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> Thermococcus gammatolerans-SlyD-antigen fusion polypeptide

<220>
<221> MISC_FEATURE
<222> (86)..(86)
<223> X=X1 is the amino acid sequence of a linker, or a peptide, or an antigen, or a secondary or tertiary structure to be presented by the Thermococcus gammatolerans-SlyD-antigen fusion polypeptide

<400> 114

```
Met Lys Val Glu Arg Gly Asp Phe Val Leu Phe Asn Tyr Val Gly Arg
1               5                   10                  15

Tyr Glu Asn Gly Glu Val Phe Asp Thr Ser Tyr Glu Ser Val Ala Arg
            20                  25                  30

Glu Gln Gly Ile Phe Val Glu Glu Arg Glu Tyr Ser Pro Ile Gly Val
        35                  40                  45

Thr Val Gly Ala Gly Glu Ile Ile Pro Gly Ile Glu Glu Ala Leu Leu
    50                  55                  60

Gly Met Glu Leu Gly Glu Lys Lys Glu Val Val Val Pro Pro Glu Lys
65                  70                  75                  80

Gly Tyr Gly Met Pro Xaa Ala Gly Lys Thr Ala Ile Phe Glu Ile Glu
                85                  90                  95

Val Val Glu Ile Lys Lys Ala Gly Glu Ala Gly Gly Gly Ser Arg Lys
            100                 105                 110

His His His His His His His His
        115                 120
```

<210> 115
<211> 124
<212> PRT

<213> Artificial Sequence

<220>
<223> disulfide stabilized Thermococcus gammadurans-SlyD-antigen fusion polypeptide

<220>
<221> MISC_FEATURE
<222> (88)..(88)
<223> X=X1 is the amino acid sequence of a linker, or a peptide, or an antigen, or a secondary or tertiary structure to be presented by the Thermococcus gammatolerans-SlyD-antigen fusion polypeptide

<400> 115

Met Lys Val Glu Arg Gly Asp Phe Val Leu Phe Asn Tyr Val Gly Arg
1 5 10 15

Tyr Glu Asn Gly Glu Val Phe Asp Thr Ser Tyr Glu Ser Val Ala Arg
20 25 30

Glu Gln Gly Ile Phe Val Glu Glu Arg Glu Tyr Ser Pro Ile Gly Val
35 40 45

Thr Val Gly Ala Gly Glu Ile Ile Pro Gly Ile Glu Glu Ala Leu Leu
50 55 60

Gly Met Glu Leu Gly Glu Lys Lys Glu Val Val Val Pro Pro Glu Lys
65 70 75 80

Gly Tyr Gly Met Pro Cys Gly Xaa Gly Cys Ala Gly Lys Thr Ala Ile
85 90 95

Phe Glu Ile Glu Val Val Glu Ile Lys Lys Ala Gly Glu Ala Gly Gly
100 105 110

Gly Ser Arg Lys His His His His His His His His
115 120

<210> 116
<211> 119
<212> PRT
<213> Artificial Sequence

<220>
<223> Thermus thermophilus SlyD-?IF fusion polypeptide

<400> 116

Met Arg Gly Ser Lys Val Gly Gln Asp Lys Val Val Thr Ile Arg Tyr
1 5 10 15

Thr Leu Gln Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu Ser Tyr

20 25 30

Leu His Gly His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala Leu Glu
35 40 45

Gly Arg Glu Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala Glu Lys
50 55 60

Ala Tyr Gly Pro His Gly Ala Gly Ser Gly Ser Ser Gly Ala Gly Lys
65 70 75 80

Asp Leu Asp Phe Gln Val Glu Val Val Lys Val Arg Glu Ala Thr Pro
85 90 95

Glu Glu Leu Leu His Gly His Ala His Gly Gly Gly Ser Arg Lys His
100 105 110

His His His His His His His
115

<210> 117
<211> 130
<212> PRT
<213> Artificial Sequence

<220>
<223> Thermococcus gammadurans SlyD-IGF-2(53-65) fusion polypeptide

<400> 117

Met Lys Val Glu Arg Gly Asp Phe Val Leu Phe Asn Tyr Val Gly Arg
1 5 10 15

Tyr Glu Asn Gly Glu Val Phe Asp Thr Ser Tyr Glu Ser Val Ala Arg
20 25 30

Glu Gln Gly Ile Phe Val Glu Glu Arg Glu Tyr Ser Pro Ile Gly Val
35 40 45

Thr Val Gly Ala Gly Glu Ile Ile Pro Gly Ile Glu Glu Ala Leu Leu
50 55 60

Gly Met Glu Leu Gly Glu Lys Lys Glu Val Val Val Pro Pro Glu Lys
65 70 75 80

Gly Tyr Gly Met Pro Gly Ser Arg Val Ser Arg Arg Ser Arg Gly Gly
85 90 95

Ala Gly Lys Thr Ala Ile Phe Glu Ile Glu Val Val Glu Ile Lys Lys
100 105 110

Ala Gly Glu Ala Gly Gly Gly Ser Arg Lys His His His His His His
115 120 125

His His
130

<210> 118
<211> 130
<212> PRT
<213> Artificial Sequence

<220>
<223> FKBP12/13 fusion polypeptide

<400> 118

Met Arg Ser Gly Val Gln Val Glu Thr Ile Ser Pro Gly Asp Gly Arg
1 5 10 15

Thr Phe Pro Lys Arg Gly Gln Thr Ala Val Val His Tyr Thr Gly Met
20 25 30

Leu Glu Asp Gly Lys Lys Phe Asp Ser Ser Arg Asp Arg Asn Lys Pro
35 40 45

Phe Lys Phe Met Leu Gly Lys Gln Glu Val Ile Arg Gly Trp Glu Glu
50 55 60

Gly Val Ala Gln Met Ser Val Gly Gln Arg Ala Lys Leu Thr Ile Ser
65 70 75 80

Pro Asp Tyr Ala Tyr Gly Asp Arg Gly Ala Gly Cys Gly Ser Gly Ser
85 90 95

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

Leu Lys Leu Glu Gly Gly Gly Ser Arg Lys His His His His His His
115 120 125

His His
130

<210> 119
<211> 369
<212> PRT
<213> Artificial Sequence

<220>
<223> SlyD-FKBP12/13-CSF1R fusion polypeptide

<400> 119

Met Lys Val Ala Lys Asp Leu Val Val Ser Leu Ala Tyr Gln Val Arg
1 5 10 15

Thr Glu Asp Gly Val Leu Val Asp Glu Ser Pro Val Ser Ala Pro Leu
20 25 30

Asp Tyr Leu His Gly His Gly Ser Leu Ile Ser Gly Leu Glu Thr Ala
35 40 45

Leu Glu Gly His Glu Val Gly Asp Lys Phe Asp Val Ala Val Gly Ala
50 55 60

Asn Asp Ala Tyr Gly Gln Tyr Asp Glu Asn Leu Val Gln Arg Val Pro
65 70 75 80

Lys Asp Val Phe Met Gly Val Asp Glu Leu Gln Val Gly Met Arg Phe
85 90 95

Leu Ala Glu Thr Asp Gln Gly Pro Val Pro Val Glu Ile Thr Ala Val
100 105 110

Glu Asp Asp His Val Val Val Asp Gly Asn His Met Leu Ala Gly Gln
115 120 125

Asn Leu Lys Phe Asn Val Glu Val Val Ala Ile Arg Glu Ala Thr Glu
130 135 140

Glu Glu Leu Ala His Gly His Val His Gly Ala His Asp His His His
145 150 155 160

Asp His Asp His Asp Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly
165 170 175

Ser Gly Val Gln Val Glu Thr Ile Ser Pro Gly Asp Gly Arg Thr Phe
180 185 190

Pro Lys Arg Gly Gln Thr Ala Val Val His Tyr Thr Gly Met Leu Glu
195 200 205

Asp Gly Lys Lys Phe Asp Ser Ser Arg Asp Arg Asn Lys Pro Phe Lys
210 215 220

Phe Met Leu Gly Lys Gln Glu Val Ile Arg Gly Trp Glu Glu Gly Val
225 230 235 240

Ala Gln Met Ser Val Gly Gln Arg Ala Lys Leu Thr Ile Ser Pro Asp
245 250 255

Tyr Ala Tyr Gly Asp Arg Gly Ala Gly Cys Gly Ser Gly Gly Val Asp
260 265 270

Tyr Lys Asn Ile His Leu Glu Lys Lys Tyr Val Arg Arg Asp Ser Gly
275 280 285

Phe Ser Ser Gln Gly Val Asp Thr Tyr Val Glu Met Arg Pro Val Ser
290 295 300

Thr Ser Ser Asn Asp Ser Phe Ser Glu Gln Asp Leu Asp Lys Glu Asp
305 310 315 320

Gly Gly Ser Ser Cys Leu Ile Pro Pro Ala Ser Val Leu Val Phe Asp
325 330 335

Val Glu Leu Leu Lys Leu Glu Gly Gly Gly Ser Arg Pro Leu Leu Pro
340 345 350

Pro Leu Pro Gly Gly Gly Ser Arg Lys His His His His His His His
355 360 365

His

<210> 120
<211> 119
<212> PRT
<213> Artificial Sequence

<220>
<223> Thermus thermophilus SlyD-deltaIF fusion polypeptide

<400> 120

Met Arg Gly Ser Lys Val Gly Gln Asp Lys Val Val Thr Ile Arg Tyr
1 5 10 15

Thr Leu Gln Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu Ser Tyr
20 25 30

Leu His Gly His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala Leu Glu
35 40 45

Gly Arg Glu Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala Glu Lys
50 55 60

Ala Tyr Gly Pro His Gly Ala Gly Ser Gly Ser Ser Gly Ala Gly Lys

65 70 75 80

Asp Leu Asp Phe Gln Val Glu Val Val Lys Val Arg Glu Ala Thr Pro
85 90 95

Glu Glu Leu Leu His Gly His Ala His Gly Gly Gly Ser Arg Lys His
100 105 110

His His His His His His His
115

<210> 121
<211> 168
<212> PRT
<213> Artificial Sequence

<220>
<223> native SlyD from Thermococcus gammatolerans comprising a C-teminal amino acid sequence tag of SEQ ID NO: 16

<400> 121

Met Lys Val Glu Arg Gly Asp Phe Val Leu Phe Asn Tyr Val Gly Arg
1 5 10 15

Tyr Glu Asn Gly Glu Val Phe Asp Thr Ser Tyr Glu Ser Val Ala Arg
20 25 30

Glu Gln Gly Ile Phe Val Glu Glu Arg Glu Tyr Ser Pro Ile Gly Val
35 40 45

Thr Val Gly Ala Gly Glu Ile Ile Pro Gly Ile Glu Glu Ala Leu Leu
50 55 60

Gly Met Glu Leu Gly Glu Lys Lys Glu Val Val Val Pro Pro Glu Lys
65 70 75 80

Gly Tyr Gly Met Pro Arg Glu Asp Leu Ile Val Pro Val Pro Ile Glu
85 90 95

Gln Phe Thr Ser Ala Gly Leu Glu Pro Val Glu Gly Met Tyr Val Met
100 105 110

Thr Asp Ala Gly Ile Ala Lys Ile Leu Lys Val Glu Glu Lys Thr Val
115 120 125

Arg Leu Asp Phe Asn His Pro Leu Ala Gly Lys Thr Ala Ile Phe Glu
130 135 140

Ile Glu Val Val Glu Ile Lys Lys Ala Gly Glu Ala Gly Gly Gly Ser

145 150 155 160

Arg Lys His His His His His His
165

<210> 122
<211> 128
<212> PRT
<213> Artificial Sequence

<220>
<223> Thermococcus gammatolerans SlyD-IGF-2(53-65) fusion polypeptide

<400> 122

Met Lys Val Glu Arg Gly Asp Phe Val Leu Phe Asn Tyr Val Gly Arg
1 5 10 15

Tyr Glu Asn Gly Glu Val Phe Asp Thr Ser Tyr Glu Ser Val Ala Arg
20 25 30

Glu Gln Gly Ile Phe Val Glu Glu Arg Glu Tyr Ser Pro Ile Gly Val
35 40 45

Thr Val Gly Ala Gly Glu Ile Ile Pro Gly Ile Glu Glu Ala Leu Leu
50 55 60

Gly Met Glu Leu Gly Glu Lys Lys Glu Val Val Val Pro Pro Glu Lys
65 70 75 80

Gly Tyr Gly Met Pro Gly Ser Arg Val Ser Arg Arg Ser Arg Gly Gly
85 90 95

Ala Gly Lys Thr Ala Ile Phe Glu Ile Glu Val Val Glu Ile Lys Lys
100 105 110

Ala Gly Glu Ala Gly Gly Gly Ser Arg Lys His His His His His His
115 120 125

<210> 123
<211> 130
<212> PRT
<213> Artificial Sequence

<220>
<223> FKBP12/13 fusion polypeptid

<400> 123

Met Arg Ser Gly Val Gln Val Glu Thr Ile Ser Pro Gly Asp Gly Arg
1 5 10 15

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Thr Phe Pro Lys Arg Gly Gln Thr Ala Val Val His Tyr Thr Gly Met
20 25 30

Leu Glu Asp Gly Lys Lys Phe Asp Ser Ser Arg Asp Arg Asn Lys Pro
35 40 45

Phe Lys Phe Met Leu Gly Lys Gln Glu Val Ile Arg Gly Trp Glu Glu
50 55 60

Gly Val Ala Gln Met Ser Val Gly Gln Arg Ala Lys Leu Thr Ile Ser
65 70 75 80

Pro Asp Tyr Ala Tyr Gly Asp Arg Gly Ala Gly Cys Gly Ser Gly Ser
85 90 95

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

Leu Lys Leu Glu Gly Gly Gly Ser Arg Lys His His His His His His
115 120 125

His His
130

<210> 124
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> IGF-1 epitope

<400> 124

Thr Gly Tyr Gly Ser Ser Ser Arg
1 5

<210> 125
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<212> PRT
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<220>
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<400> 125

Pro Thr Gly Tyr Gly Ser Ser Ser Arg
1 5

<210> 126
<211> 340
<212> PRT

<213> Artificial Sequence

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<223> SlyD-FKBP12-CD81 fusion polypeptide

<400> 126

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Met Lys Val Ala Lys Asp Leu Val Val Ser Leu Ala Tyr Gln Val Arg
1               5                  10                  15

Thr Glu Asp Gly Val Leu Val Asp Glu Ser Pro Val Ser Ala Pro Leu
            20                  25                  30

Asp Tyr Leu His Gly His Gly Ser Leu Ile Ser Gly Leu Glu Thr Ala
        35                  40                  45

Leu Glu Gly His Glu Val Gly Asp Lys Phe Asp Val Ala Val Gly Ala
    50                  55                  60

Asn Asp Ala Tyr Gly Gln Tyr Asp Glu Asn Leu Val Gln Arg Val Pro
65                  70                  75                  80

Lys Asp Val Phe Met Gly Val Asp Glu Leu Gln Val Gly Met Arg Phe
                85                  90                  95

Leu Ala Glu Thr Asp Gln Gly Pro Val Pro Val Glu Ile Thr Ala Val
            100                 105                 110

Glu Asp Asp His Val Val Val Asp Gly Asn His Met Leu Ala Gly Gln
        115                 120                 125

Asn Leu Lys Phe Asn Val Glu Val Val Ala Ile Arg Glu Ala Thr Glu
    130                 135                 140

Glu Glu Leu Ala His Gly His Val His Gly Ala His Asp His His His
145                 150                 155                 160

Asp His Asp His Asp Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly
                165                 170                 175

Ser Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Gly Val Gln Val
            180                 185                 190

Glu Thr Ile Ser Pro Gly Asp Gly Arg Thr Phe Pro Lys Arg Gly Gln
        195                 200                 205

Thr Ala Val Val His Tyr Thr Gly Met Leu Glu Asp Gly Lys Lys Phe
    210                 215                 220
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Asp Ser Ser Arg Asp Arg Asn Lys Pro Phe Lys Phe Met Leu Gly Lys
225                 230                 235                 240

Gln Glu Val Ile Arg Gly Trp Glu Glu Gly Val Ala Gln Met Ser Val
                245                 250                 255

Gly Gln Arg Ala Lys Leu Thr Ile Ser Pro Asp Tyr Ala Tyr Gly Gly
            260                 265                 270

Gly Gly Ser Cys Cys Gly Ser Ser Thr Leu Thr Ala Leu Thr Thr Ser
        275                 280                 285

Val Leu Lys Asn Asn Leu Cys Pro Ser Gly Ser Asn Ile Ile Ser Asn
    290                 295                 300

Leu Phe Lys Glu Asp Cys Gly Gly Gly Ser Thr Leu Val Phe Asp Val
305                 310                 315                 320

Glu Leu Leu Lys Leu Glu Gly Gly Gly Ser Arg Lys His His His His
                325                 330                 335

His His His His
            340
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