MRLIFD00058WOPCTSEQ

SEQUENCE LISTING

<110> Merck Sharp & Dohme Corp.
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Martyak, Timothy

<120> RECOMBINANT SUBUNIT DENGUE VIRUS VACCINE

<130> MRL-IFD-00058

<150> 61/408,310
<151> 2010-10-29

<160> 10

<170> FastSEQ for Windows Version 4.0

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<213> Dengue virus type 1

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<213> Dengue virus type 2

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ccagaagaca tagattgttg gtgcaactcc acgtccacat gggtaactta tgggacatgt 240
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<212> DNA
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<212> DNA
<213> Dengue virus type 4

<400> 4

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<212> DNA
<213> Artificial Sequence

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<211> 395
<212> PRT
<213> Dengue virus type 1

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Thr	Met	Ala	Lys	Asp	Lys	Pro	Thr	Leu	Asp	Ile	Glu	Leu	Leu	Lys	Thr
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Glu	Val	Thr	Asn	Pro	Ala	Val	Leu	Arg	Lys	Leu	Cys	Ile	Glu	Ala	Lys
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Ile	Ser	Asn	Thr	Thr	Thr	Asp	Ser	Arg	Cys	Pro	Thr	Gln	Gly	Glu	Ala
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Thr	Leu	Val	Glu	Glu	Gln	Asp	Ala	Asn	Phe	Val	Cys	Arg	Arg	Thr	Phe
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Val	Asp	Arg	Gly	Trp	Gly	Asn	Gly	Cys	Gly	Leu	Phe	Gly	Lys	Gly	Ser
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Leu	Ile	Thr	Cys	Ala	Lys	Phe	Lys	Cys	Val	Thr	Lys	Leu	Glu	Gly	Lys
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Asp	Tyr	Gly	Ala	Leu	Thr	Leu	Asp	Cys	Ser	Pro	Arg	Thr	Gly	Leu	Asp
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Phe	Asn	Glu	Met	Val	Leu	Leu	Thr	Met	Lys	Glu	Lys	Ser	Trp	Leu	Val
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His	Lys	Gln	Trp	Phe	Leu	Asp	Leu	Pro	Leu	Pro	Trp	Thr	Ser	Gly	Ala
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Ser	Thr	Ser	Gln	Glu	Thr	Trp	Asn	Arg	Gln	Asp	Leu	Leu	Val	Thr	Phe
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Lys	Thr	Ala	His	Ala	Lys	Lys	Gln	Glu	Val	Val	Val	Leu	Gly	Ser	Gln
				245					250					255	
Glu	Gly	Ala	Met	His	Thr	Ala	Leu	Thr	Gly	Ala	Thr	Glu	Ile	Gln	Thr
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Ser	Gly	Thr	Thr	Thr	Ile	Phe	Ala	Gly	His	Leu	Lys	Cys	Arg	Leu	Lys
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Ser	Phe	Lys	Leu	Glu	Lys	Glu	Val	Ala	Glu	Thr	Gln	His	Gly	Thr	Val
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Leu	Val	Gln	Ile	Lys	Tyr	Glu	Gly	Thr	Asp	Ala	Pro	Cys	Lys	Ile	Pro
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Phe	Ser	Thr	Gln	Asp	Glu	Arg	Gly	Val	Thr	Gln	Asn	Gly	Arg	Leu	Ile
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Thr	Ala	Asn	Pro	Ile	Val	Thr	Asp	Lys	Glu	Lys	Pro	Val	Asn	Ile	Glu
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Ala	Glu	Pro	Pro	Phe	Gly	Glu	Ser	Tyr	Ile	Val	Ile	Gly	Ala	Gly	Glu
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<210> 7
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<212> PRT
<213> Dengue virus type 2

<400> 7

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Glu Ala Lys Gln Pro Ala Thr Leu Arg Lys Tyr Cys Ile Glu Ala Lys
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Leu Thr Asn Thr Thr Thr Asp Ser Arg Cys Pro Thr Gln Gly Glu Pro
65                  70                  75                  80
Thr Leu Asn Glu Glu Gln Asp Lys Arg Phe Val Cys Lys His Ser Met
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Val Asp Arg Gly Trp Gly Asn Gly Cys Gly Leu Phe Gly Lys Gly Gly
            100                 105                 110
Ile Val Thr Cys Ala Met Phe Thr Cys Lys Lys Asn Met Glu Gly Lys
        115                 120                 125
Ile Val Gln Pro Glu Asn Leu Glu Tyr Thr Val Val Ile Thr Pro His
    130                 135                 140
Ser Gly Glu Glu His Ala Val Gly Asn Asp Thr Gly Lys His Gly Lys
145                 150                 155                 160
Glu Val Lys Ile Thr Pro Gln Ser Ser Ile Thr Glu Ala Glu Leu Thr
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Gly Tyr Gly Thr Val Thr Met Glu Cys Ser Pro Arg Thr Gly Leu Asp
            180                 185                 190
Phe Asn Glu Met Val Leu Leu Gln Met Lys Asp Lys Ala Trp Leu Val
        195                 200                 205
His Arg Gln Trp Phe Leu Asp Leu Pro Leu Pro Trp Leu Pro Gly Ala
    210                 215                 220
Asp Thr Gln Gly Ser Asn Trp Ile Gln Lys Glu Thr Leu Val Thr Phe
225                 230                 235                 240
Lys Asn Pro His Ala Lys Lys Gln Asp Val Val Val Leu Gly Ser Gln
                245                 250                 255
Glu Gly Ala Met His Thr Ala Leu Thr Gly Ala Thr Glu Ile Gln Met
            260                 265                 270
Ser Ser Gly Asn Leu Leu Phe Thr Gly His Leu Lys Cys Arg Leu Arg
        275                 280                 285
Met Asp Lys Leu Gln Leu Lys Gly Met Ser Tyr Ser Met Cys Thr Gly
    290                 295                 300
Lys Phe Lys Val Val Lys Glu Ile Ala Glu Thr Gln His Gly Thr Ile
305                 310                 315                 320
Val Ile Arg Val Gln Tyr Glu Gly Asp Gly Ser Pro Cys Lys Ile Pro
                325                 330                 335
Phe Glu Ile Met Asp Leu Glu Lys Arg His Val Leu Gly Arg Leu Ile
            340                 345                 350
Thr Val Asn Pro Ile Val Thr Glu Lys Asp Ser Pro Val Asn Ile Glu
        355                 360                 365
Ala Glu Pro Pro Phe Gly Asp Ser Tyr Ile Ile Ile Gly Val Glu Pro
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Gly Gln Leu Lys Leu Asp Trp Phe Lys Lys Gly
385                 390                 395
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<210> 8
<211> 393
<212> PRT
<213> Dengue virus type 3

<400> 8

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Glu Ala Thr Gln Leu Ala Thr Leu Arg Lys Leu Cys Ile Glu Gly Lys
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Ile Thr Asn Ile Thr Thr Asp Ser Arg Cys Pro Thr Gln Gly Glu Ala
65                  70                  75                  80
Ile Leu Pro Glu Glu Gln Asp Gln Asn Tyr Val Cys Lys His Thr Tyr
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Val Val Gln His Glu Asn Leu Lys Tyr Thr Val Ile Ile Thr Val His
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Thr Gly Asp Gln His Gln Val Gly Asn Glu Thr Gln Gly Val Thr Ala
145                 150                 155                 160
Glu Ile Thr Pro Gln Ala Ser Thr Val Glu Ala Ile Leu Pro Glu Tyr
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Gly Thr Leu Gly Leu Glu Cys Ser Pro Arg Thr Gly Leu Asp Phe Asn
            180                 185                 190
Glu Met Ile Leu Leu Thr Met Lys Asn Lys Ala Trp Met Val His Arg
        195                 200                 205
Gln Trp Phe Phe Asp Leu Pro Leu Pro Trp Thr Ser Gly Ala Thr Thr
    210                 215                 220
Glu Thr Pro Thr Trp Asn Arg Lys Glu Leu Leu Val Thr Phe Lys Asn
225                 230                 235                 240
Ala His Ala Lys Lys Gln Glu Val Val Val Leu Gly Ser Gln Glu Gly
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Ala Met His Thr Ala Leu Thr Gly Ala Thr Glu Ile Gln Asn Ser Gly
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Gly Thr Ser Ile Phe Ala Gly His Leu Lys Cys Arg Leu Lys Met Asp
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Lys Leu Glu Leu Lys Gly Met Ser Tyr Ala Met Cys Leu Asn Thr Phe
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Val Leu Lys Lys Glu Val Ser Glu Thr Gln His Gly Thr Ile Leu Ile
305                 310                 315                 320
Lys Val Glu Tyr Lys Gly Glu Asp Ala Pro Cys Lys Ile Pro Phe Ser
                325                 330                 335
Thr Glu Asp Gly Gln Gly Lys Ala His Asn Gly Arg Leu Ile Thr Ala
            340                 345                 350
Asn Pro Val Val Thr Lys Lys Glu Glu Pro Val Asn Ile Glu Ala Glu
        355                 360                 365
Pro Pro Phe Gly Glu Ser Asn Ile Val Ile Gly Ile Gly Asp Lys Ala
    370                 375                 380
Leu Lys Ile Asn Trp Tyr Lys Lys Gly
385                 390
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<210> 9
<211> 395
<212> PRT
<213> Dengue virus type 4

<400> 9

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 1               5                  10                  15
Gly Gly Ala Trp Val Asp Leu Val Leu Glu His Gly Gly Cys Val Thr
            20                  25                  30
Thr Met Ala Gln Gly Lys Pro Thr Leu Asp Phe Glu Leu Ile Lys Thr
        35                  40                  45
Thr Ala Lys Glu Val Ala Leu Leu Arg Thr Tyr Cys Ile Glu Ala Ser
    50                  55                  60
Ile Ser Asn Ile Thr Thr Ala Thr Arg Cys Pro Thr Gln Gly Glu Pro
65                  70                  75                  80
Tyr Leu Lys Glu Glu Gln Asp Gln Gln Tyr Ile Cys Arg Arg Asp Val
                85                  90                  95
Val Asp Arg Gly Trp Gly Asn Gly Cys Gly Leu Phe Gly Lys Gly Gly
            100                 105                 110
Val Val Thr Cys Ala Lys Phe Ser Cys Ser Gly Lys Ile Thr Gly Asn
        115                 120                 125
Leu Val Gln Ile Glu Asn Leu Glu Tyr Thr Val Val Val Thr Val His
    130                 135                 140
Asn Gly Asp Thr His Ala Val Gly Asn Asp Thr Ser Asn His Gly Val
145                 150                 155                 160
Thr Ala Thr Ile Thr Pro Arg Ser Pro Ser Val Glu Val Lys Leu Pro
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                165                 170                 175
Asp Tyr Gly Glu Leu Thr Leu Asp Cys Glu Pro Arg Ser Gly Ile Asp
            180                 185                 190
Phe Asn Glu Met Ile Leu Met Lys Met Lys Lys Lys Thr Trp Leu Val
        195                 200                 205
His Lys Gln Trp Phe Leu Asp Leu Pro Leu Pro Trp Ala Ala Gly Ala
    210                 215                 220
Asp Thr Ser Glu Val His Trp Asn Tyr Lys Glu Arg Met Val Thr Phe
225                 230                 235                 240
Lys Val Pro His Ala Lys Arg Gln Asp Val Thr Val Leu Gly Ser Gln
                245                 250                 255
Glu Gly Ala Met His Ser Ala Leu Thr Gly Ala Thr Glu Val Asp Ser
            260                 265                 270
Gly Asp Gly Asn His Met Tyr Ala Gly His Leu Lys Cys Lys Val Arg
        275                 280                 285
Met Glu Lys Leu Arg Ile Lys Gly Met Ser Tyr Thr Met Cys Ser Gly
    290                 295                 300
Lys Phe Ser Ile Asp Lys Glu Met Ala Glu Thr Gln His Gly Thr Thr
305                 310                 315                 320
Val Val Lys Val Lys Tyr Glu Gly Ala Gly Ala Pro Cys Lys Val Pro
                325                 330                 335
Ile Glu Ile Arg Asp Val Asn Lys Glu Lys Val Val Gly Arg Ile Ile
            340                 345                 350
Ser Ser Thr Pro Phe Ala Glu Tyr Thr Asn Ser Val Thr Asn Ile Glu
        355                 360                 365
Leu Glu Pro Pro Phe Gly Asp Ser Tyr Ile Val Ile Gly Val Gly Asp
    370                 375                 380
Ser Ala Leu Thr Leu His Trp Phe Arg Lys Gly
385                 390                 395
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<211> 451
<212> PRT
<213> Artificial Sequence

<220>
<223> DEN4-80EZip

<400> 10

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 1               5                  10                  15
Gly Gly Ala Trp Val Asp Leu Val Leu Glu His Gly Gly Cys Val Thr
            20                  25                  30
Thr Met Ala Gln Gly Lys Pro Thr Leu Asp Phe Glu Leu Ile Lys Thr
        35                  40                  45
Thr Ala Lys Glu Val Ala Leu Leu Arg Thr Tyr Cys Ile Glu Ala Ser
    50                  55                  60
Ile Ser Asn Ile Thr Thr Ala Thr Arg Cys Pro Thr Gln Gly Glu Pro
65                  70                  75                  80
Tyr Leu Lys Glu Glu Gln Asp Gln Gln Tyr Ile Cys Arg Arg Asp Val
                85                  90                  95
Val Asp Arg Gly Trp Gly Asn Gly Cys Gly Leu Phe Gly Lys Gly Gly
            100                 105                 110
Val Val Thr Cys Ala Lys Phe Ser Cys Ser Gly Lys Ile Thr Gly Asn
        115                 120                 125
Leu Val Gln Ile Glu Asn Leu Glu Tyr Thr Val Val Val Thr Val His
    130                 135                 140
Asn Gly Asp Thr His Ala Val Gly Asn Asp Thr Ser Asn His Gly Val
145                 150                 155                 160
Thr Ala Thr Ile Thr Pro Arg Ser Pro Ser Val Glu Val Lys Leu Pro
                165                 170                 175
Asp Tyr Gly Glu Leu Thr Leu Asp Cys Glu Pro Arg Ser Gly Ile Asp
            180                 185                 190
Phe Asn Glu Met Ile Leu Met Lys Met Lys Lys Lys Thr Trp Leu Val
        195                 200                 205
His Lys Gln Trp Phe Leu Asp Leu Pro Leu Pro Trp Ala Ala Gly Ala
    210                 215                 220
```

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Asp Thr Ser Glu Val His Trp Asn Tyr Lys Glu Arg Met Val Thr Phe
225                 230                 235                 240
Lys Val Pro His Ala Lys Arg Gln Asp Val Thr Val Leu Gly Ser Gln
                245                 250                 255
Glu Gly Ala Met His Ser Ala Leu Thr Gly Ala Thr Glu Val Asp Ser
            260                 265                 270
Gly Asp Gly Asn His Met Tyr Ala Gly His Leu Lys Cys Lys Val Arg
        275                 280                 285
Met Glu Lys Leu Arg Ile Lys Gly Met Ser Tyr Thr Met Cys Ser Gly
    290                 295                 300
Lys Phe Ser Ile Asp Lys Glu Met Ala Glu Thr Gln His Gly Thr Thr
305                 310                 315                 320
Val Val Lys Val Lys Tyr Glu Gly Ala Gly Ala Pro Cys Lys Val Pro
                325                 330                 335
Ile Glu Ile Arg Asp Val Asn Lys Glu Lys Val Val Gly Arg Ile Ile
            340                 345                 350
Ser Ser Thr Pro Phe Ala Glu Tyr Thr Asn Ser Val Thr Asn Ile Glu
        355                 360                 365
Leu Glu Pro Pro Phe Gly Asp Ser Tyr Ile Val Ile Gly Val Gly Asp
    370                 375                 380
Ser Ala Leu Thr Leu His Trp Phe Arg Lys Gly Gly Gly Gly Ser Gly
385                 390                 395                 400
Gly Gly Gly Thr Gly Gly Gly Ser Gly Gly Gly Ser Pro Arg Met Lys
                405                 410                 415
Gln Leu Glu Asp Lys Val Glu Glu Leu Leu Ser Lys Asn Tyr His Leu
            420                 425                 430
Glu Asn Glu Val Ala Arg Leu Lys Lys Leu Val Gly Glu Arg Gly Gly
        435                 440                 445
Cys Gly Gly
    450
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