SEQUENCE LISTING

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<120> COMPOSITIONS AND METHODS OF ENHANCING IMMUNE RESPONSES TO ENTERIC PATHOGENS

<130> 5658-00203

<150> US 61/790,301
<151> 2013-03-15

<160> 46

<170> PatentIn version 3.5

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<213> E. coli

<220>
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<222> (1)..(19)
<223> PAL bis from E. coli

<400> 1

Glu Gly His Ala Asp Glu Arg Gly Thr Pro Glu Tyr Asn Ile Ser Leu
1 5 10 15

Gly Glu Arg

<210> 2
<211> 6
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<220>
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<400> 2

Gly His Ala Asp Glu Arg
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Asp Glu Arg Gly Thr Pro
1 5

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Glu Tyr Asn Ile Ser Leu
1 5

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<220>
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Ile Ser Leu Gly Glu Arg
1 5

<210> 6
<211> 19
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<213> Vibrio spp.

<220>
<221> misc_feature
<222> (1)..(19)
<223> PAL bis from vibrio spp.

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Glu Gly His Ala Asp Glu Arg Gly Thr Pro Glu Tyr Asn Ile Ala Leu
1 5 10 15

Gly Glu Arg

<210> 7
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<213> Campylobacter spp.

<220>
<221> misc_feature
<222> (1)..(17)
<223> corresponding peptide from Campylobacter spp.

<400> 7

Glu Gly Asn Cys Asp Glu Trp Gly Thr Asp Glu Tyr Asn Gln Ala Leu
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Gly

<210> 8
<211> 19
<212> PRT
<213> E. coli

<220>
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<222> (1)..(19)
<223> PAL from E. coli

<400> 8

Thr Val Glu Gly His Ala Asp Glu Arg Gly Thr Pro Glu Tyr Asn Ile
1 5 10 15

Ser Leu Gly

<210> 9
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<212> PRT
<213> Avian Influenza virus m2e

<400> 9

Glu Val Glu Thr Pro Ile Arg Asn
1 5

<210> 10
<211> 8
<212> PRT
<213> Avian Influenza virus m2e

<400> 10

Glu Val Glu Thr Pro Thr Arg Asn
1 5

<210> 11
<211> 12
<212> PRT
<213> Avian Influenza virus

<220>
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<223> Avian Influenza virus (HA5 UA)

<400> 11

Leu Leu Ser Arg Ile Asn His Phe Glu Lys Ile Gln
1 5 10

<210> 12
<211> 19
<212> PRT
<213> Avian Influenza virus

<220>
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<222> (1)..(19)
<223> Avian Influenza virus (HA5 LB)

<400> 12

Ala Asn Pro Ala Asn Asp Leu Cys Tyr Pro Gly Asp Phe Asn Asp Tyr
1 5 10 15

Glu Glu Leu

<210> 13
<211> 16
<212> PRT
<213> Avian Influenza virus

<220>
<221> misc_feature
<222> (1)..(16)
<223> Avian Influenza virus (NP 54-69)

<400> 13

Gly Arg Leu Ile Gln Asn Ser Ile Thr Ile Glu Arg Met Val Leu Ser
1 5 10 15

<210> 14
<211> 14
<212> PRT
<213> Avian Influenza virus

<220>
<221> misc_feature
<222> (1)..(14)
<223> Avian Influenza virus (NP 147-160)

<400> 14

Thr Tyr Gln Arg Thr Arg Ala Leu Val Arg Thr Gly Met Asp
1 5 10

<210> 15
<211> 190
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<213> Gallus gallus

<220>
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<222> (1)..(190)
<223> Chicken HMGB1 amino acid

<400> 15

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Met Gly Lys Gly Asp Pro Lys Lys Pro Arg Gly Lys Met Ser Ser Tyr
1               5                   10                  15

Ala Phe Phe Val Gln Thr Cys Arg Glu Glu His Lys Lys Lys His Pro
            20                  25                  30

Asp Ala Ser Val Asn Phe Ser Glu Phe Ser Lys Lys Cys Ser Glu Arg
        35                  40                  45

Trp Lys Thr Met Ser Ser Lys Glu Lys Gly Lys Phe Glu Asp Met Ala
    50                  55                  60

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

Pro Lys Gly Glu Thr Lys Lys Lys Phe Lys Asp Pro Asn Ala Pro Lys
                85                  90                  95

Arg Pro Pro Ser Ala Phe Phe Leu Phe Cys Ser Glu Phe Arg Pro Lys
            100                 105                 110

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

Leu Gly Glu Met Trp Asn Asn Thr Ala Ala Asp Asp Lys Gln Pro Tyr
    130                 135                 140

Glu Lys Lys Ala Ala Lys Leu Lys Glu Lys Tyr Glu Lys Asp Ile Ala
145                 150                 155                 160

Ala Tyr Arg Ala Lys Gly Lys Val Asp Ala Gly Lys Lys Val Val Ala
                165                 170                 175

Lys Ala Glu Lys Ser Lys Lys Lys Lys Glu Glu Glu Glu Asp
            180                 185                 190


<210>  16
<211>  85
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  Synthetic HMGB1 box a1

<400>  16

Met Gly Lys Gly Asp Pro Lys Lys Pro Arg Gly Lys Met Ser Ser Tyr
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Ala Phe Phe Val Gln Thr Cys Arg Glu Glu His Lys Lys Lys His Pro
            20                  25                  30

Asp Ala Ser Val Asn Phe Ser Glu Phe Ser Lys Lys Cys Ser Glu Arg
        35                  40                  45
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Trp Lys Thr Met Ser Ser Lys Glu Lys Gly Lys Phe Glu Asp Met Ala
50 55 60

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

Pro Lys Gly Glu Thr
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<210> 17
<211> 54
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic HMGB1 box a2

<400> 17

Pro Asp Ala Ser Val Asn Phe Ser Glu Phe Ser Lys Lys Cys Ser Glu
1 5 10 15

Arg Trp Lys Thr Met Ser Ser Lys Glu Lys Gly Lys Phe Glu Asp Met
20 25 30

Ala Lys Ala Asp Lys Leu Arg Tyr Glu Lys Glu Met Lys Asn Tyr Val
35 40 45

Pro Pro Lys Gly Glu Thr
50

<210> 18
<211> 73
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic HMGB1 box b1

<400> 18

Lys Asp Pro Asn Ala Pro Lys Arg Pro Pro Ser Ala Phe Phe Leu Phe
1 5 10 15

Cys Ser Glu Phe Arg Pro Lys Ile Lys Gly Glu His Pro Gly Leu Ser
20 25 30

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

Ala Asp Asp Lys Gln Pro Tyr Glu Lys Lys Ala Ala Lys Leu Lys Glu
50 55 60

Lys Tyr Glu Lys Asp Ile Ala Ala Tyr
65 70

<210> 19
<211> 69
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic HMGB1 box b2

<400> 19

Asn Ala Pro Lys Arg Pro Pro Ser Ala Phe Phe Leu Phe Cys Ser Glu
1 5 10 15

Phe Arg Pro Lys Ile Lys Gly Glu His Pro Gly Leu Ser Ile Gly Asp
20 25 30

Val Ala Lys Lys Leu Gly Glu Met Trp Asn Asn Thr Ala Ala Asp Asp
35 40 45

Lys Gln Pro Tyr Glu Lys Lys Ala Ala Lys Leu Lys Glu Lys Tyr Glu
50 55 60

Lys Asp Ile Ala Ala
65

<210> 20
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic HMGB1 RAGE Binding domain

<400> 20

Lys Asp Pro Asn Ala Pro Lys Arg Pro Pro Ser Ala Phe Phe Leu Phe
1 5 10 15

Cys Ser Glu Phe Arg
20

<210> 21
<211> 33
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic HMGB1 proinflammatory cytokine activity

<400> 21

Leu Lys Glu Lys Tyr Glu Lys Asp Ile Ala Ala Tyr Arg Ala Lys Gly
1 5 10 15

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

Lys

<210> 22
<211> 215
<212> PRT
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)..(215)
<223> HMGB1

<400> 22

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Met Gly Lys Gly Asp Pro Lys Lys Pro Arg Gly Lys Met Ser Ser Tyr
1               5                  10                  15

Ala Phe Phe Val Gln Thr Cys Arg Glu Glu His Lys Lys Lys His Pro
            20                  25                  30

Asp Ala Ser Val Asn Phe Ser Glu Phe Ser Lys Lys Cys Ser Glu Arg
        35                  40                  45

Trp Lys Thr Met Ser Ala Lys Glu Lys Gly Lys Phe Glu Asp Met Ala
    50                  55                  60

Lys Ala Asp Lys Ala Arg Tyr Glu Arg Glu Met Lys Thr Tyr Ile Pro
65                  70                  75                  80

Pro Lys Gly Glu Thr Lys Lys Lys Phe Lys Asp Pro Asn Ala Pro Lys
                85                  90                  95

Arg Pro Pro Ser Ala Phe Phe Leu Phe Cys Ser Glu Tyr Arg Pro Lys
            100                 105                 110

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

Leu Gly Glu Met Trp Asn Asn Thr Ala Ala Asp Asp Lys Gln Pro Tyr
    130                 135                 140

Glu Lys Lys Ala Ala Lys Leu Lys Glu Lys Tyr Glu Lys Asp Ile Ala
145                 150                 155                 160

Ala Tyr Arg Ala Lys Gly Lys Pro Asp Ala Ala Lys Lys Gly Val Val
                165                 170                 175

Lys Ala Glu Lys Ser Lys Lys Lys Lys Glu Glu Glu Glu Asp Glu Glu
            180                 185                 190

Asp Glu Glu Asp Glu Glu Glu Glu Glu Asp Glu Glu Asp Glu Asp Glu
        195                 200                 205
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Glu Glu Asp Asp Asp Asp Glu
210 215

<210> 23
<211> 205
<212> PRT
<213> Danio rerio

<220>
<221> misc_feature
<222> (1)..(205)
<223> Zebra fish HMGB1

<400> 23

Met Gly Lys Asp Pro Thr Lys Pro Arg Gly Lys Met Ser Ser Tyr Ala
1 5 10 15

Tyr Phe Val Gln Thr Cys Arg Glu Glu His Lys Lys Lys His Pro Glu
20 25 30

Ala Thr Val Asn Phe Ser Glu Phe Ser Lys Lys Cys Ser Glu Arg Trp
35 40 45

Lys Thr Met Ser Ala Lys Glu Lys Gly Lys Phe Glu Asp Met Ala Lys
50 55 60

Leu Asp Lys Ala Arg Tyr Glu Arg Glu Met Lys Asn Tyr Ile Pro Pro
65 70 75 80

Lys Gly Glu Lys Lys Lys Arg Phe Lys Asp Pro Asn Ala Pro Lys Arg
85 90 95

Pro Pro Ser Ala Phe Phe Ile Phe Cys Ser Glu Phe Arg Pro Lys Val
100 105 110

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

Gly Glu Met Trp Asn Lys Ile Ser Ser Glu Glu Lys Gln Pro Tyr Glu
130 135 140

Lys Lys Ala Ala Lys Leu Lys Glu Lys Tyr Glu Lys Asp Ile Ala Ala
145 150 155 160

Tyr Arg Ser Lys Gly Lys Val Gly Gly Gly Ala Ala Lys Ala Pro Ser
165 170 175

Lys Pro Asp Lys Ala Asn Asp Glu Asp Glu Asp Asp Asp Glu Glu Glu
180 185 190

Asp Glu Asp Asp Asp Asp Glu Glu Glu Glu Asp Asp Glu
195 200 205

<210> 24
<211> 272
<212> PRT
<213> Gallus gallus

<220>
<221> misc_feature
<222> (1)..(272)
<223> CD154 chicken

<400> 24

Met Asn Glu Ala Tyr Ser Pro Ala Ala Pro Arg Pro Met Gly Ser Thr
1 5 10 15

Ser Pro Ser Thr Met Lys Met Phe Met Cys Phe Leu Ser Val Phe Met
20 25 30

Val Val Gln Thr Ile Gly Thr Val Leu Phe Cys Leu Tyr Leu His Met
35 40 45

Lys Met Asp Lys Met Glu Glu Val Leu Ser Leu Asn Glu Asp Tyr Ile
50 55 60

Phe Leu Arg Lys Val Gln Lys Cys Gln Thr Gly Glu Asp Gln Lys Ser
65 70 75 80

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

Cys Lys Asp Arg Thr Ala Ser Glu Glu Leu Pro Lys Phe Glu Met His
100 105 110

Arg Gly His Glu His Pro His Leu Lys Ser Arg Asn Glu Thr Ser Val
115 120 125

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

Ser Asn Thr Thr Val Arg Val Leu Lys Trp Met Thr Thr Ser Tyr Ala
145 150 155 160

Pro Thr Ser Ser Leu Ile Ser Tyr His Glu Gly Lys Leu Lys Val Glu
165 170 175

Lys Ala Gly Leu Tyr Tyr Ile Tyr Ser Gln Val Ser Phe Cys Thr Lys
180 185 190

Ala Ala Ala Ser Ala Pro Phe Thr Leu Tyr Ile Tyr Leu Tyr Leu Pro
195 200 205

Met Glu Glu Asp Arg Leu Leu Met Lys Gly Leu Asp Thr His Ser Thr

210 215 220

Ser Thr Ala Leu Cys Glu Leu Gln Ser Ile Arg Glu Gly Gly Val Phe
225 230 235 240

Glu Leu Arg Gln Gly Asp Met Val Phe Val Asn Val Thr Asp Ser Thr
245 250 255

Ala Val Asn Val Asn Pro Gly Asn Thr Tyr Phe Gly Met Phe Lys Leu
260 265 270

<210> 25
<211> 261
<212> PRT
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)..(261)
<223> Human CD154

<400> 25

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

Leu Pro Ile Ser Met Lys Ile Phe Met Tyr Leu Leu Thr Val Phe Leu
20 25 30

Ile Thr Gln Met Ile Gly Ser Ala Leu Phe Ala Val Tyr Leu His Arg
35 40 45

Arg Leu Asp Lys Ile Glu Asp Glu Arg Asn Leu His Glu Asp Phe Val
50 55 60

Phe Met Lys Thr Ile Gln Arg Cys Asn Thr Gly Glu Arg Ser Leu Ser
65 70 75 80

Leu Leu Asn Cys Glu Glu Ile Lys Ser Gln Phe Glu Gly Phe Val Lys
85 90 95

Asp Ile Met Leu Asn Lys Glu Glu Thr Lys Lys Glu Asn Ser Phe Glu
100 105 110

Met Gln Lys Gly Asp Gln Asn Pro Gln Ile Ala Ala His Val Ile Ser
115 120 125

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

Tyr Tyr Thr Met Ser Asn Asn Leu Val Thr Leu Glu Asn Gly Lys Gln
145 150 155 160

Leu Thr Val Lys Arg Gln Gly Leu Tyr Tyr Ile Tyr Ala Gln Val Thr
165 170 175

Phe Cys Ser Asn Arg Glu Ala Ser Ser Gln Ala Pro Phe Ile Ala Ser
180 185 190

Leu Cys Leu Lys Ser Pro Gly Arg Phe Glu Arg Ile Leu Leu Arg Ala
195 200 205

Ala Asn Thr His Ser Ser Ala Lys Pro Cys Gly Gln Gln Ser Ile His
210 215 220

Leu Gly Gly Val Phe Glu Leu Gln Pro Gly Ala Ser Val Phe Val Asn
225 230 235 240

Val Thr Asp Pro Ser Gln Val Ser His Gly Thr Gly Phe Thr Ser Phe
245 250 255

Gly Leu Leu Lys Leu
260

<210> 26
<211> 11
<212> PRT
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)..(11)
<223> Human CD154 peptide

<400> 26

Trp Ala Glu Lys Gly Tyr Tyr Thr Met Ser Asn
1 5 10

<210> 27
<211> 11
<212> PRT
<213> Galus gallus

<220>
<221> misc_feature
<222> (1)..(11)
<223> Chicken CD154 peptide

<400> 27

Trp Met Thr Thr Ser Tyr Ala Pro Thr Ser Ser
1 5 10

<210> 28
<211> 10
<212> PRT
<213> Anas sp.

<220>
<221> misc_feature
<222> (1)..(10)
<223> Duck CD154 peptide

<400> 28

Trp Asn Lys Thr Ser Tyr Ala Pro Met Asn
1 5 10

<210> 29
<211> 10
<212> PRT
<213> Mus sp.

<220>
<221> misc_feature
<222> (1)..(10)
<223> Mouse CD154 peptide

<400> 29

Trp Ala Lys Lys Gly Tyr Tyr Thr Met Lys
1 5 10

<210> 30
<211> 10
<212> PRT
<213> Bos taurus

<220>
<221> misc_feature
<222> (1)..(10)
<223> Cow CD154 peptide

<400> 30

Trp Ala Pro Lys Gly Tyr Tyr Thr Leu Ser
1 5 10

<210> 31
<211> 21
<212> PRT
<213> Campylobacter jejuni Cj0113

<400> 31

Gly Val Ser Ile Thr Val Glu Gly Asn Cys Asp Glu Trp Gly Thr Asp
1 5 10 15

Glu Tyr Asn Gln Ala
20

<210> 32
<211> 19
<212> PRT
<213> Vibrio spp.

<220>
<221> misc_feature

<222> (1)..(19)
<223> Vibrio spp. alternative PAL epitope

<400> 32

Thr Val Glu Gly His Ala Asp Glu Arg Gly Thr Pro Glu Tyr Asn Ile
1 5 10 15

Ala Leu Gly

<210> 33
<211> 57
<212> DNA
<213> E. coli

<220>
<221> misc_feature
<222> (1)..(57)
<223> E. coli nucleotide sequence for PAL epitope

<400> 33
gaaggtcacg cggacgaacg tggtaccccg gaatacaaca tctctctggg tgaacgt 57

<210> 34
<211> 56
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic nucleotide sequence encoding in vector (CJ0113-HMGB1-PAL)

<400> 34
gaaggtcacg cggacgaacg tggtaccccg aatacaacat ctctctgggt gaacgt 56

<210> 35
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide sequence encoded by SEQ ID NO: 34 mutant PAL

<400> 35

Glu Gly His Ala Asp Glu Arg Gly Thr Pro Asn Thr Thr Ser Leu Trp
1 5 10 15

Val Asn

<210> 36
<211> 9
<212> PRT
<213> E. coli

<220>
<221> misc_feature
<222> (1)..(9)

<223> Epitope of PAL from E. coli

<400> 36

Glu Tyr Asn Ile Ser Leu Gly Glu Arg
1 5

<210> 37
<211> 9
<212> PRT
<213> Vibrio spp.

<220>
<221> misc_feature
<222> (1)..(9)
<223> Epitope of PAL from Vibrio spp.

<400> 37

Glu Tyr Asn Ile Ala Leu Gly Glu Arg
1 5

<210> 38
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 38

Tyr Lys Val Thr Val Glu
1 5

<210> 39
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 39

Thr Val Glu Gly His Ala
1 5

<210> 40
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 40

Gly Thr Pro Glu Tyr Asn
1 5

<210> 41

<211> 726
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic insert in CJ0113-PAL-HMGB1 nucleotide

<400> 41
tcctcctccg gtgtttctat caccgttgaa ggtaactgcg acgaatgggg taccgacgaa 60

tacaaccagg cgtcctcctc cgaaggtcac gcggacgaac gtggtacccc ggaatacaac 120

atctctctgg gtgaacgttc ctcctccatg ggtaaaggcg acccgaaaaa accgcgtggt 180

aaaatgtctt cttacgcgtt cttcgttcag acctgccgtg aagaacacaa aaaaaaacac 240

ccggacgctt ctgttaactt ctctgaattc tctaaaaaat gctctgaaag atggaaaacc 300

atgtcttcta aagaaaaagg taaattcgaa gacatggcga aagcggacaa actgagatac 360

gaaaaagaaa tgaaaaacta cgttccgccg aaaggtgaaa ccaaaaaaaa attcaaagac 420

ccgaacgcgc cgaaacgtcc gccgtctgcg ttcttcctgt tctgcagcga attcagaccg 480

aaaatcaaag gtgaacaccc gggtctgtct atcggtgacg ttgcgaaaaa actgggtgaa 540

atgtggaaca acaccgcggc ggacgacaaa cagccgtacg aaaaaaaagc ggcgaaactg 600

aaagaaaaat acgaaaaaga catcgcggcg tacagagcga aaggtaaagt tgacgcgggt 660

aaaaaagttg ttgcgaaagc ggaaaaatct aaaaaaaaaa aagaagaaga agaagactcc 720

tcctcc 726

<210> 42
<211> 242
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic insert in CJ0113-PAL-HMGB1 amino acid

<400> 42

Ser Ser Ser Gly Val Ser Ile Thr Val Glu Gly Asn Cys Asp Glu Trp
1 5 10 15

Gly Thr Asp Glu Tyr Asn Gln Ala Ser Ser Ser Glu Gly His Ala Asp
20 25 30

Glu Arg Gly Thr Pro Glu Tyr Asn Ile Ser Leu Gly Glu Arg Ser Ser
35 40 45

Ser Met Gly Lys Gly Asp Pro Lys Lys Pro Arg Gly Lys Met Ser Ser
50 55 60

Tyr Ala Phe Phe Val Gln Thr Cys Arg Glu Glu His Lys Lys Lys His
65 70 75 80

Pro Asp Ala Ser Val Asn Phe Ser Glu Phe Ser Lys Lys Cys Ser Glu
85 90 95

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Arg Trp Lys Thr Met Ser Ser Lys Glu Lys Gly Lys Phe Glu Asp Met
            100                 105                 110

Ala Lys Ala Asp Lys Leu Arg Tyr Glu Lys Glu Met Lys Asn Tyr Val
        115                 120                 125

Pro Pro Lys Gly Glu Thr Lys Lys Lys Phe Lys Asp Pro Asn Ala Pro
    130                 135                 140

Lys Arg Pro Pro Ser Ala Phe Phe Leu Phe Cys Ser Glu Phe Arg Pro
145                 150                 155                 160

Lys Ile Lys Gly Glu His Pro Gly Leu Ser Ile Gly Asp Val Ala Lys
                165                 170                 175

Lys Leu Gly Glu Met Trp Asn Asn Thr Ala Ala Asp Asp Lys Gln Pro
            180                 185                 190

Tyr Glu Lys Lys Ala Ala Lys Leu Lys Glu Lys Tyr Glu Lys Asp Ile
        195                 200                 205

Ala Ala Tyr Arg Ala Lys Gly Lys Val Asp Ala Gly Lys Lys Val Val
    210                 215                 220

Ala Lys Ala Glu Lys Ser Lys Lys Lys Lys Glu Glu Glu Glu Asp Ser
225                 230                 235                 240

Ser Ser
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<210> 43
<211> 726
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic insert in CJ0113-HMGB1-PAL nucleotide CJ0113-HMGB1-PAL

<400> 43

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tcttcttacg cgttcttcgt tcagacctgc cgtgaagaac acaaaaaaaa acacccggac      180

gcttctgtta acttctctga attctctaaa aaatgctctg aaagatggaa aaccatgtct      240

tctaaagaaa aaggtaaatt cgaagacatg gcgaaagcgg acaaactgag atacgaaaaa      300

gaaatgaaaa actacgttcc gccgaaaggt gaaaccaaaa aaaaattcaa agacccgaac      360

gcgccgaaac gtccgccgtc tgcgttcttc ctgttctgca gcgaattcag accgaaaatc      420

aaaggtgaac acccgggtct gtctatcggt gacgttgcga aaaaactggg tgaaatgtgg      480

aacaacaccg cggcggacga caaacagccg tacgaaaaaa aagcggcgaa actgaaagaa      540
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aaatacgaaa aagacatcgc ggcgtacaga gcgaaaggta aagttgacgc gggtaaaaaa 600

gttgttgcga aagcggaaaa atctaaaaaa aaaaaagaag aagaagaaga ctcctcctcc 660

gaaggtcacg cggacgaacg tggtaccccg gaatacaaca tctctctggg tgaacgttcc 720

tcctcc 726

<210> 44
<211> 242
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic insert in CJ0113-HMGB1-PAL amino acid

<400> 44

Ser Ser Ser Gly Val Ser Ile Thr Val Glu Gly Asn Cys Asp Glu Trp
1 5 10 15

Gly Thr Asp Glu Tyr Asn Gln Ala Ser Ser Ser Met Gly Lys Gly Asp
20 25 30

Pro Lys Lys Pro Arg Gly Lys Met Ser Ser Tyr Ala Phe Phe Val Gln
35 40 45

Thr Cys Arg Glu Glu His Lys Lys Lys His Pro Asp Ala Ser Val Asn
50 55 60

Phe Ser Glu Phe Ser Lys Lys Cys Ser Glu Arg Trp Lys Thr Met Ser
65 70 75 80

Ser Lys Glu Lys Gly Lys Phe Glu Asp Met Ala Lys Ala Asp Lys Leu
85 90 95

Arg Tyr Glu Lys Glu Met Lys Asn Tyr Val Pro Pro Lys Gly Glu Thr
100 105 110

Lys Lys Lys Phe Lys Asp Pro Asn Ala Pro Lys Arg Pro Pro Ser Ala
115 120 125

Phe Phe Leu Phe Cys Ser Glu Phe Arg Pro Lys Ile Lys Gly Glu His
130 135 140

Pro Gly Leu Ser Ile Gly Asp Val Ala Lys Lys Leu Gly Glu Met Trp
145 150 155 160

Asn Asn Thr Ala Ala Asp Asp Lys Gln Pro Tyr Glu Lys Lys Ala Ala
165 170 175

Lys Leu Lys Glu Lys Tyr Glu Lys Asp Ile Ala Ala Tyr Arg Ala Lys
180 185 190

Gly Lys Val Asp Ala Gly Lys Lys Val Val Ala Lys Ala Glu Lys Ser

195 200 205

Lys Lys Lys Lys Glu Glu Glu Glu Asp Ser Ser Ser Glu Gly His Ala
210 215 220

Asp Glu Arg Gly Thr Pro Glu Tyr Asn Ile Ser Leu Gly Glu Arg Ser
225 230 235 240

Ser Ser

<210> 45
<211> 726
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic insert in HMGB1-CJ0113-PAL nucleotide

<400> 45
tcctcctcca tgggtaaagg cgacccgaaa aaaccgcgtg gtaaaatgtc ttcttacgcg 60

ttcttcgttc agacctgccg tgaagaacac aaaaaaaaac acccggacgc ttctgttaac 120

ttctctgaat tctctaaaaa atgctctgaa agatggaaaa ccatgtcttc taaagaaaaa 180

ggtaaattcg aagacatggc gaaagcggac aaactgagat acgaaaaaga aatgaaaaac 240

tacgttccgc cgaaaggtga aaccaaaaaa aaattcaaag acccgaacgc gccgaaacgt 300

ccgccgtctg cgttcttcct gttctgcagc gaattcagac cgaaaatcaa aggtgaacac 360

ccgggtctgt ctatcggtga cgttgcgaaa aaactgggtg aaatgtggaa caacaccgcg 420

gcggacgaca aacagccgta cgaaaaaaaa gcggcgaaac tgaaagaaaa atacgaaaaa 480

gacatcgcgg cgtacagagc gaaaggtaaa gttgacgcgg gtaaaaaagt tgttgcgaaa 540

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accgttgaag gtaactgcga cgaatggggt accgacgaat acaaccaggc gtcctcctcc 660

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65                  70                  75                  80

Tyr Val Pro Pro Lys Gly Glu Thr Lys Lys Lys Phe Lys Asp Pro Asn
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Ala Pro Lys Arg Pro Pro Ser Ala Phe Phe Leu Phe Cys Ser Glu Phe
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Arg Pro Lys Ile Lys Gly Glu His Ala Glu Lys Ser Lys Lys Lys Lys
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Glu Glu Glu Glu Asp Ser Ser Ser Gly Val Ser Ile Thr Val Glu Gly
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Asn Cys Asp Glu Trp Gly Thr Asp Glu Tyr Asn Gln Ala Ser Ser Ser
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Glu Gly His Ala Asp Glu Arg Gly Thr Pro Glu Tyr Asn Ile Ser Leu
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Gly Glu Arg Ser Ser Ser
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