

SEQUENCE LISTING

<110> INSTITUT PASTEUR
UNIVERSIDAD EL BOSQUE

<120> A ZIKA VIRUS CHIMERIC POLYPEPTIDE COMPRISING NON-STRUCTURAL
PROTEINS AND ITS USE IN AN IMMUNOGENIC COMPOSITION

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<140> PCT/EP2018/xxxxxx
<141> 2018-11-08

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<160> 124

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<223> 15-mer epitope in the C protein of ZIKV (C-13-27)

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Ile Val Asn Met Leu Lys Arg Gly Val Ala Arg Val Ser Pro Phe
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Leu Lys Arg Gly Val Ala Arg Val Ser
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Met Leu Lys Arg Gly Val Ala Arg Val
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 <223> 9-mer first epitope in the C protein of ZIKV (C-85-99)

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Ala Ala Met Leu Arg Ile Ile Asn Ala
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 <223> 9-mer second epitope in the C protein of ZIKV (C-85-99)

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Lys Asp Leu Ala Ala Met Leu Arg Ile
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 <223> 15-mer epitope in the E protein of ZIKV (E-455-469)

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Gly Met Ser Trp Phe Ser Gln Ile Leu Ile Gly Thr Leu Leu Met
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Met Ser Trp Phe Ser Gln Ile Leu Ile
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<400> 10

Met Glu Asn Ile Met Trp Arg Ser Val Glu Gly Glu Leu Asn Ala
1 5 10 15

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Ile Met Trp Arg Ser Val Glu Gly Glu
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<223> 9-mer second epitope in the NS1 protein of ZIKV (NS1-63-77)

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Trp Arg Ser Val Glu Gly Glu Leu Asn
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Ile Met Trp Arg Ser Val Glu Gly Glu Leu
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Gly Val Gln Leu Thr Val Val Val Gly Ser Val Lys Asn Pro Met
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Val Gln Leu Thr Val Val Val Gly Ser
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Val Gln Leu Thr Val Val Val Gly Ser Val
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Phe His Thr Ser Val Trp Leu Lys Val Arg Glu Asp Tyr Ser Leu
1 5 10 15

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<211> 9

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<220>

<223> 9-mer first epitope in the NS1 protein of ZIKV (NS1-163-177)

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Val Trp Leu Lys Val Arg Glu Asp Tyr
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<220>

<223> 9-mer second epitope in the NS1 protein of ZIKV (NS1-163-177)

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Trp Leu Lys Val Arg Glu Asp Tyr Ser
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<223> 12-mer predicted epitope in the NS1 protein of ZIKV (NS1-163-177)

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His Thr Ser Val Trp Leu Lys Val Arg Glu Asp Tyr
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<223> 9-mer first predicted epitope in the NS1 protein of ZIKV
(NS1-163-177)

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His Thr Ser Val Trp Leu Lys Val Arg
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Phe His Thr Ser Val Trp Leu Lys Val
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<220>
 <223> 15-mer epitope in the NS1 protein of ZIKV (NS1-275-289)

<400> 23

Ile Arg Phe Glu Glu Cys Pro Gly Thr Lys Val His Val Glu Glu
 1 5 10 15

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<220>
 <223> 9-mer epitope in the NS1 protein of ZIKV (NS1-275-289)

<400> 24

Cys Pro Gly Thr Lys Val His Val Glu
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<220>
 <223> 15-mer epitope in the NS2B protein of ZIKV (NS2B-117-131)

<400> 25

Ala Ala Gly Ala Trp Tyr Val Tyr Val Lys Thr Gly Lys Arg Ser
 1 5 10 15

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<220>

<223> 10-mer predicted epitope in the NS2B protein of ZIKV
(NS2B-117-131)

<400> 26

Ala Ala Gly Ala Trp Tyr Val Tyr Val Lys
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<210> 27

<211> 9

<212> PRT

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<220>

<223> 9-mer predicted epitope in the NS2B protein of ZIKV
(NS2B-117-131)

<400> 27

Tyr Val Tyr Val Lys Thr Gly Lys Arg
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<210> 28

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<220>

<223> 15-mer epitope in the NS3 protein of ZIKV (NS3-219-233)

<400> 28

Thr Val Ile Leu Ala Pro Thr Arg Val Val Ala Ala Glu Met Glu
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<210> 29

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<212> PRT

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<220>

<223> 10-mer epitope in the NS3 protein of ZIKV (NS3-219-233)

<400> 29

Ala Pro Thr Arg Val Val Ala Ala Glu Met
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<210> 30

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<220>

<223> 10-mer predicted epitope in the NS3 protein of ZIKV (NS3-219-233)

<400> 30

Ile Leu Ala Pro Thr Arg Val Val Ala Ala

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 <223> 15-mer epitope in the NS3 protein of ZIKV (NS3-271-285)

<400> 31

Leu Gln Pro Ile Arg Val Pro Asn Tyr Asn Leu Tyr Ile Met Asp
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Val Pro Asn Tyr Asn Leu Tyr Ile Met
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<220>
 <223> 15-mer epitope in the NS3 protein of ZIKV (NS3-311-325)

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Ala Ala Ile Phe Met Thr Ala Thr Pro Pro Gly Thr Arg Asp Ala
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<210> 34
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<220>
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Phe Met Thr Ala Thr Pro Pro Gly Thr
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<220>
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Ile Phe Met Thr Ala Thr Pro Pro Gly
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 <223> 15-mer epitope in the NS4A protein of ZIKV (NS4A-86-100)

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Val Thr Leu Gly Ala Ser Ala Trp Leu Met Trp Leu Ser Glu Ile
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<220>
 <223> 10-mer predicted epitope in the NS4A protein of ZIKV
 (NS4A-86-100)

<400> 37

Ser Ala Trp Leu Met Trp Leu Ser Glu Ile
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<210> 38
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<220>
 <223> 9-mer first predicted epitope in the NS4A protein of ZIKV
 (NS4A-86-100)

<400> 38

Val Thr Leu Gly Ala Ser Ala Trp Leu
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<210> 39
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 <212> PRT
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<220>
 <223> 9-mer second predicted epitope in the NS4A protein of ZIKV
 (NS4A-86-100)

<400> 39

Leu Gly Ala Ser Ala Trp Leu Met Trp
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<210> 40

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<220>

<223> 15-mer epitope in the NS4B protein of ZIKV (NS4B-112-126)

<400> 40

Ala Ile Ile Leu Leu Val Ala His Tyr Met Tyr Leu Ile Pro Gly
1 5 10 15

<210> 41

<211> 9

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<220>

<223> 9-mer epitope in the NS4B protein of ZIKV (NS4B-112-126)

<400> 41

Ala Ile Ile Leu Leu Val Ala His Tyr
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<210> 42

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<220>

<223> 10-mer epitope in the NS4B protein of ZIKV (NS4B-112-126)

<400> 42

Leu Leu Val Ala His Tyr Met Tyr Leu Ile
1 5 10

<210> 43

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<220>

<223> 8-mer epitope in the NS4B protein of ZIKV (NS4B-112-126)

<400> 43

Leu Val Ala His Tyr Met Tyr Leu
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<210> 44

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<220>

<223> 9-mer first predicted epitope in the NS4B protein of ZIKV
 (NS4B-112-126)

<400> 44

Leu Leu Val Ala His Tyr Met Tyr Leu
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<220>

<223> 9-mer second predicted epitope in the NS4B protein of ZIKV
 (NS4B-112-126)

<400> 45

Leu Val Ala His Tyr Met Tyr Leu Ile
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<210> 46
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<220>

<223> 15-mer epitope in the NS5 protein of ZIKV (NS5-13-27)

<400> 46

Lys Ala Arg Leu Asn Gln Met Ser Ala Leu Glu Phe Tyr Ser Tyr
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<210> 47
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 <212> PRT
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<220>

<223> 9-mer predicted epitope in the NS5 protein of ZIKV (NS5-13-27)

<400> 47

Met Ser Ala Leu Glu Phe Tyr Ser Tyr
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<220>

<223> 15-mer epitope in the NS5 protein of ZIKV (NS5-293-307)

<400> 48

Trp Phe Phe Asp Glu Asn His Pro Tyr Arg Thr Trp Ala Tyr His
1 5 10 15

<210> 49

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<212> PRT

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<220>

<223> 9-mer first epitope in the NS5 protein of ZIKV (NS5-293-307)

<400> 49

His Pro Tyr Arg Thr Trp Ala Tyr His
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<211> 9

<212> PRT

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<220>

<223> 9-mer second epitope in the NS5 protein of ZIKV (NS5-293-307)

<400> 50

Phe Phe Asp Glu Asn His Pro Tyr Arg
1 5

<210> 51

<211> 8

<212> PRT

<213> Artificial sequence

<220>

<223> 8-mer predicted epitope in the NS5 protein of ZIKV (NS5-293-307)

<400> 51

Phe Phe Asp Glu Asn His Pro Tyr
1 5

<210> 52

<211> 15

<212> PRT

<213> Artificial sequence

<220>

<223> 15-mer epitope in the NS5 protein of ZIKV (NS5-297-311)

<400> 52

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

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<220>
 <223> 9-mer first epitope in the NS5 protein of ZIKV (NS5-297-311)
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Asn His Pro Tyr Arg Thr Trp Ala Tyr
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<210> 54
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<220>
 <223> 9-mer second epitope in the NS5 protein of ZIKV (NS5-297-311)
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Tyr Arg Thr Trp Ala Tyr His Gly Ser
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<210> 55
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 <223> 9-mer third epitope in the NS5 protein of ZIKV (NS5-297-311)
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Arg Thr Trp Ala Tyr His Gly Ser Tyr
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<210> 56
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 <212> PRT
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<220>
 <223> 10-mer predicted epitope in the NS5 protein of ZIKV (NS5-297-311)
 <400> 56

Tyr Arg Thr Trp Ala Tyr His Gly Ser Tyr
 1 5 10

<210> 57
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<220>

<223> 15-mer epitope in the NS5 protein of ZIKV (NS5-345-359)

<400> 57

Thr	Asp	Thr	Thr	Pro	Tyr	Gly	Gln	Gln	Arg	Val	Phe	Lys	Glu	Lys
1				5					10					15

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<211> 9

<212> PRT

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<223> 9-mer epitope in the NS5 protein of ZIKV (NS5-345-359)

<400> 58

Thr	Pro	Tyr	Gly	Gln	Gln	Arg	Val	Phe
1				5				

<210> 59

<211> 15

<212> PRT

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<220>

<223> 15-mer epitope in the NS5 protein of ZIKV (NS5-425-439)

<400> 59

Glu	Ala	Val	Asn	Asp	Pro	Arg	Phe	Trp	Ala	Leu	Val	Asp	Lys	Glu
1			5					10						15

<210> 60

<211> 9

<212> PRT

<213> Artificial sequence

<220>

<223> 9-mer epitope in the NS5 protein of ZIKV (NS5-425-439)

<400> 60

Glu	Ala	Val	Asn	Asp	Pro	Arg	Phe	Trp
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<210> 61

<211> 13

<212> PRT

<213> Artificial sequence

<220>

<223> 13-mer predicted epitope in the NS5 protein of ZIKV (NS5-425-439)

<400> 61

Ala	Val	Asn	Asp	Pro	Arg	Phe	Trp	Ala	Leu	Val	Asp	Lys
1			5					10				

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 <212> PRT
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<220>
 <223> 15-mer epitope in the NS5 protein of ZIKV (NS5-461-475)

<400> 62

Lys	Lys	Gln	Gly	Glu	Phe	Gly	Lys	Ala	Lys	Gly	Ser	Arg	Ala	Ile
1				5				10					15	

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<220>
 <223> 12-mer predicted epitope in the NS5 protein of ZIKV (NS5-461-475)

<400> 63

Gly	Glu	Phe	Gly	Lys	Ala	Lys	Gly	Ser	Arg	Ala	Ile
1				5				10			

<210> 64
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<220>
 <223> 15-mer epitope in the NS5 protein of ZIKV (NS5-473-487)

<400> 64

Arg	Ala	Ile	Trp	Tyr	Met	Trp	Leu	Gly	Ala	Arg	Phe	Leu	Glu	Phe
1				5				10					15	

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<220>
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<400> 65

Tyr	Met	Trp	Leu	Gly	Ala	Arg	Phe	Leu
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<210> 66
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<220>

<223> 10-mer predicted epitope in the NS5 protein of ZIKV (NS5-473-487)

<400> 66

Ala Ile Trp Tyr Met Trp Leu Gly Ala Arg
1 5 10

<210> 67

<211> 15

<212> PRT

<213> Artificial sequence

<220>

<223> 15-mer epitope in the NS5 protein of ZIKV (NS5-546-560)

<400> 67

Arg Phe Asp Leu Glu Asn Glu Ala Leu Ile Thr Asn Gln Met Glu
1 5 10 15

<210> 68

<211> 9

<212> PRT

<213> Artificial sequence

<220>

<223> 9-mer predicted epitope in the NS5 protein of ZIKV (NS5-546-560)

<400> 68

Asn Glu Ala Leu Ile Thr Asn Gln Met
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<210> 69

<211> 15

<212> PRT

<213> Artificial sequence

<220>

<223> 15-mer epitope in the NS5 protein of ZIKV (NS5-565-579)

<400> 69

Leu Ala Leu Ala Ile Ile Lys Tyr Thr Tyr Gln Asn Lys Val Val
1 5 10 15

<210> 70

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<220>

<223> 10-mer predicted epitope in the NS5 protein of ZIKV (NS5-565-579)

<400> 70

Leu Ala Leu Ala Ile Ile Lys Tyr Thr Tyr
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<220>
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 <400> 71

Ala Leu Ala Ile Ile Lys Tyr Thr Tyr
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<220>
 <223> 15-mer epitope in the NS5 protein of ZIKV (NS5-605-619)
 <400> 72

Gln Val Val Thr Tyr Ala Leu Asn Thr Phe Thr Asn Leu Val Val
 1 5 10 15

<210> 73
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<220>
 <223> 9-mer epitope in the NS5 protein of ZIKV (NS5-605-619)
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Tyr Ala Leu Asn Thr Phe Thr Asn Leu
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<220>
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 <400> 74

Thr Tyr Ala Leu Asn Thr Phe Thr Asn Leu
 1 5 10

<210> 75
 <211> 15
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<220>

<223> 15-mer epitope in the C protein of ZIKV (C-49-63)

<400> 75

Ala	Ile	Leu	Ala	Phe	Leu	Arg	Phe	Thr	Ala	Ile	Lys	Pro	Ser	Leu
1				5					10					15

<210> 76

<211> 15

<212> PRT

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<220>

<223> 15-mer epitope in the E protein of ZIKV (E-67-81)

<400> 76

Asp	Met	Ala	Ser	Asp	Ser	Arg	Cys	Pro	Thr	Gln	Gly	Glu	Ala	Tyr
1				5					10					15

<210> 77

<211> 15

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<220>

<223> 15-mer epitope in the E protein of ZIKV (E-87-101)

<400> 77

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

<210> 78

<211> 15

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<220>

<223> 15-mer epitope in the NS1 protein of ZIKV (NS1-19-33)

<400> 78

Val	Phe	Val	Tyr	Asn	Asp	Val	Glu	Ala	Trp	Arg	Asp	Arg	Tyr	Lys
1				5					10					15

<210> 79

<211> 15

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<220>

<223> 15-mer epitope in the NS1 protein of ZIKV (NS1-55-69)

<400> 79

Cys	Gly	Ile	Ser	Ser	Val	Ser	Arg	Met	Glu	Asn	Ile	Met	Trp	Arg
1				5					10					15

<210> 80
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<220>
 <223> 15-mer epitope in the NS1 protein of ZIKV (NS1-91-105)

<400> 80

Gly	Ser	Val	Lys	Asn	Pro	Met	Trp	Arg	Gly	Pro	Gln	Arg	Leu	Pro
1				5					10				15	

<210> 81
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<220>
 <223> 15-mer epitope in the NS1 protein of ZIKV (NS1-107-121)

<400> 81

Pro	Val	Asn	Glu	Leu	Pro	His	Gly	Trp	Lys	Ala	Trp	Gly	Lys	Ser
1				5					10				15	

<210> 82
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<220>
 <223> 15-mer epitope in the NS1 protein of ZIKV (NS1-147-161)

<400> 82

His	Arg	Ala	Trp	Asn	Ser	Phe	Leu	Val	Glu	Asp	His	Gly	Phe	Gly
1				5					10				15	

<210> 83
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<220>
 <223> 15-mer epitope in the NS1 protein of ZIKV (NS1-195-209)

<400> 83

His	Ser	Asp	Leu	Gly	Tyr	Trp	Ile	Glu	Ser	Glu	Lys	Asn	Asp	Thr
1				5					10				15	

<210> 84
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<223> 15-mer epitope in the NS3 protein of ZIKV (NS3-131-145)

<400> 84

Pro	Ala	Gly	Thr	Ser	Gly	Ser	Pro	Ile	Leu	Asp	Lys	Cys	Gly	Arg
1				5					10					15

<210> 85

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<223> 15-mer epitope in the NS3 protein of ZIKV (NS3-143-157)

<400> 85

Cys	Gly	Arg	Val	Ile	Gly	Leu	Tyr	Gly	Asn	Gly	Val	Val	Ile	Lys
1				5					10					15

<210> 86

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<220>

<223> 15-mer epitope in the NS5 protein of ZIKV (NS5-325-339)

<400> 86

Val	Val	Arg	Leu	Leu	Ser	Lys	Pro	Trp	Asp	Val	Val	Thr	Gly	Val
1				5					10					15

<210> 87

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<220>

<223> 15-mer epitope in the NS5 protein of ZIKV (NS5-373-387)

<400> 87

Gln	Val	Met	Ser	Met	Val	Ser	Ser	Trp	Leu	Trp	Lys	Glu	Leu	Gly
1				5					10					15

<210> 88

<211> 15

<212> PRT

<213> Artificial sequence

<220>

<223> 15-mer epitope in the NS5 protein of ZIKV (NS5-465-479)

<400> 88

Glu	Phe	Gly	Lys	Ala	Lys	Gly	Ser	Arg	Ala	Ile	Trp	Tyr	Met	Trp
1				5					10					15

<210> 89
 <211> 15
 <212> PRT
 <213> Artificial sequence

<220>
 <223> 15-mer epitope in the NS5 protein of ZIKV (NS5-481-495)

<400> 89

Gly	Ala	Arg	Phe	Leu	Glu	Phe	Glu	Ala	Leu	Gly	Phe	Leu	Asn	Glu
1				5					10					15

<210> 90
 <211> 15
 <212> PRT
 <213> Artificial sequence

<220>
 <223> 15-mer epitope in the NS5 protein of ZIKV (NS5-573-586)

<400> 90

Thr	Tyr	Gln	Asn	Lys	Val	Val	Lys	Val	Leu	Arg	Pro	Ala	Glu	Lys
1				5					10					15

<210> 91
 <211> 15
 <212> PRT
 <213> Artificial sequence

<220>
 <223> 15-mer epitope in the NS5 protein of ZIKV (NS5-849-863)

<400> 91

Cys	Gly	Ser	Leu	Ile	Gly	His	Arg	Pro	Arg	Thr	Thr	Trp	Ala	Glu
1				5					10					15

<210> 92
 <211> 15
 <212> PRT
 <213> Artificial sequence

<220>
 <223> 15-mer epitope in the C protein of ZIKV (C-21-35)

<400> 92

Val	Ala	Arg	Val	Ser	Pro	Phe	Gly	Gly	Leu	Lys	Arg	Leu	Pro	Ala
1				5					10					15

<210> 93
 <211> 11
 <212> PRT
 <213> Artificial sequence

<220>

<223> 11-mer epitope in the C protein of ZIKV (C-25-35)

<400> 93

Ser Pro Phe Gly Gly Leu Lys Arg Leu Pro Ala
1 5 10

<210> 94

<211> 9

<212> PRT

<213> Artificial sequence

<220>

<223> 9-mer epitope in the NS3 protein of ZIKV

<400> 94

Phe Pro Asp Ser Asn Ser Pro Ile Met
1 5

<210> 95

<211> 15

<212> PRT

<213> Artificial sequence

<220>

<223> 15-mer epitope in the NS4B protein of ZIKV

<400> 95

Arg Gly Ser Tyr Leu Ala Gly Ala Ser Leu Ile Tyr Thr Val Thr
1 5 10 15

<210> 96

<211> 11

<212> PRT

<213> Artificial sequence

<220>

<223> 11-mer epitope in the NS5 protein

<400> 96

Asn Gln Met Ser Ala Leu Glu Phe Tyr Ser Tyr
1 5 10

<210> 97

<211> 9

<212> PRT

<213> Artificial sequence

<220>

<223> 9-mer epitope contained in the NS5 protein (NS5-331-339)

<400> 97

Lys Pro Trp Asp Val Val Thr Gly Val
1 5

<210> 98
 <211> 9
 <212> PRT
 <213> Artificial sequence

<220>
 <223> 9-mer epitope in the NS5 protein

<400> 98

Lys Pro Trp Asp Val Ile Pro Met Val
 1 5

<210> 99
 <211> 962
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Amino acid sequence of a chimeric polyepitope of ZIKV

<400> 99

Gly Gly Phe Arg Ile Val Asn Met Leu Lys Arg Gly Val Ala Arg Val
 1 5 10 15

Ser Pro Phe Gly Gly Leu Lys Arg Leu Pro Ala Gly Leu Leu Leu Gly
 20 25 30

His Gly Pro Ile Arg Met Val Leu Ala Ile Leu Ala Phe Leu Arg Phe
 35 40 45

Thr Ala Ile Lys Pro Ser Leu Gly Leu Ile Asn Arg Trp Gly Ser Val
 50 55 60

Gly Lys Lys Glu Ala Met Glu Ile Ile Lys Lys Phe Lys Lys Asp Leu
 65 70 75 80

Ala Ala Met Leu Arg Ile Ile Asn Ala Arg Lys Glu Lys Val Phe Val
 85 90 95

Tyr Asn Asp Val Glu Ala Trp Arg Asp Arg Tyr Lys Tyr His Pro Asp
 100 105 110

Ser Pro Arg Arg Leu Ala Ala Ala Val Lys Gln Ala Trp Glu Asp Gly
 115 120 125

Ile Cys Gly Ile Ser Ser Val Ser Arg Met Glu Asn Ile Met Trp Arg
 130 135 140

Ser Val Glu Gly Glu Leu Asn Ala Ile Leu Glu Glu Asn Gly Val Gln
 145 150 155 160

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

Gln Arg Leu Pro Val Pro Val Asn Glu Leu Pro His Gly Trp Lys Ala
 180 185 190

Trp Gly Lys Ser Tyr Phe Val Arg Ala Ala Lys Thr Asn Asn His Arg
 195 200 205

Ala Trp Asn Ser Phe Leu Val Glu Asp His Gly Phe Gly Val Phe His
 210 215 220

Thr Ser Val Trp Leu Lys Val Arg Glu Asp Tyr Ser Leu Glu Cys Asp
 225 230 235 240

Pro Ala Val Ile Gly Thr Ala Val Lys Gly Lys Glu Ala Val His Ser
 245 250 255

Asp Leu Gly Tyr Trp Ile Glu Ser Glu Lys Asn Asp Thr Trp Ile Arg
 260 265 270

Phe Glu Glu Cys Pro Gly Thr Lys Val His Val Glu Glu Thr Ile Phe
 275 280 285

Lys Thr Lys Asp Gly Asp Ile Gly Ala Val Ala Leu Asp Tyr Pro Ala
 290 295 300

Gly Thr Ser Gly Ser Pro Ile Leu Asp Lys Cys Gly Arg Val Ile Gly
 305 310 315 320

Leu Tyr Gly Asn Gly Val Val Ile Lys Asn Gly Lys Thr Arg Arg Val
 325 330 335

Leu Pro Glu Ile Val Arg Glu Ala Ile Lys Thr Arg Leu Arg Thr Val
 340 345 350

Ile Leu Ala Pro Thr Arg Val Val Ala Ala Glu Met Glu Glu Ala Leu
 355 360 365

Arg Gly Leu Pro Val Arg Tyr Met Thr Thr Ala Val Asn Val Thr His
 370 375 380

Ser Gly Thr Glu Ile Val Asp Leu Met Cys His Ala Thr Phe Thr Ser
 385 390 395 400

Arg Leu Leu Gln Pro Ile Arg Val Pro Asn Tyr Asn Leu Tyr Ile Met

405	410	415
Asp Glu Ala His Phe Thr Asp Pro Ser Ser Ile Ala Ala Arg Gly Tyr 420	425	430
Ile Ser Thr Arg Val Glu Met Gly Glu Ala Ala Ala Ile Phe Met Thr 435	440	445
Ala Thr Pro Pro Gly Thr Arg Asp Ala Phe Pro Asp Ser Asn Ser Pro 450	455	460
Ile Met Asp Thr Glu Val Glu Val Pro Gln Ala Gly Val Leu Phe Gly 465	470	475
Met Gly Lys Gly Met Pro Phe Tyr Ala Trp Asp Phe Gly Val Pro Leu 485	490	495
Leu Met Ile Gly Cys Tyr Ser Gln Leu Thr Pro Leu Thr Leu Ile Val 500	505	510
Ala Ile Ile Leu Leu Val Ala His Tyr Met Tyr Leu Ile Pro Gly Leu 515	520	525
Gln Ala Ala Ala Ala Arg Ala Ala Gln Lys Arg Thr Ala Ala Gly Ile 530	535	540
Met Lys Asn Ile Ile Gly Asn Arg Ile Glu Arg Ile Arg Ser Glu His 545	550	555
Ala Glu Thr Trp Phe Phe Asp Glu Asn His Pro Tyr Arg Thr Trp Ala 565	570	575
Tyr His Gly Ser Tyr Glu Ala Pro Thr Gln Gly Ser Ala Ser Ser Leu 580	585	590
Ile Asn Gly Val Val Arg Leu Leu Ser Lys Pro Trp Asp Val Val Thr 595	600	605
Gly Val Thr Gly Ile Ala Met Thr Asp Thr Thr Pro Tyr Gly Gln Gln 610	615	620
Arg Val Phe Lys Glu Lys Val Asp Thr Arg Val Pro Asp Pro Gln Glu 625	630	635
Gly Thr Arg Gln Val Met Ser Met Val Ser Ser Trp Leu Trp Lys Glu 645	650	655

Leu Gly Lys His Lys Arg Pro Arg Val Cys Thr Lys Glu Glu Phe Ile
 660 665 670

Asn Lys Val Arg Ser Asn Ala Ala Leu Gly Ala Ile Phe Glu Glu Glu
 675 680 685

Lys Glu Trp Lys Thr Ala Val Glu Ala Val Asn Asp Pro Arg Phe Trp
 690 695 700

Ala Leu Val Asp Lys Glu Arg Glu His His Leu Arg Gly Glu Cys Gln
 705 710 715 720

Ser Cys Val Tyr Asn Met Met Gly Lys Arg Glu Lys Lys Gln Gly Glu
 725 730 735

Phe Gly Lys Ala Lys Gly Ser Arg Ala Ile Trp Tyr Met Trp Leu Gly
 740 745 750

Ala Arg Phe Leu Glu Phe Glu Ala Leu Gly Phe Leu Asn Glu Arg Phe
 755 760 765

Asp Leu Glu Asn Glu Ala Leu Ile Thr Asn Gln Met Glu Lys Gly His
 770 775 780

Arg Ala Leu Ala Leu Ala Ile Ile Lys Tyr Thr Tyr Gln Asn Lys Val
 785 790 795 800

Val Lys Val Leu Arg Pro Ala Glu Lys Gly Lys Thr Val Met Asp Ile
 805 810 815

Ile Ser Arg Gln Asp Met Glu Ala Glu Glu Val Leu Glu Met Gln Asp
 820 825 830

Leu Trp Leu Leu Arg Arg Ser Lys Pro Ser Thr Gly Trp Asp Asn Trp
 835 840 845

Glu Glu Val Pro Phe Cys Ser His His Phe Asn Lys Leu His Leu Lys
 850 855 860

Asp Gly Arg Ser Ile Val Val Pro Cys Arg His Gln Asp Glu Leu Ile
 865 870 875 880

Gly Arg Ala Arg Val Ser Pro Gly Ala Gly Trp Ser Ile Arg Glu Thr
 885 890 895

Ala Cys Leu Ala Lys Ser Tyr Ala Gln Met Trp Gln Leu Leu Tyr Phe
 900 905 910

His Arg Arg Asp Leu Arg Leu Met Ala Asn Ala Ile Cys Ser Ser Val
 915 920 925

Pro Val Asp Trp Val Pro Thr Gly Arg Thr Thr Trp Ser Ile His Gly
 930 935 940

Lys Gly Glu Trp Met Thr Thr Glu Asp Met Leu Val Val Trp Asn Arg
 945 950 955 960

Val Trp

<210> 100

<211> 2886

<212> DNA

<213> Artificial sequence

<220>

<223> Native nucleotide sequence of the polynucleotide encoding a
 chimeric polyepitope of ZIKV

<400> 100

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gcgattctag ccttttttgag attcacggca atcaagccat cactgggtct catcaataga	180
tggggttcag tggggaaaaa agaggctatg gaaataataa agaagttcaa gaaagatctg	240
gctgccatgc tgagaataat caatgctagg aaggagaagg tggtcgtcta taacgacgtt	300
gaagcctgga gggacaggta caagtaccat cctgactccc cccgtagatt ggcagcagca	360
gtcaagcaag cctgggaaga tggatatctgc gggatctcct ctgtttcaag aatggaaaac	420
atcatgtgga gatcagtaga aggggagctc aacgcaatcc tggaagagaa tggagttcaa	480
ctgacggtcg ttgtgggac tgtaaaaaac cccatgtgga gaggtccaca gagattgccc	540
gtgcctgtga acgagctgcc ccacggctgg aaggcttggg ggaaatcgta cttcgtcaga	600
gcagcaaaga caaataacca tagagcatgg aacagctttc ttgtggagga tcatgggttc	660
ggggtatttc aactagtgt ctggctcaag gttagagaag attattcatt agagtgtgat	720
ccagccgtta ttggaacagc tgttaaggga aaggaggctg tacacagtga tctaggctac	780
tggattgaga gtgagaagaa tgacacatgg attcggtttg aggaatgccc aggcactaag	840
gtccacgtgg aggaacaat atttaagaca aaggatgggg acattggagc ggttgcgctg	900
gattaccag caggaacttc aggatctcca atcctagaca agtgtgggag agtgatagga	960
ctttatggca atggggctcg gatcaaaaat gggaaaacca ggagagttct tcctgaaata	1020
gtccgtgaag ccataaaaaa aagactccgt actgtgatct tagctccaac cagggttgtc	1080

gctgctgaaa tggaggaagc ccttagaggg cttccagtgc gttatatgac aacagcagtc	1140
aatgtcaccc actctggaac agaaatcgtc gacttaaatgt gccatgccac cttcacttca	1200
cgtctactac agccaatcag agtccccaac tataatctgt atattatgga tgaggcccac	1260
ttcacagatc cctcaagtat agcagcaaga ggatacattt caacaagggg tgagatgggc	1320
gaggcggctg ccatcttcat gaccgccacg ccaccaggaa cccgtgacgc atttccggac	1380
tccaactcac caattatgga caccgaagtg gaagtccac aagctggagt gttgtttggt	1440
atgggcaaag ggatgccatt ctacgcatgg gactttggag tcccgtgct aatgataggt	1500
tgctactcac aattaacacc cctgacccta atagtggcca tcattttgct cgtggcgcac	1560
tacatgtact tgatcccagg gctgcaggca gcagctgcgc gtgctgcccc gaagagaacg	1620
gcagctggca tcatgaagaa catcattggg aaccgcattg aaaggatccg cagtgagcac	1680
gcggaaacgt ggttctttga cgagaaccac ccatatagga catgggctta ccatggaagc	1740
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gagaaagggc acagggcctt ggcattggcc ataatacagt acacatacca aaacaaagt	2400
gtaaaggtcc ttagaccagc tgaaaaaggg aaacagtta tggacattat ttcgagacaa	2460
gacatggagg ctgaggaagt tctagagatg caagacttgt ggctgctgcg gaggtcaaaa	2520
ccctcaactg gatgggacaa ctgggaagaa gttccgtttt gctcccacca cttcaacaag	2580
ctccatctca aggacgggag gtccattgtg gttccctgcc gccaccaaga tgaactgatt	2640
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aaatcatatg cgcaaatgtg gcagctcctt tatttccaca gaagggacct ccgactgatg	2760
gccaatgcca tttgttcatc tgtgccagtt gactgggttc caactgggag aactacctgg	2820
tcaatccatg gaaagggaga atggatgacc actgaagaca tgcttgtggt gtggaacaga	2880
gtgtgg	2886

<210> 101
 <211> 2886
 <212> DNA
 <213> Artificial sequence

<220>

<223> Optimised nucleotide sequence of the polynucleotide encoding a chimeric polyepitope of ZIKV

<400> 101

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gccatcctgg cctttctgcg gttcacagcc atcaagccta gcctgggcct gatcaacaga      180
tggggcagcg tgggcaagaa agaagccatg gaaatcatca agaagttcaa gaaagacctg      240
gccgccatgc tgcggatcat caacgcccgg aaagaaaagg tggtcgtgta caacgacgtg      300
gaagcctggc gggacagata caagtatcac cctgacagcc ccagacggct ggccgctgct      360
gtgaaacaag cttgggagga tggcatctgc ggcatcagca gcgtgtcccg gatggaaaac      420
atcatgtggc ggagcgtgga aggcgagctg aacgccattc tggaagagaa cggcgtgcag      480
ctgacagtgg ttgtgggctc cgtgaagaac cctatgtggc ggggacctca gagactcccc      540
gtgcctgtta atgagctgcc tcacggatgg aaggcctggg gcaagagcta ttttgtgctg      600
gctgccaaga ccaacaacca cagagcctgg aacagcttcc tggtggaaga tcacggcttc      660
ggcgtgttcc acacaagcgt gtggctgaaa gtgcgcgagg actacagcct ggaatgcgac      720
cctgccgtga ttggcacagc cgtgaaggga aaagaagccg tgcacagcga tctcggctac      780
tg gatcgaga gcgagaagaa cgacacctgg atcagattcg aggaatgccc cggcaccaag      840
gtgcacgtgg aagagacaat cttcaagacc aaggacggcg acatcggcgc cgtggctctt      900
gattatcctg ccggcacatc tggcagcccc atcctggata agtgcggcag agtgatcggc      960
ctgtacggca atggcgctcg gatcaagaac ggcaagacca gaagagtgtc gcccagagatt     1020
gtgcgggaag ccattaagac ccggctgcgg acagtgattc tggcccctac aagagtgggtg     1080
gccgccgaga tggaagaagc cctgagagga ctgcctgtgc ggtacatgac aaccgccgtg     1140
aatgtgaccc acagcggcac cgaaatcgtg gacctgatgt gccacgccac cttcacctct     1200
agactgctgc agcccatcag agtgcccaac tacaacctgt acatcatgga cgaggccac     1260
ttcacagacc ccagctctat tgccgccaga ggctacatca gcaccagagt ggaaatgggc     1320
gaagccgccg ctatcttcat gaccgctaca ccacctggca ccagggacgc ctttccagac     1380
agcaacagcc ctatcatgga caccgaggtg gaagtgcctc aggccggcgt tctgtttggc     1440
atgggaaagg gcatgccatt ctacgcctgg gatttcggcg tgcccctgct gatgatcggc     1500
tg ttactctc agctgacccc tctgacactg atcgtggcca tcattctgct ggtggccac     1560
tacatgtatc tgatccctgg actgcaggcc gctgccgcta gagctgctca gaaaagaaca     1620

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gccgccggaa tcatgaagaa catcatcggc aaccggatcg agcggatcag aagcgagcac      1680
gccgagacat ggttcttcga cgagaatcac ccctaccgga cctgggccta ccacggctct      1740
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agcaagccct gggatgtcgt gacagggcgtg accggaatcg ccatgaccga cacaacacct      1860
tacggccagc agcgggtgtt caaagaaaaa gtggacacca gggtgcccga tcctcaagag      1920
ggcaccagac aagtgatgag catggtgtcc agctggctgt ggaaagagct gggcaagcac      1980
aagaggccca gagtgtgcac caaagaggaa ttcatcaaca aagtgcggag caacgccgct      2040
ctgggcgcca tctttgagga agagaaagaa tggaaaaccg ccgtcgaggc cgtgaacgac      2100
cctagatttt gggccctcgt ggacaaagag agagagcacc acctgagagg cgagtgccag      2160
agctgcgtgt acaatatgat gggcaaacgc gagaaaaagc agggcgagtt cggcaaggcc      2220
aagggcagta gagccatctg gtacatgtgg ctgggagcca gattcctgga attcgaggcc      2280
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gacatggaag ccgaagaggt gctggaaatg caggacctgt ggctgctgag aagaagcaag      2520
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aagagctacg ccagatgtg gcagctgctg tacttccaca gacgggacct gagactgatg      2760
gccaacgcca tctgtagcag cgtgccagtg gattgggtgc caaccggcag aaccacctgg      2820
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gtgtgg

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<210> 102

<211> 93

<212> PRT

<213> Artificial sequence

<220>

<223> Amino acid sequence of a fragment of the C protein in the
chimeric polyepitope of ZIKV

<400> 102

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Gly Gly Phe Arg Ile Val Asn Met Leu Lys Arg Gly Val Ala Arg Val
1           5           10           15

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Ser Pro Phe Gly Gly Leu Lys Arg Leu Pro Ala Gly Leu Leu Gly
20           25           30

```

His Gly Pro Ile Arg Met Val Leu Ala Ile Leu Ala Phe Leu Arg Phe
35 40 45

Thr Ala Ile Lys Pro Ser Leu Gly Leu Ile Asn Arg Trp Gly Ser Val
50 55 60

Gly Lys Lys Glu Ala Met Glu Ile Ile Lys Lys Phe Lys Lys Asp Leu
65 70 75 80

Ala Ala Met Leu Arg Ile Ile Asn Ala Arg Lys Glu Lys
85 90

<210> 103

<211> 279

<212> DNA

<213> Artificial sequence

<220>

<223> Native nucleotide sequence of the polynucleotide encoding a fragment of the C protein in the chimeric polyepitope of ZIKV

<400> 103

ggaggattcc ggattgtcaa tatgctaaaa cgcgaggtag cccgtgtgag cccctttggg 60

ggcttgaaga ggctgccagc cggacttctg ctgggtcatg ggcccatcag gatggtcttg 120

gcgattctag cctttttgag attcacggca atcaagccat cactgggtct catcaataga 180

tgggggttcag tgggggaaaaa agaggctatg gaaataataa agaagttcaa gaaagatctg 240

gctgccatgc tgagaataat caatgctagg aaggagaag 279

<210> 104

<211> 113

<212> PRT

<213> Artificial sequence

<220>

<223> Amino acid sequence of a fragment of the NS1 protein in the chimeric polyepitope of ZIKV

<400> 104

Val Phe Val Tyr Asn Asp Val Glu Ala Trp Arg Asp Arg Tyr Lys Tyr
1 5 10 15

His Pro Asp Ser Pro Arg Arg Leu Ala Ala Ala Val Lys Gln Ala Trp
20 25 30

Glu Asp Gly Ile Cys Gly Ile Ser Ser Val Ser Arg Met Glu Asn Ile
35 40 45

Met Trp Arg Ser Val Glu Gly Glu Leu Asn Ala Ile Leu Glu Glu Asn

50

55

60

Gly Val Gln Leu Thr Val Val Val Gly Ser Val Lys Asn Pro Met Trp
65 70 75 80

Arg Gly Pro Gln Arg Leu Pro Val Pro Val Asn Glu Leu Pro His Gly
85 90 95

Trp Lys Ala Trp Gly Lys Ser Tyr Phe Val Arg Ala Ala Lys Thr Asn
100 105 110

Asn

<210> 105

<211> 339

<212> DNA

<213> Artificial sequence

<220>

<223> Native nucleotide sequence of the polynucleotide encoding a fragment of the NS1 protein in the chimeric polyepitope of ZIKV

<400> 105

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ccccgtagat tggcagcagc agtcaagcaa gcctgggaag atggtatctg cgggatctcc 120

tctgtttcaa gaatggaaaa catcatgtgg agatcagtag aaggggagct caacgcaatc 180

ctggaagaga atggagttca actgacggtc gttgtgggat ctgtaaaaaa ccccatgtgg 240

agaggtccac agagattgcc cgtgcctgtg aacgagctgc cccacggctg gaaggcttgg 300

gggaaatcgt acttcgtcag agcagcaaag acaaataac 339

<210> 106

<211> 64

<212> PRT

<213> Artificial sequence

<220>

<223> Amino acid sequence of a second fragment of the NS1 protein in the chimeric polyepitope of ZIKV

<400> 106

His Arg Ala Trp Asn Ser Phe Leu Val Glu Asp His Gly Phe Gly Val
1 5 10 15

Phe His Thr Ser Val Trp Leu Lys Val Arg Glu Asp Tyr Ser Leu Glu
20 25 30

Cys Asp Pro Ala Val Ile Gly Thr Ala Val Lys Gly Lys Glu Ala Val
35 40 45

His Ser Asp Leu Gly Tyr Trp Ile Glu Ser Glu Lys Asn Asp Thr Trp
 50 55 60

<210> 107
 <211> 192
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Native nucleotide sequence of the polynucleotide encoding a second fragment of the NS1 protein in the chimeric polyepitope of ZIKV

<400> 107
 catagagcat ggaacagctt tcttgtggag gatcatgggt tcgggggtatt tcacactagt 60
 gtctggctca aggttagaga agattattca ttagagtgtg atccagccgt tattggaaca 120
 gctgttaagg gaaaggaggc tgtacacagt gatctaggct actggattga gaggagaag 180
 aatgacacat gg 192

<210> 108
 <211> 16
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Amino acid sequence of a third fragment of the NS1 protein in the chimeric polyepitope of ZIKV

<400> 108

Ile Arg Phe Glu Glu Cys Pro Gly Thr Lys Val His Val Glu Glu Thr
 1 5 10 15

<210> 109
 <211> 48
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Native nucleotide sequence of the polynucleotide encoding a third fragment of the NS1 protein in the chimeric polyepitope of ZIKV

<400> 109
 attcggtttg aggaatgccc aggcactaag gtccacgtgg aggaaaca 48

<210> 110
 <211> 45
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Amino acid sequence of a fragment of the NS3 protein in the chimeric polyepitope of ZIKV

<400> 110

Ile Phe Lys Thr Lys Asp Gly Asp Ile Gly Ala Val Ala Leu Asp Tyr
 1 5 10 15

Pro Ala Gly Thr Ser Gly Ser Pro Ile Leu Asp Lys Cys Gly Arg Val
 20 25 30

Ile Gly Leu Tyr Gly Asn Gly Val Val Ile Lys Asn Gly
 35 40 45

<210> 111

<211> 135

<212> DNA

<213> Artificial sequence

<220>

<223> Native nucleotide sequence of the polynucleotide encoding a fragment of the NS3 protein in the chimeric polyepitope of ZIKV

<400> 111

atatttaaga caaaggatgg ggacattgga gcggttgccg tggattaccc agcaggaact 60

tcaggatctc caatcctaga caagtgtggg agagtgatag gactttatgg caatggggtc 120

gtgatcaaaa atggg 135

<210> 112

<211> 142

<212> PRT

<213> Artificial sequence

<220>

<223> Amino acid sequence of a second fragment of the NS3 protein in the chimeric polyepitope of ZIKV

<400> 112

Lys Thr Arg Arg Val Leu Pro Glu Ile Val Arg Glu Ala Ile Lys Thr
 1 5 10 15

Arg Leu Arg Thr Val Ile Leu Ala Pro Thr Arg Val Val Ala Ala Glu
 20 25 30

Met Glu Glu Ala Leu Arg Gly Leu Pro Val Arg Tyr Met Thr Thr Ala
 35 40 45

Val Asn Val Thr His Ser Gly Thr Glu Ile Val Asp Leu Met Cys His
 50 55 60

Ala Thr Phe Thr Ser Arg Leu Leu Gln Pro Ile Arg Val Pro Asn Tyr
 65 70 75 80

Asn Leu Tyr Ile Met Asp Glu Ala His Phe Thr Asp Pro Ser Ser Ile

85

90

95

Ala Ala Arg Gly Tyr Ile Ser Thr Arg Val Glu Met Gly Glu Ala Ala
 100 105 110

Ala Ile Phe Met Thr Ala Thr Pro Pro Gly Thr Arg Asp Ala Phe Pro
 115 120 125

Asp Ser Asn Ser Pro Ile Met Asp Thr Glu Val Glu Val Pro
 130 135 140

<210> 113

<211> 426

<212> DNA

<213> Artificial sequence

<220>

<223> Native nucleotide sequence of the polynucleotide encoding a
 second fragment of the NS3 protein in the chimeric polyepitope of
 ZIKV

<400> 113

aaaaccagga gagttcttcc tgaaatagtc cgtgaagcca taaaaacaag actccgtact 60
 gtgatcttag ctccaaccag gggtgtcgct gctgaaatgg aggaagccct tagagggtt 120
 ccagtgcgtt atatgacaac agcagtcaat gtcaccact ctggaacaga aatcgtcgac 180
 ttaatgtgcc atgccacctt cacttcacgt ctactacagc caatcagagt cccaactat 240
 aatctgtata ttatggatga ggcccacttc acagatccct caagtatagc agcaagagga 300
 tacatttcaa caaggggtga gatgggcgag gcggtgccca tcttcatgac cgccacgcca 360
 ccaggaaccc gtgacgcatt tccggactcc aactcaccaa ttatggacac cgaagtggaa 420
 gtccca 426

<210> 114

<211> 74

<212> PRT

<213> Artificial sequence

<220>

<223> Amino acid sequence of a fragment of the NS4B protein in the
 chimeric polyepitope of ZIKV

<400> 114

Gln Ala Gly Val Leu Phe Gly Met Gly Lys Gly Met Pro Phe Tyr Ala
 1 5 10 15

Trp Asp Phe Gly Val Pro Leu Leu Met Ile Gly Cys Tyr Ser Gln Leu
 20 25 30

Thr Pro Leu Thr Leu Ile Val Ala Ile Ile Leu Leu Val Ala His Tyr

35

40

45

Met Tyr Leu Ile Pro Gly Leu Gln Ala Ala Ala Arg Ala Ala Gln
 50 55 60

Lys Arg Thr Ala Ala Gly Ile Met Lys Asn
 65 70

<210> 115

<211> 222

<212> DNA

<213> Artificial sequence

<220>

<223> Native nucleotide sequence of the polynucleotide encoding a
 fragment of the NS4B protein in the chimeric polyepitope of ZIKV

<400> 115

caagctggag tgttgtttgg tatgggcaaa gggatgccat tctacgcatg ggactttgga 60

gtcccgtgc taatgatagg ttgctactca caattaacac ccctgaccct aatagtggcc 120

atcattttgc tcgtggcgca ctacatgtac ttgatcccag ggctgcaggc agcagctgcg 180

cgtgctgccc agaagagaac ggcagctggc atcatgaaga ac 222

<210> 116

<211> 219

<212> PRT

<213> Artificial sequence

<220>

<223> Amino acid sequence of a fragment of the NS5 protein in the
 chimeric polyepitope of ZIKV

<400> 116

Ile Ile Gly Asn Arg Ile Glu Arg Ile Arg Ser Glu His Ala Glu Thr
 1 5 10 15

Trp Phe Phe Asp Glu Asn His Pro Tyr Arg Thr Trp Ala Tyr His Gly
 20 25 30

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

Val Val Arg Leu Leu Ser Lys Pro Trp Asp Val Val Thr Gly Val Thr
 50 55 60

Gly Ile Ala Met Thr Asp Thr Thr Pro Tyr Gly Gln Gln Arg Val Phe
 65 70 75 80

Lys Glu Lys Val Asp Thr Arg Val Pro Asp Pro Gln Glu Gly Thr Arg
 85 90 95

Gln Val Met Ser Met Val Ser Ser Trp Leu Trp Lys Glu Leu Gly Lys
100 105 110

His Lys Arg Pro Arg Val Cys Thr Lys Glu Glu Phe Ile Asn Lys Val
115 120 125

Arg Ser Asn Ala Ala Leu Gly Ala Ile Phe Glu Glu Glu Lys Glu Trp
130 135 140

Lys Thr Ala Val Glu Ala Val Asn Asp Pro Arg Phe Trp Ala Leu Val
145 150 155 160

Asp Lys Glu Arg Glu His His Leu Arg Gly Glu Cys Gln Ser Cys Val
165 170 175

Tyr Asn Met Met Gly Lys Arg Glu Lys Lys Gln Gly Glu Phe Gly Lys
180 185 190

Ala Lys Gly Ser Arg Ala Ile Trp Tyr Met Trp Leu Gly Ala Arg Phe
195 200 205

Leu Glu Phe Glu Ala Leu Gly Phe Leu Asn Glu
210 215

<210> 117
<211> 657
<212> DNA
<213> Artificial sequence

<220>
<223> Native nucleotide sequence of the polynucleotide encoding a
fragment of the NS5 protein in the chimeric polyepitope of ZIKV

<400> 117
atcattggtg accgcattga aaggatccgc agtgagcacg cggaaacgtg gttctttgac 60
gagaaccacc catataggac atgggcttac catggaagct atgaggcccc cacacaaggg 120
tcagcgtcct ctctaataaa cgggggttgct aggcctcctgt caaaaccctg ggatgtggtg 180
actggagtca caggaatagc catgaccgac accacaccgt atggtcagca aagagttttc 240
aaggaaaaag tggacactag ggtgccagac ccccaagaag gcactcgtca gggttatgagc 300
atgggtctctt cctgggttggt gaaagagcta ggcaaacaca aacggccacg agtctgtacc 360
aaagaagagt tcatcaacaa gggttcgtagc aatgcagcat taggggcaat atttgaagag 420
gaaaaagagt ggaagactgc agtggaagct gtgaacgatc caagggttctg ggctctagtg 480
gacaaggaaa gagagcacca cctgagagga gagtgccaga gttgtgtgta caacatgatg 540
ggaaaaagag aaaagaaaca aggggaattt ggaaaggcca agggcagccg cgccatctgg 600

tatatgtggc taggggctag atttctagag ttcgaagccc ttggattcctt gaacgag 657

<210> 118
 <211> 55
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Amino acid sequence of a second fragment of the NS5 protein in the chimeric polyepitope of ZIKV

<400> 118

Arg Phe Asp Leu Glu Asn Glu Ala Leu Ile Thr Asn Gln Met Glu Lys
 1 5 10 15

Gly His Arg Ala Leu Ala Leu Ala Ile Ile Lys Tyr Thr Tyr Gln Asn
 20 25 30

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

Asp Ile Ile Ser Arg Gln Asp
 50 55

<210> 119
 <211> 165
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Native nucleotide sequence of the polynucleotide encoding a second fragment of the NS5 protein in the chimeric polyepitope of ZIKV

<400> 119
 aggtttgatc tggagaatga agctctaatac accaaccaaa tggagaaagg gcacagggcc 60
 ttggcattgg ccataatcaa gtacacatac caaaacaaag tggtaaaggt ccttagacca 120
 gctgaaaaag ggaaaacagt tatggacatt atttcgagac aagac 165

<210> 120
 <211> 18
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Amino acid sequence of a third fragment of the NS5 protein in the chimeric polyepitope of ZIKV

<400> 120

Met Glu Ala Glu Glu Val Leu Glu Met Gln Asp Leu Trp Leu Leu Arg
 1 5 10 15

Arg Ser

<210> 121
 <211> 54
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Native nucleotide sequence of the polynucleotide encoding a third fragment of the NS5 protein in the chimeric polyepitope of ZIKV

<400> 121
 atggaggctg aggaagttct agagatgcaa gacttggtggc tgctgcggag gtca 54

<210> 122
 <211> 123
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Amino acid sequence of a fourth fragment of the NS5 protein in the chimeric polyepitope of ZIKV

<400> 122

Lys Pro Ser Thr Gly Trp Asp Asn Trp Glu Glu Val Pro Phe Cys Ser
 1 5 10 15

His His Phe Asn Lys Leu His Leu Lys Asp Gly Arg Ser Ile Val Val
 20 25 30

Pro Cys Arg His Gln Asp Glu Leu Ile Gly Arg Ala Arg Val Ser Pro
 35 40 45

Gly Ala Gly Trp Ser Ile Arg Glu Thr Ala Cys Leu Ala Lys Ser Tyr
 50 55 60

Ala Gln Met Trp Gln Leu Leu Tyr Phe His Arg Arg Asp Leu Arg Leu
 65 70 75 80

Met Ala Asn Ala Ile Cys Ser Ser Val Pro Val Asp Trp Val Pro Thr
 85 90 95

Gly Arg Thr Thr Trp Ser Ile His Gly Lys Gly Glu Trp Met Thr Thr
 100 105 110

Glu Asp Met Leu Val Val Trp Asn Arg Val Trp
 115 120

<210> 123
 <211> 369

<212> DNA
 <213> Artificial sequence

<220>

<223> Native nucleotide sequence of the polynucleotide encoding a fourth fragment of the NS5 protein in the chimeric polyepitope of ZIKV

<400> 123
 aaaccctcaa ctggatggga caactgggaa gaagttccgt tttgctccca ccacttcaac 60
 aagctccatc tcaaggacgg gaggtccatt gtggttcctt gccgccacca agatgaactg 120
 attggccggg cccgcgtctc tccaggggag ggatggagca tccgggagac tgcttgcccta 180
 gcaaaatcat atgcgcaa atgtggcagctc ctttatttcc acagaaggga cctccgactg 240
 atggccaatg ccatttggtt atctgtgcca gttgactggg ttccaactgg gagaactacc 300
 tgggtcaatcc atggaaaggg agaatggatg accactgaag acatgcttgt ggtgtggaac 360
 agagtgtgg 369

<210> 124
 <211> 2886
 <212> DNA
 <213> Artificial sequence

<220>

<223> Nucleotide sequence of the polynucleotide encoding a chimeric epitope of ZIKV

<400> 124
 ggcggcttcc ggatcgtgaa tatgctgaag agaggcgtgg ccagagtcag cccttttggc 60
 ggactgaaaa gactgcctgc cggactgctt ctcgccacg gacctattag aatgggtgctg 120
 gccatcctgg cctttctgcg gtttacagcc atcaagccta gcctgggcct gatcaataga 180
 tggggcagcg tgggcaagaa agaagccatg gaaatcatca agaagttcaa gaaagacctg 240
 gccgcatgc tgcggatcat caacgcccgg aaagaaaagg tggtcgtgta caacgacgtc 300
 gaggcctggc gggacagata caagtatcac cctgacagcc ctagaaggct ggccgctgct 360
 gtgaaacagg cctgggagga tggcatctgt ggcatcagca gcgtgtcccg gatggaaaac 420
 atcatgtggc ggagcgtgga aggcgagctg aacgccattc tggaagaaaa cggcgtgcag 480
 ctgacagtgg tcgtgggctc cgtgaagaat cctatgtggc gaggacctca gagactgccc 540
 gtgctgtga atgaactgcc tcatggatgg aaggcctggg gcaagagcta ttttgtgcgg 600
 gctgccaaga ccaacaacca cagagcctgg aacagcttcc tgggtggaaga tcacggcttc 660
 ggcgtgttcc acaccagcgt gtggctgaaa gtgcgcgagg attacgcct ggaatgcgat 720
 cctgccgtga tcggaacagc cgtgaaggga aaagaagccg tgcacagcga tctcggctac 780
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gattatcctg ccggaacaag cggcagcccc atcctggata agtgtggcag agtgatcggc	960
ctgtacggca acggcgttgt gatcaagaac ggcaagacca gaagagtgtc gcccagatc	1020
gtgcgggaag ccattaagac ccggctgaga acagtgattc tggccccctac aagagtgggtg	1080
gccgccgaaa tggaagaagc cctgagaggc ctgcctgtgc ggtacatgac aaccgccgtg	1140
aatgtgacac acagcggcac agagatcgtg gacctgatgt gtcacgccac cttcacctct	1200
agactgctgc agcccatcag agtgcccaac tacaacctgt acatcatgga cgaggcccac	1260
ttcacagacc ccagctctat tgccgccaga ggctacatca gcaccagagt ggaaatgggc	1320
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ggcacaagac aagtgatgag catggtgtcc agctggctgt ggaaagagct gggcaagcac	1980
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tctatccacg gcaaaggcga gtggatgacc accgaggata tgctggtcgt gtggaataga	2880
gtttgg	2886