SEQUENCE LISTING

<110> SHIVARAMAIAH, Srichaitanya
HARGIS, Billy
BARTA, John
BERGHMAN, Luc
FAULKNER, Olivia
BIELKE, Lisa

<120> COMPOSITIONS AND METHODS OF ENHANCING IMMUNE RESPONSES TO EIMERIA OR LIMITING EIMERIA INFECTION

<130> 5658-00201

<150> US 61/764,681
<151> 2013-02-14

<160> 40

<170> PatentIn version 3.5

<210> 1
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<220>
<223> Synthetic: composite minimal epitope

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<222> (3)..(4)
<223> Xaa is Val or Ile

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<222> (5)..(5)
<223> Xaa is Ser or Arg

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<222> (6)..(6)
<223> Xaa is Phe or Tyr

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<222> (13)..(13)
<223> Xaa is His or Tyr

<400> 1

Pro Xaa Xaa Xaa Xaa Xaa Gly Tyr Gly Ala Cys Glu Xaa Asn Leu Gly
1 5 10 15

<210> 2
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<213> Eimeria maxima

<220>

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<222> (1)..(43)
<223> Eimeria maxima MPP

<400> 2

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

Phe Gly Tyr Gly Ala Cys Glu His Asn Leu Gly Val Ser Leu Phe Arg
20 25 30

Arg Glu Glu Thr Lys Lys Asp Pro Arg Gly Arg
35 40

<210> 3
<211> 28
<212> PRT
<213> Neospora canium

<400> 3

Pro Arg Ile Val Ser Phe Gly Tyr Gly Ala Cys Glu His Asn Leu Gly
1 5 10 15

Met Ser Leu Tyr Asp Arg Gln Gly Leu Gln Arg Gln
20 25

<210> 4
<211> 21
<212> PRT
<213> Eimeria tenella

<400> 4

Glu Ser Gln Arg Ala Pro Met Val Ile Arg Tyr Gly Tyr Gly Ala Cys
1 5 10 15

Glu Tyr Asn Leu Gly
20

<210> 5
<211> 10
<212> PRT
<213> Eimeria maxima

<220>
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<222> (1)..(10)
<223> Eimeria maxima TRAP-1

<400> 5

Gly Gly Gly Phe Pro Thr Ala Ala Val Ala
1 5 10

<210> 6
<211> 40
<212> PRT

<213> Eimeria maxima

<220>
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<222> (1)..(40)
<223> Eimeria maxima TRAP-02

<400> 6

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Ala Ala Pro Glu Thr Pro Ala Val Gln Pro Lys Pro Glu Glu Gly His
1               5                   10                  15

Glu Arg Pro Glu Pro Glu Glu Glu Glu Glu Lys Lys Glu Glu Gly Gly
            20                  25                  30

Gly Phe Pro Thr Ala Ala Val Ala
        35                  40
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<210> 7
<211> 40
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<213> Eimeria maxima

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<222> (1)..(40)
<223> Eimeria maxima TRAP-03

<400> 7

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Gly Gly Gly Phe Pro Thr Ala Ala Val Ala Gly Gly Val Gly Gly Val
1               5                   10                  15

Leu Leu Ile Ala Ala Val Gly Gly Gly Val Ala Ala Phe Thr Ser Gly
            20                  25                  30

Gly Gly Gly Ala Gly Ala Gln Glu
        35                  40
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<210> 8
<211> 70
<212> PRT
<213> Eimeria maxima

<220>
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<222> (1)..(70)
<223> Eimeria maxima TRAP

<400> 8

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Ala Ala Pro Glu Thr Pro Ala Val Gln Pro Lys Pro Glu Glu Gly His
1               5                   10                  15

Glu Arg Pro Glu Pro Glu Glu Glu Glu Glu Lys Lys Glu Glu Gly Gly
            20                  25                  30
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Gly Phe Pro Thr Ala Ala Val Ala Gly Gly Val Gly Gly Val Leu Leu
35 40 45

Ile Ala Ala Val Gly Gly Gly Val Ala Ala Phe Thr Ser Gly Gly Gly
50 55 60

Gly Ala Gly Ala Gln Glu
65 70

<210> 9
<211> 8
<212> PRT
<213> Avian Influenza

<220>
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<222> (1)..(8)
<223> 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

<220>
<221> misc_feature
<222> (1)..(8)
<223> 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

<220>
<221> misc_feature
<222> (1)..(12)
<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

<220>
<221> misc_feature
<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

<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

<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
<212> PRT
<213> Gallus gallus

<220>
<221> misc_feature
<222> (1)..(190)
<223> Chicken HMGB1 amino acid

<400> 15

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
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
85

<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
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<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

Glu Glu Asp Asp Asp Asp Glu
    210                 215
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<210> 23
<211> 205
<212> PRT
<213> Danio rerio

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

<400> 23

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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
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<210> 24
<211> 272
<212> PRT

<213> Gallus gallus

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

<400> 24

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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
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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 Cys
1 5 10

<210> 27
<211> 11
<212> PRT
<213> Gallus 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> 918
<212> DNA
<213> Artificial sequence

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aaacctgaag aaggccatga aagacctgaa cctgaagaag aagaagagaa aaaagaagaa 120

ggcggcggct ttcctacagc agcagtcgcg ggcggatcaa gcagatcttc cccttctcat 180

gatgcgcctg aaagcgaacg gacgcctcgg gttatctcct ttggttacgg tgcgtgcgaa 240

cataatctgg gcgtctctct ttttagacgc gaagaaacga aaaaagatcc gcgtggacgg 300

ggcggatcaa gcagatcttc catgggtaaa ggcgacccga aaaaacctcg gggcaaaatg 360

tcaagctacg catttttcgt ccaaacatgc agagaagaac ataagaaaaa acatcctgat 420

gctagcgtaa acttttcaga atttagcaaa aaatgttctg aacgttggaa aacgatgtct 480

tccaaagaaa agggtaaatt tgaagatatg gctaaagccg acaaattgcg gtacgaaaaa 540

gaaatgaaaa actacgtacc gcctaaagga gaaacaaaga aaaaatttaa agatccgaac 600

gcccctaaaa gaccgccttc tgcatttttc ctgttttgct ccgaatttcg cccgaaaatt 660

aaaggagaac atcctggtct gagcatcggc gacgttgcga aaaaacttgg agaaatgtgg 720

aataacacgg cagcggatga caaacagccg tatgagaaaa aagctgccaa attgaaagaa 780

aaatacgaaa aagatatcgc agcgtaccgc gcaaaaggaa aagtggacgc gggtaaaaaa 840

gttgtggcta aagcggaaaa atcaaagaag aaaaaggaag aagaagaaga cggcggctca 900

tctcggtcct ccgacgtc 918

<210> 32
<211> 306
<212> PRT
<213> Artificial sequence

<220>
<223> Synthetic: TRAP MPP HMGB1 peptide

<400> 32

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

Ala Val Gln Pro Lys Pro Glu Glu Gly His Glu Arg Pro Glu Pro Glu
20 25 30

Glu Glu Glu Glu Lys Lys Glu Glu Gly Gly Gly Phe Pro Thr Ala Ala
35 40 45

Val Ala Gly Gly Ser Ser Arg Ser Ser Pro Ser His Asp Ala Pro Glu
50 55 60

Ser Glu Arg Thr Pro Arg Val Ile Ser Phe Gly Tyr Gly Ala Cys Glu
65 70 75 80

His Asn Leu Gly Val Ser Leu Phe Arg Arg Glu Glu Thr Lys Lys Asp
85 90 95

Pro Arg Gly Arg Gly Gly Ser Ser Arg Ser Ser Met Gly Lys Gly Asp
100 105 110

Pro Lys Lys Pro Arg Gly Lys Met Ser Ser Tyr Ala Phe Phe Val Gln
115 120 125

Thr Cys Arg Glu Glu His Lys Lys Lys His Pro Asp Ala Ser Val Asn
130 135 140

Phe Ser Glu Phe Ser Lys Lys Cys Ser Glu Arg Trp Lys Thr Met Ser
145 150 155 160

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

```
Arg Tyr Glu Lys Glu Met Lys Asn Tyr Val Pro Pro Lys Gly Glu Thr
            180                 185                 190

Lys Lys Lys Phe Lys Asp Pro Asn Ala Pro Lys Arg Pro Pro Ser Ala
        195                 200                 205

Phe Phe Leu Phe Cys Ser Glu Phe Arg Pro Lys Ile Lys Gly Glu His
    210                 215                 220

Pro Gly Leu Ser Ile Gly Asp Val Ala Lys Lys Leu Gly Glu Met Trp
225                 230                 235                 240

Asn Asn Thr Ala Ala Asp Asp Lys Gln Pro Tyr Glu Lys Lys Ala Ala
                245                 250                 255

Lys Leu Lys Glu Lys Tyr Glu Lys Asp Ile Ala Ala Tyr Arg Ala Lys
            260                 265                 270

Gly Lys Val Asp Ala Gly Lys Lys Val Val Ala Lys Ala Glu Lys Ser
        275                 280                 285

Lys Lys Lys Lys Glu Glu Glu Glu Asp Gly Gly Ser Ser Arg Ser Ser
    290                 295                 300

Asp Val
305
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<210> 33
<211> 777
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic: MPP HMGB1 nucleotide

<400> 33

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ggatccatgg gcggtagcag cagaagcagc ccttctcatg atgcgcctga aagcgaacgg       60

acgcctcggg ttatctcctt tggttacggt gcgtgcgaac ataatctggg cgtctctctt      120

tttagacgcg aagaaacgaa aaaagatccg cgtggacggg gcggatcaag cagatcttcc      180

atgggtaaag gcgacccgaa aaaacctcgg ggcaaaatgt caagctacgc atttttcgtc      240

caaacatgca gagaagaaca taagaaaaaa catcctgatg ctagcgtaaa cttttcagaa      300

tttagcaaaa aatgttctga acgttggaaa acgatgtctt ccaaagaaaa gggtaaattt      360

gaagatatgg ctaaagccga caaattgcgg tacgaaaaag aaatgaaaaa ctacgtaccg      420

cctaaaggag aaacaaagaa aaaatttaaa gatccgaacg cccctaaaag accgccttct      480

gcatttttcc tgttttgctc cgaatttcgc ccgaaaatta aaggagaaca tcctggtctg      540

agcatcggcg acgttgcgaa aaaacttgga gaaatgtgga ataacacggc agcggatgac      600

aaacagccgt atgagaaaaa agctgccaaa ttgaaagaaa aatacgaaaa agatatcgca      660

gcgtaccgcg caaaaggaaa agtggacgcg ggtaaaaaag ttgtggctaa agcggaaaaa      720
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tcaaagaaga aaaaggaaga agaagaagac ggcggctcat ctcggtcctc cgacgtc 777

<210> 34
<211> 259
<212> PRT
<213> Artificial sequence

<220>
<223> Synthetic: MPP HMGB1 peptide

<400> 34

Gly Ser Met Gly Gly Ser Ser Arg Ser Ser Pro Ser His Asp Ala Pro
1 5 10 15

Glu Ser Glu Arg Thr Pro Arg Val Ile Ser Phe Gly Tyr Gly Ala Cys
20 25 30

Glu His Asn Leu Gly Val Ser Leu Phe Arg Arg Glu Glu Thr Lys Lys
35 40 45

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

Asp Pro Lys Lys Pro Arg Gly Lys Met Ser Ser Tyr Ala Phe Phe Val
65 70 75 80

Gln Thr Cys Arg Glu Glu His Lys Lys Lys His Pro Asp Ala Ser Val
85 90 95

Asn Phe Ser Glu Phe Ser Lys Lys Cys Ser Glu Arg Trp Lys Thr Met
100 105 110

Ser Ser Lys Glu Lys Gly Lys Phe Glu Asp Met Ala Lys Ala Asp Lys
115 120 125

Leu Arg Tyr Glu Lys Glu Met Lys Asn Tyr Val Pro Pro Lys Gly Glu
130 135 140

Thr Lys Lys Lys Phe Lys Asp Pro Asn Ala Pro Lys Arg Pro Pro Ser
145 150 155 160

Ala Phe Phe Leu Phe Cys Ser Glu Phe Arg Pro Lys Ile Lys Gly Glu
165 170 175

His Pro Gly Leu Ser Ile Gly Asp Val Ala Lys Lys Leu Gly Glu Met
180 185 190

Trp Asn Asn Thr Ala Ala Asp Asp Lys Gln Pro Tyr Glu Lys Lys Ala
195 200 205

Ala Lys Leu Lys Glu Lys Tyr Glu Lys Asp Ile Ala Ala Tyr Arg Ala
210 215 220

Lys Gly Lys Val Asp Ala Gly Lys Lys Val Val Ala Lys Ala Glu Lys
225 230 235 240

Ser Lys Lys Lys Lys Glu Glu Glu Glu Asp Gly Gly Ser Ser Arg Ser
245 250 255

Ser Asp Val

<210> 35
<211> 768
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic: TRAP HMGB1 nucleotide sequence

<400> 35
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aaacctgaag aaggccatga aagacctgaa cctgaagaag aagaagagaa aaaagaagaa 120

ggcggcggct ttcctacagc agcagtcgcg ggcggatcaa gcagatcttc catgggtaaa 180

ggcgacccga aaaaacctcg gggcaaaatg tcaagctacg catttttcgt ccaaacatgc 240

agagaagaac ataagaaaaa acatcctgat gctagcgtaa acttttcaga atttagcaaa 300

aaatgttctg aacgttggaa aacgatgtct tccaaagaaa agggtaaatt tgaagatatg 360

gctaaagccg acaaattgcg gtacgaaaaa gaaatgaaaa actacgtacc gcctaaagga 420

gaaacaaaga aaaaatttaa agatccgaac gcccctaaaa gaccgccttc tgcatttttc 480

ctgttttgct ccgaatttcg cccgaaaatt aaaggagaac atcctggtct gagcatcggc 540

gacgttgcga aaaaacttgg agaaatgtgg aataacacgg cagcggatga caaacagccg 600

tatgagaaaa aagctgccaa attgaaagaa aaatacgaaa aagatatcgc agcgtaccgc 660

gcaaaaggaa aagtggacgc gggtaaaaaa gttgtggcta aagcggaaaa atcaaagaag 720

aaaaaggaag aagaagaaga cggcggctca tctcggtcct ccgacgtc 768

<210> 36
<211> 256
<212> PRT
<213> Artificial sequence

<220>
<223> Synthetic: TRAP HMGB1 peptide

<400> 36

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

Ala Val Gln Pro Lys Pro Glu Glu Gly His Glu Arg Pro Glu Pro Glu
20 25 30

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Glu Glu Glu Glu Lys Lys Glu Glu Gly Gly Gly Phe Pro Thr Ala Ala
        35                  40                  45

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

Lys Pro Arg Gly Lys Met Ser Ser Tyr Ala Phe Phe Val Gln Thr Cys
65                  70                  75                  80

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

Glu Phe Ser Lys Lys Cys Ser Glu Arg Trp Lys Thr Met Ser Ser Lys
            100                 105                 110

Glu Lys Gly Lys Phe Glu Asp Met Ala Lys Ala Asp Lys Leu Arg Tyr
        115                 120                 125

Glu Lys Glu Met Lys Asn Tyr Val Pro Pro Lys Gly Glu Thr Lys Lys
    130                 135                 140

Lys Phe Lys Asp Pro Asn Ala Pro Lys Arg Pro Pro Ser Ala Phe Phe
145                 150                 155                 160

Leu Phe Cys Ser Glu Phe Arg Pro Lys Ile Lys Gly Glu His Pro Gly
                165                 170                 175

Leu Ser Ile Gly Asp Val Ala Lys Lys Leu Gly Glu Met Trp Asn Asn
            180                 185                 190

Thr Ala Ala Asp Asp Lys Gln Pro Tyr Glu Lys Lys Ala Ala Lys Leu
        195                 200                 205

Lys Glu Lys Tyr Glu Lys Asp Ile Ala Ala Tyr Arg Ala Lys Gly Lys
    210                 215                 220

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

Lys Lys Glu Glu Glu Glu Asp Gly Gly Ser Ser Arg Ser Ser Asp Val
                245                 250                 255
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<210> 37
<211> 32
<212> PRT
<213> Toxoplasma gondii

<220>
<221> misc_feature
<222> (1)..(32)
<223> Toxoplasma gondii RH

<400> 37

Pro Arg Val Ile Ser Phe Gly Tyr Gly Ala Cys Glu His Asn Leu Gly
1 5 10 15

Val Ser Leu Phe Arg Arg Glu Glu Thr Lys Lys Asp Pro Arg Gly Arg
20 25 30

<210> 38
<211> 43
<212> PRT
<213> Artificial sequence

<220>
<223> Synthetic: Consensus sequence

<220>
<221> misc_feature
<222> (11)..(11)
<223> Xaa can be any amino acid

<220>
<221> misc_feature
<222> (13)..(17)
<223> Xaa can be any amino acid

<220>
<221> misc_feature
<222> (24)..(24)
<223> Xaa can be any amino acid

<220>
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<222> (28)..(28)
<223> Xaa can be any amino acid

<220>
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<222> (31)..(32)
<223> Xaa can be any amino acid

<220>
<221> misc_feature
<222> (35)..(39)
<223> Xaa can be any amino acid

<400> 38

Pro Ser His Asp Ala Pro Glu Ser Glx Arg Xaa Pro Xaa Xaa Xaa Xaa
1 5 10 15

Xaa Gly Tyr Gly Ala Cys Glu Xaa Asn Leu Gly Xaa Ser Leu Xaa Xaa
20 25 30

Arg Glx Xaa Xaa Xaa Xaa Xaa Pro Arg Gly Arg
35 40

<210> 39
<211> 841
<212> PRT
<213> Toxoplasma gondii

<220>
<221> misc_feature
<222> (1)..(841)
<223> Toxoplasma gondii ROM5

<400> 39

Met Ser Ser Lys Gly Gly Ser Ser Arg Leu Gly Ser Lys Asp Leu Lys
1 5 10 15

Lys Met Thr Ser Arg Thr Glu Arg Glu Leu Arg Asp Ser Gly Arg Val
20 25 30

Arg Gly Glu Val Glu Arg Val Glu Lys Arg Leu Arg Ala Thr Ala Lys
35 40 45

Val Lys Glu Gln Pro Pro Thr Gly Asp Tyr Lys Arg Arg Ala Leu Ala
50 55 60

Ser Pro Gly Glu Thr Ala Ala Pro Thr Phe Leu Val Asp Ser Arg Gly
65 70 75 80

Ile Pro Arg Lys Thr Ser Ser Thr Ala Pro Arg Lys Ala Thr Leu Arg
85 90 95

Pro Ala Ser Ser Ser Pro Arg Leu Ala Ser Ser Ser Arg Pro Thr Glu
100 105 110

Ser Thr Leu Pro Ser Ser Ser Ser Arg Ala Leu Gln Gly Ala Ser Ser
115 120 125

Ser Ser Ser Ser Arg Pro Arg Arg Leu His Glu Ser Ala Ser Gly Arg
130 135 140

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

Leu Pro Glu Leu Glu Ala Ala Glu Ala Ala Pro Ala Ser Cys Val Val
165 170 175

Glu Leu Arg Asp Val Thr Ala Arg Lys Gly Arg Thr Ser Pro Ala Thr
180 185 190

Pro Pro Glu Thr Ala Gly Ser Ser Val Cys Gly Gln Gly Ser His Ala
195 200 205

Arg Thr Ala Glu Lys Leu Glu Glu Gly Thr Ala Ser His Arg Asp Gly
210 215 220

Ser Arg Arg Gly Ser Val Asp Ala Glu Thr Trp Ala Thr Pro Gly Asp
225 230 235 240

Gly Ser Ser Ser His Glu Phe Glu Ser Ser Pro Gln Arg Glu Glu Arg

245 250 255

Met Gln Pro Gln Glu Thr Gly Arg Arg Glu Leu Ser Ser Glu Pro Arg
260 265 270

Ser Gly Asp Leu Thr Lys Asn Gly Gly Asp Gly Gly Pro Arg Arg His
275 280 285

Ser Cys Ala Trp Arg Lys Trp Arg Glu His Met Ile Gln Ser Phe Asp
290 295 300

Ile Thr Thr His Pro Phe Pro Pro Arg Gly Asp Gly Ser Pro Arg Arg
305 310 315 320

Gly Lys Phe Leu Met Ile Phe Leu Thr Ser Ser Val Leu Phe Phe Val
325 330 335

Phe Leu Gln Glu Leu Val Leu Asn Val Thr Thr Phe Asn Gly Arg Cys
340 345 350

Met Ser Pro Val Leu Tyr Pro Ser His Asp Ala Pro Glu Ser Glu Arg
355 360 365

Thr Pro Arg Val Ile Ser Phe Gly Tyr Gly Ala Cys Glu His Asn Leu
370 375 380

Gly Val Ser Leu Phe Arg Arg Glu Glu Thr Lys Lys Asp Pro Arg Gly
385 390 395 400

Arg Trp Thr Pro Gly Pro Leu Thr Glu Arg Cys Ala Ser Gly Arg Cys
405 410 415

Ala Ser Asp Asp Gly Trp Pro Ser Asp Leu Val Gln Arg Gly Arg Ala
420 425 430

Gln Arg Ser Pro Ala Ala Phe Asp Ser Pro Asn Pro Arg Val Phe Ser
435 440 445

Ser Leu Gly Ala Leu Asp Thr Asn Lys Val Arg Asn Tyr Gly Glu Met
450 455 460

Phe Arg Val Val Trp Gly Met Phe Leu His Gly Gly Trp Met His Leu
465 470 475 480

Leu Leu Asn Val Ser Cys Gln Ala Gln Thr Leu Trp Ile Leu Glu Pro
485 490 495

Ala Trp Gly Phe Leu Arg Thr Leu Ser Leu Trp Ile Val Gly Gly Val
500 505 510

Ser Gly Ser Leu Leu Ser Ala Val Ala Asn Pro Cys Thr Val Thr Val

515 520 525

Gly Ser Ser Gly Ala Phe Tyr Gly Leu Leu Gly Ala Leu Val Pro Phe
530 535 540

Ser Ile Glu Tyr Trp Asp His Ile Ala Ser Pro Ala Trp Phe Leu Phe
545 550 555 560

Cys Val Ser Val Leu Val Met Val Ala Gln Phe Gly Asn Met Val Gly
565 570 575

Val Gln Gly Val Asp Asn Asn Ala His Leu Gly Gly Leu Ile Gly Gly
580 585 590

Leu Leu Phe Gly Phe Ala Thr Ile Arg Ser Val His Ala Phe Arg Trp
595 600 605

Gln Gly Val Ala Glu Arg Met Ala Ser Ser Thr Leu Phe Trp Trp Met
610 615 620

Phe Pro Ala Glu Lys Arg Arg Ser Leu Arg Glu Asp Asn Leu Gln Arg
625 630 635 640

Val Ala Arg Glu Arg Glu Glu Arg Ser Ser Gly Arg Ile Pro Pro Pro
645 650 655

Lys Phe Val Trp Lys Phe Arg Gly His Glu Arg Glu Trp Cys Val Arg
660 665 670

Phe Ala Ala Ala Val Gly Leu Val Thr Phe Trp Ser Val Leu Trp Leu
675 680 685

Tyr Leu Leu Val Pro Ser Tyr Tyr Glu Ser Leu Ser Ser Pro Pro Gly
690 695 700

Asn Phe Ser Phe Leu Gly Ser Thr Gly Cys His Cys Cys Arg Val Gln
705 710 715 720

Pro Phe Pro Gly Glu Glu Asp Lys Leu Pro Ala Phe His Pro Val Arg
725 730 735

Val Asn Arg Gly Leu Phe Trp Cys Phe Val Ser Glu Gly Val Ala Asn
740 745 750

Leu Phe Cys Gly Arg Ser Ser Ala Leu Asn Arg Gly Ala Asp Val Tyr
755 760 765

Gly Gln Thr Arg Gln Phe Glu Glu Ala Leu Gly Asp Leu Pro Ser Ala
770 775 780

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

785 790 795 800

Ala Ser Val Trp Gln Arg Leu Val Lys Ser Ala Lys Lys Thr Tyr Asn
805 810 815

Ala Val Leu Gly Asn Thr Thr Thr Pro Ala Ala Pro Ser Ala Ala Glu
820 825 830

Leu Ala Gln Gln Thr Arg Ala Gly Gln
835 840

<210> 40
<211> 40
<212> PRT
<213> Eimeria maxima

<220>
<221> misc_feature
<222> (1)..(40)
<223> Eimeria maxima TRAP-02A

<400> 40

Ala Ala Pro Glu Thr Arg Ala Val Gln Pro Lys Pro Glu Glu Gly His
1 5 10 15

Glu Arg Pro Glu Pro Glu Glu Glu Glu Glu Lys Lys Glu Glu Gly Gly
20 25 30

Gly Phe Pro Thr Ala Ala Val Ala
35 40