SEQUENCE LISTING

<110> Center for Genetic Engineering and Biotechnology

<120> VACCINE COMPOSITION AGAINST DENGUE VIRUS

<130> P108532SG00

<140> PCT/CU2013/000008
<141> 2013-12-16

<160> 8

<170> PatentIn Ver. 2.1

<210> 1
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of the sequence
Artificial:Mix Oligonucleotide

<400> 1
atcgactctc gagcgttctc gggggacgat cgtcgggggg 39

<210> 2
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of the sequence
Artificial:Oligonucleotide K3

<400> 2
atcgactctc gagcgttctc 20

<210> 3
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of the sequence
Artificial:Oligonucleotide 2216

<400> 3
gggggacgat cgtcgggggg 19

<210> 4
<211> 39
<212> DNA
<213> Escherichia coli

<400> 4
catacctcgc tctgctaatc ctgttaccag tggctgctg 39

<210> 5
<211> 252
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of the Artificial Sequence:chimeric protein DIIIC-1

<400> 5
Met Gly His His His His His His Gly Ser Arg Leu Lys Met Asp Lys
1 5 10 15

Leu Thr Leu Lys Gly Met Ser Tyr Val Met Cys Thr Gly Ser Phe Lys
20 25 30

Leu Glu Lys Glu Val Ala Glu Thr Gln His Gly Thr Val Leu Val Gln
35 40 45

Val Lys Tyr Glu Gly Thr Asp Ala Pro Cys Lys Ile Pro Phe Ser Thr
50 55 60

Gln Asp Glu Lys Gly Val Thr Gln Asn Gly Arg Leu Ile Thr Ala Asn
65 70 75 80

Pro Ile Val Thr Asp Lys Glu Lys Pro Val Asn Ile Glu Thr Glu Pro
85 90 95

Pro Phe Gly Glu Ser Tyr Ile Val Val Gly Ala Gly Glu Lys Ala Leu
100 105 110

Lys Leu Ser Trp Phe Lys Lys Gly Ser Ser Ile Gly Lys Met Phe Glu
115 120 125

Ala Thr Ala Arg Gly Ala Arg Arg Met Ala Ile Leu Gly Asp Thr Ala
130 135 140

Trp Asp Phe Gly Ser Ile Gly Gly Gly Ser Asn Gln Arg Lys Lys Thr
145 150 155 160

Ala Arg Pro Ser Phe Asn Met Leu Lys Arg Ala Arg Asn Arg Val Ser
165 170 175

Thr Val Ser Gln Leu Ala Lys Arg Phe Ser Lys Gly Leu Leu Ser Gly
180 185 190

```
Gln Gly Pro Met Lys Leu Val Met Ala Phe Ile Ala Phe Leu Arg Phe
        195                 200                 205

Leu Ala Ile Pro Pro Thr Ala Gly Ile Leu Ala Arg Trp Gly Ser Phe
    210                 215                 220

Lys Lys Ser Gly Ala Ile Lys Val Leu Arg Gly Phe Lys Lys Glu Ile
225                 230                 235                 240

Ser Asn Met Leu Asn Ile Met Asn Arg Arg Lys Arg
                245                 250
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<210> 6
<211> 253
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of the Artificial Sequence:chimeric protein DIIIC-2

<400> 6

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

Leu Gln Leu Lys Gly Met Ser Tyr Ser Met Cys Thr Gly Lys Phe Lys
             20                  25                  30

Ile Val Lys Glu Ile Ala Glu Thr Gln His Gly Thr Ile Val Ile Arg
         35                  40                  45

Val Gln Tyr Glu Gly Asp Gly Ser Pro Cys Lys Ile Pro Phe Glu Ile
     50                  55                  60

Met Asp Leu Glu Lys Arg His Val Leu Gly Arg Leu Ile Thr Val Asn
 65                  70                  75                  80

Pro Ile Val Thr Glu Lys Asp Ser Pro Val Asn Ile Glu Ala Glu Pro
                85                  90                  95

Pro Phe Gly Asp Ser Tyr Ile Ile Ile Gly Val Glu Pro Gly Gln Leu
            100                 105                 110

Lys Leu Asn Trp Phe Lys Lys Gly Ser Ser Ile Gly Gln Met Phe Glu
        115                 120                 125

Thr Thr Met Arg Gly Ala Lys Arg Met Ala Ile Leu Gly Asp Thr Ala
    130                 135                 140

Trp Asp Phe Gly Ser Leu Gly Gly Gly Ser Asn Asn Gln Arg Lys Lys
145                 150                 155                 160
```

```
Ala Arg Ser Thr Pro Phe Asn Met Leu Lys Arg Glu Arg Asn Arg Val
                165                 170                 175

Ser Thr Val Gln Gln Leu Thr Lys Arg Phe Ser Leu Gly Met Leu Gln
            180                 185                 190

Gly Arg Gly Pro Leu Lys Leu Phe Met Ala Leu Val Ala Phe Leu Arg
        195                 200                 205

Phe Leu Thr Ile Pro Pro Thr Ala Gly Ile Leu Lys Arg Trp Gly Thr
    210                 215                 220

Ile Lys Lys Ser Lys Ala Ile Asn Val Leu Arg Gly Phe Arg Lys Glu
225                 230                 235                 240

Ile Gly Arg Met Leu Asn Ile Leu Asn Arg Arg Arg Arg
                245                 250
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<210> 7
<211> 252
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of the Artificial sequence:chimeric protein DIIIC-3

<400> 7

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

Leu Glu Leu Lys Gly Met Ser Tyr Ala Met Cys Thr Asn Thr Phe Val
             20                  25                  30

Leu Lys Lys Glu Val Ser Glu Thr Gln His Gly Thr Ile Leu Ile Lys
         35                  40                  45

Val Glu Tyr Lys Gly Glu Asp Val Pro Cys Lys Ile Pro Phe Ser Thr
     50                  55                  60

Glu Asp Gly Gln Gly Lys Ala His Asn Gly Arg Leu Ile Thr Ala Asn
 65                  70                  75                  80

Pro Val Val Thr Lys Lys Glu Glu Pro Val Asn Ile Glu Ala Glu Pro
                 85                  90                  95

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

Lys Ile Asn Trp Tyr Lys Lys Gly Ser Ser Ile Gly Lys Met Phe Glu
        115                 120                 125

Ala Thr Ala Arg Gly Ala Arg Arg Met Ala Ile Leu Gly Asp Thr Ala
```

```
    130                 135                 140

Trp Asp Phe Gly Ser Val Gly Gly Gly Ser Asn Gln Arg Lys Lys Thr
145                 150                 155                 160

Gly Lys Pro Ser Ile Asn Met Leu Lys Arg Val Arg Asn Arg Val Ser
                165                 170                 175

Thr Gly Ser Gln Leu Ala Lys Arg Phe Ser Lys Gly Leu Leu Asn Gly
            180                 185                 190

Gln Gly Pro Met Lys Leu Val Met Ala Phe Ile Ala Phe Leu Arg Phe
        195                 200                 205

Leu Ala Ile Pro Pro Thr Ala Gly Val Leu Ala Arg Trp Gly Thr Phe
    210                 215                 220

Lys Lys Ser Gly Ala Ile Lys Val Leu Lys Gly Phe Lys Lys Glu Ile
225                 230                 235                 240

Ser Asn Met Leu Ser Ile Ile Asn Lys Arg Lys Lys
                245                 250
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<210> 8
<211> 252
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of the Artificial Sequence:chimeric protein DIIIC-4

<400> 8

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Met Gly His His His His His His Gly Ser Lys Val Arg Met Glu Lys
  1               5                  10                  15

Leu Arg Ile Lys Gly Met Ser Tyr Thr Met Cys Ser Gly Lys Phe Ser
            20                  25                  30

Ile Asp Lys Glu Met Ala Glu Thr Gln His Gly Thr Thr Val Val Lys
        35                  40                  45

Val Lys Tyr Glu Gly Ala Gly Ala Pro Cys Lys Val Pro Ile Glu Ile
    50                  55                  60

Arg Asp Val Asn Lys Glu Lys Val Val Gly Arg Ile Ile Ser Ser Thr
65                  70                  75                  80

Pro Leu Ala Glu Asn Thr Asn Ser Val Thr Asn Ile Glu Leu Glu Pro
                85                  90                  95

Pro Phe Gly Asp Ser Tyr Ile Val Ile Gly Val Gly Asn Ser Ala Leu
            100                 105                 110
```

```
Thr Leu His Trp Phe Arg Lys Gly Ser Ser Ile Gly Lys Met Phe Glu
        115                 120                 125

Ser Thr Tyr Arg Gly Ala Lys Arg Met Ala Ile Leu Gly Glu Thr Ala
    130                 135                 140

Trp Asp Phe Gly Ser Val Gly Gly Gly Ser Asn Gln Arg Lys Lys Val
145                 150                 155                 160

Val Arg Pro Pro Phe Asn Met Leu Lys Arg Glu Arg Asn Arg Val Ser
                165                 170                 175

Thr Pro Gln Gly Leu Val Lys Arg Phe Ser Thr Gly Leu Phe Ser Gly
            180                 185                 190

Lys Gly Pro Leu Arg Met Val Leu Ala Phe Ile Thr Phe Leu Arg Val
        195                 200                 205

Leu Ser Ile Pro Pro Thr Ala Gly Ile Leu Lys Arg Trp Gly Gln Leu
    210                 215                 220

Lys Lys Asn Lys Ala Ile Lys Ile Leu Ile Gly Phe Arg Lys Glu Ile
225                 230                 235                 240

Gly Arg Met Leu Asn Ile Leu Asn Gly Arg Lys Arg
                245                 250
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<110> Center for Genetic Engineering and Biotechnology

<120> VACCINE COMPOSITION AGAINST DENGUE VIRUS

<130> P108532SG00

<140> PCT/CU2013/000008
<141> 2013-12-16

<160> 8

<170> PatentIn Ver. 2.1

<210> 1
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of the sequence
Artificial:Mix Oligonucleotide

<400> 1
atcgactctc gagcgttctc gggggacgat cgtcggggg 39

<210> 2
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of the sequence
Artificial:Oligonucleotide K3

<400> 2
atcgactctc gagcgttctc 20

<210> 3
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of the sequence
Artificial:Oligonucleotide 2216

<400> 3
gggggacgat cgtcggggg 19

<210> 4
<211> 39
<212> DNA
<213> Escherichia coli

<400> 4
catacctcgc tctgctaatc ctgttaccag tggctgctg 39

<210> 5
<211> 252
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of the Artificial Sequence:chimeric protein DIIIC-1

<400> 5
Met Gly His His His His His His Gly Ser Arg Leu Lys Met Asp Lys
1 5 10 15

Leu Thr Leu Lys Gly Met Ser Tyr Val Met Cys Thr Gly Ser Phe Lys
20 25 30

Leu Glu Lys Glu Val Ala Glu Thr Gln His Gly Thr Val Leu Val Gln
35 40 45

Val Lys Tyr Glu Gly Thr Asp Ala Pro Cys Lys Ile Pro Phe Ser Thr
50 55 60

Gln Asp Glu Lys Gly Val Thr Gln Asn Gly Arg Leu Ile Thr Ala Asn
65 70 75 80

Pro Ile Val Thr Asp Lys Glu Lys Pro Val Asn Ile Glu Thr Glu Pro
85 90 95

Pro Phe Gly Glu Ser Tyr Ile Val Val Gly Ala Gly Glu Lys Ala Leu
100 105 110

Lys Leu Ser Trp Phe Lys Lys Gly Ser Ser Ile Gly Lys Met Phe Glu
115 120 125

Ala Thr Ala Arg Gly Ala Arg Arg Met Ala Ile Leu Gly Asp Thr Ala
130 135 140

Trp Asp Phe Gly Ser Ile Gly Gly Gly Ser Asn Gln Arg Lys Lys Thr
145 150 155 160

Ala Arg Pro Ser Phe Asn Met Leu Lys Arg Ala Arg Asn Arg Val Ser
165 170 175

Thr Val Ser Gln Leu Ala Lys Arg Phe Ser Lys Gly Leu Leu Ser Gly
180 185 190

```
Gln Gly Pro Met Lys Leu Val Met Ala Phe Ile Ala Phe Leu Arg Phe
        195                 200                 205

Leu Ala Ile Pro Pro Thr Ala Gly Ile Leu Ala Arg Trp Gly Ser Phe
    210                 215                 220

Lys Lys Ser Gly Ala Ile Lys Val Leu Arg Gly Phe Lys Lys Glu Ile
225                 230                 235                 240

Ser Asn Met Leu Asn Ile Met Asn Arg Arg Lys Arg
                245                 250
```

<210> 6
<211> 253
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of the Artificial Sequence:chimeric protein DIIIC-2

<400> 6

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

Leu Gln Leu Lys Gly Met Ser Tyr Ser Met Cys Thr Gly Lys Phe Lys
             20                  25                  30

Ile Val Lys Glu Ile Ala Glu Thr Gln His Gly Thr Ile Val Ile Arg
         35                  40                  45

Val Gln Tyr Glu Gly Asp Gly Ser Pro Cys Lys Ile Pro Phe Glu Ile
     50                  55                  60

Met Asp Leu Glu Lys Arg His Val Leu Gly Arg Leu Ile Thr Val Asn
 65                  70                  75                  80

Pro Ile Val Thr Glu Lys Asp Ser Pro Val Asn Ile Glu Ala Glu Pro
                85                  90                  95

Pro Phe Gly Asp Ser Tyr Ile Ile Ile Gly Val Glu Pro Gly Gln Leu
            100                 105                 110

Lys Leu Asn Trp Phe Lys Lys Gly Ser Ser Ile Gly Gln Met Phe Glu
        115                 120                 125

Thr Thr Met Arg Gly Ala Lys Arg Met Ala Ile Leu Gly Asp Thr Ala
    130                 135                 140

Trp Asp Phe Gly Ser Leu Gly Gly Gly Ser Asn Asn Gln Arg Lys Lys
145                 150                 155                 160
```

```
Ala Arg Ser Thr Pro Phe Asn Met Leu Lys Arg Glu Arg Asn Arg Val
                165                 170                 175

Ser Thr Val Gln Gln Leu Thr Lys Arg Phe Ser Leu Gly Met Leu Gln
            180                 185                 190

Gly Arg Gly Pro Leu Lys Leu Phe Met Ala Leu Val Ala Phe Leu Arg
        195                 200                 205

Phe Leu Thr Ile Pro Pro Thr Ala Gly Ile Leu Lys Arg Trp Gly Thr
    210                 215                 220

Ile Lys Lys Ser Lys Ala Ile Asn Val Leu Arg Gly Phe Arg Lys Glu
225                 230                 235                 240

Ile Gly Arg Met Leu Asn Ile Leu Asn Arg Arg Arg Arg
                245                 250
```

<210> 7
<211> 252
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of the Artificial sequence:chimeric protein DIIIC-3

<400> 7

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

Leu Glu Leu Lys Gly Met Ser Tyr Ala Met Cys Thr Asn Thr Phe Val
             20                  25                  30

Leu Lys Lys Glu Val Ser Glu Thr Gln His Gly Thr Ile Leu Ile Lys
         35                  40                  45

Val Glu Tyr Lys Gly Glu Asp Val Pro Cys Lys Ile Pro Phe Ser Thr
     50                  55                  60

Glu Asp Gly Gln Gly Lys Ala His Asn Gly Arg Leu Ile Thr Ala Asn
 65                  70                  75                  80

Pro Val Val Thr Lys Lys Glu Glu Pro Val Asn Ile Glu Ala Glu Pro
                 85                  90                  95

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

Lys Ile Asn Trp Tyr Lys Lys Gly Ser Ser Ile Gly Lys Met Phe Glu
        115                 120                 125

Ala Thr Ala Arg Gly Ala Arg Arg Met Ala Ile Leu Gly Asp Thr Ala
```

```
    130                 135                 140

Trp Asp Phe Gly Ser Val Gly Gly Gly Ser Asn Gln Arg Lys Lys Thr
145                 150                 155                 160

Gly Lys Pro Ser Ile Asn Met Leu Lys Arg Val Arg Asn Arg Val Ser
                165                 170                 175

Thr Gly Ser Gln Leu Ala Lys Arg Phe Ser Lys Gly Leu Leu Asn Gly
            180                 185                 190

Gln Gly Pro Met Lys Leu Val Met Ala Phe Ile Ala Phe Leu Arg Phe
        195                 200                 205

Leu Ala Ile Pro Pro Thr Ala Gly Val Leu Ala Arg Trp Gly Thr Phe
    210                 215                 220

Lys Lys Ser Gly Ala Ile Lys Val Leu Lys Gly Phe Lys Lys Glu Ile
225                 230                 235                 240

Ser Asn Met Leu Ser Ile Ile Asn Lys Arg Lys Lys
                245                 250
```

<210> 8
<211> 252
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of the Artificial Sequence:chimeric protein DIIIC-4

<400> 8

```
Met Gly His His His His His His Gly Ser Lys Val Arg Met Glu Lys
  1               5                  10                  15

Leu Arg Ile Lys Gly Met Ser Tyr Thr Met Cys Ser Gly Lys Phe Ser
             20                  25                  30

Ile Asp Lys Glu Met Ala Glu Thr Gln His Gly Thr Thr Val Val Lys
         35                  40                  45

Val Lys Tyr Glu Gly Ala Gly Ala Pro Cys Lys Val Pro Ile Glu Ile
     50                  55                  60

Arg Asp Val Asn Lys Glu Lys Val Val Gly Arg Ile Ile Ser Ser Thr
 65                  70                  75                  80

Pro Leu Ala Glu Asn Thr Asn Ser Val Thr Asn Ile Glu Leu Glu Pro
                85                  90                  95

Pro Phe Gly Asp Ser Tyr Ile Val Ile Gly Val Gly Asn Ser Ala Leu
            100                 105                 110
```

```
Thr Leu His Trp Phe Arg Lys Gly Ser Ser Ile Gly Lys Met Phe Glu
        115                 120                 125

Ser Thr Tyr Arg Gly Ala Lys Arg Met Ala Ile Leu Gly Glu Thr Ala
    130                 135                 140

Trp Asp Phe Gly Ser Val Gly Gly Gly Ser Asn Gln Arg Lys Lys Val
145                 150                 155                 160

Val Arg Pro Pro Phe Asn Met Leu Lys Arg Glu Arg Asn Arg Val Ser
                165                 170                 175

Thr Pro Gln Gly Leu Val Lys Arg Phe Ser Thr Gly Leu Phe Ser Gly
            180                 185                 190

Lys Gly Pro Leu Arg Met Val Leu Ala Phe Ile Thr Phe Leu Arg Val
        195                 200                 205

Leu Ser Ile Pro Pro Thr Ala Gly Ile Leu Lys Arg Trp Gly Gln Leu
    210                 215                 220

Lys Lys Asn Lys Ala Ile Lys Ile Leu Ile Gly Phe Arg Lys Glu Ile
225                 230                 235                 240

Gly Arg Met Leu Asn Ile Leu Asn Gly Arg Lys Arg
                245                 250
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