

PhoenixTemp60627.tmp.txt
SEQUENCE LISTING

<110> GENIMMUNE N.V.

<120> Methods and kits for inducing a CTL response using a prime boost regimen

<130> 206 PCT

<150> EP07119507.7

<151> 2007-10-29

<150> US61/000,749

<151> 2007-10-29

<160> 106

<170> PatentIn version 3.1

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<213> Hepatitis B Virus

<400> 1

Phe Leu Leu Ser Leu Gly Ile His Leu
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<213> Hepatitis B Virus

<400> 2

Lys Tyr Thr Ser Phe Pro Trp Leu Leu
1 5

<210> 3

<211> 11

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<213> Hepatitis B Virus

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Arg Phe Ser Trp Leu Ser Leu Leu Val Pro Phe
1 5 10

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<213> Hepatitis B Virus

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Phe Pro His Cys Leu Ala Phe Ser Tyr Met
1 5 10

<210> 5

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<213> Hepatitis B Virus

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Leu Val Val Asp Phe Ser Gln Phe Ser Arg
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Ile Leu Leu Leu Cys Leu Ile Phe Leu Leu
1 5 10

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<213> Hepatitis B Virus

<400> 7

His Thr Leu Trp Lys Ala Gly Ile Leu Tyr Lys
1 5 10

<210> 8

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Trp Met Met Trp Tyr Trp Gly Pro Ser Leu Tyr
1 5 10

<210> 9

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Tyr Pro Ala Leu Met Pro Leu Tyr Ala Cys Ile
1 5 10

<210> 10

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<213> Hepatitis B Virus

<400> 10

Trp Leu Ser Leu Leu Val Pro Phe Val
1 5

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<213> Hepatitis B Virus

<400> 11

Phe Leu Leu Thr Arg Ile Leu Thr Ile
1 5

<210> 12

<211> 9

<212> PRT

<213> Hepatitis B Virus

<400> 12

Ile Pro Ile Pro Ser Ser Trp Ala Phe
1 5

<210> 13

<211> 9

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<213> Hepatitis B Virus

<400> 13

Glu Tyr Leu Val Ser Phe Gly Val Trp
1 5

<210> 14

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<213> Hepatitis B Virus

<400> 14

Leu Pro Ser Asp Phe Phe Pro Ser Val
1 5

<210> 15

<211> 10

<212> PRT

<213> Hepatitis B Virus

<400> 15

Phe Leu Pro Ser Asp Phe Phe Pro Ser Val
1 5 10

<210> 16

<211> 10

<212> PRT

<213> Hepatitis B Virus

<400> 16

Asp	Leu	Leu	Asp	Thr	Ala	Ser	Ala	Leu	Tyr
1				5					10

<210> 17

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<213> Hepatitis B Virus

<400> 17

Ser	Trp	Pro	Lys	Phe	Ala	Val	Pro	Asn	Leu
1				5					10

<210> 18

<211> 9

<212> PRT

<213> Hepatitis B Virus

<400> 18

Ser	Ala	Ile	Cys	Ser	Val	Val	Arg	Arg
1				5				

<210> 19

<211> 6

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<213> Hepatitis B Virus

<400> 19

Leu	Ser	Leu	Asp	Val	Ser
1				5	

<210> 20

<211> 9

<212> PRT

<213> Hepatitis B Virus

<400> 20

Asn Val Ser Ile Pro Trp Thr His Lys
1 5

<210> 21

<211> 9

<212> PRT

<213> Hepatitis B Virus

<400> 21

Gly Leu Ser Arg Tyr Val Ala Arg Leu
1 5

<210> 22

<211> 11

<212> PRT

<213> Hepatitis B Virus

<400> 22

Ser Thr Leu Pro Glu Thr Thr Val Val Arg Arg
1 5 10

<210> 23

<211> 9

<212> PRT

<213> Hepatitis B Virus

<400> 23

His Pro Ala Ala Met Pro His Leu Leu
1 5

<210> 24

<211> 10

<212> PRT

<213> Hepatitis B Virus

<400> 24

Arg Trp Met Cys Leu Arg Arg Phe Ile Ile
1 5 10

<210> 25

<211> 8

<212> PRT

<213> Hepatitis B Virus

<400> 25

Ala Ser Phe Cys Gly Ser Pro Tyr
1 5

<210> 26

<211> 9

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<213> Hepatitis B Virus

<400> 26

Tyr Met Asp Asp Val Val Leu Gly Val
1 5

<210> 27

<211> 10

<212> PRT

<213> Hepatitis B Virus

<400> 27

Leu Trp Phe His Ile Ser Cys Leu Thr Phe
1 5 10

<210> 28

<211> 10

<212> PRT

<213> Hepatitis B Virus

<400> 28

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

<210> 29

<211> 11

<212> PRT

<213> Hepatitis B Virus

<400> 29

Leu Thr Phe Gly Arg Glu Thr Val Leu Glu Tyr
1 5 10

<210> 30

<211> 10

<212> PRT

<213> Hepatitis B Virus

<400> 30

Gln Ala Phe Thr Phe Ser Pro Thr Tyr Lys
1 5 10

<210> 31

<211> 15

<212> PRT

<213> Hepatitis B Virus

<400> 31

Gly Thr Ser Phe Val Tyr Val Pro Ser Ala Leu Asn Pro Ala Asp
1 5 10 15

<210> 32

<211> 15

<212> PRT

<213> Hepatitis B Virus

<400> 32

Leu Cys Gln Val Phe Ala Asp Ala Thr Pro Thr Gly Trp Gly Leu
1 5 10 15

<210> 33

<211> 15

<212> PRT

<213> Hepatitis B Virus

<400> 33

Arg	His	Tyr	Leu	His	Thr	Leu	Trp	Lys	Ala	Gly	Ile	Leu	Tyr	Lys
1				5					10					15

<210> 34

<211> 20

<212> PRT

<213> Hepatitis B Virus

<400> 34

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

Met	Thr	Leu	Ala
			20

<210> 35

<211> 15

<212> PRT

<213> Hepatitis B Virus

<400> 35

Glu	Ser	Arg	Leu	Val	Val	Asp	Phe	Ser	Gln	Phe	Ser	Arg	Gly	Asn
1				5					10					15

<210> 36

<211> 15

<212> PRT

<213> Hepatitis B Virus

<400> 36

Pro	Phe	Leu	Leu	Ala	Gln	Phe	Thr	Ser	Ala	Ile	Cys	Ser	Val	Val
1				5					10					15

<210> 37

<211> 15

<212> PRT

<213> Hepatitis B Virus

<400> 37

Leu Val Pro Phe Val Gln Trp Phe Val Gly Leu Ser Pro Thr Val
1 5 10 15

<210> 38

<211> 15

<212> PRT

<213> Hepatitis B Virus

<400> 38

Leu His Leu Tyr Ser His Pro Ile Ile Leu Gly Phe Arg Lys Ile
1 5 10 15

<210> 39

<211> 15

<212> PRT

<213> Hepatitis B Virus

<400> 39

Ser Ser Asn Leu Ser Trp Leu Ser Leu Asp Val Ser Ala Ala Phe
1 5 10 15

<210> 40

<211> 15

<212> PRT

<213> Hepatitis B Virus

<400> 40

Leu Gln Ser Leu Thr Asn Leu Leu Ser Ser Asn Leu Ser Trp Leu
1 5 10 15

<210> 41

<211> 15

<212> PRT

<213> Hepatitis B Virus

<400> 41

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

<210> 42

<211> 20

<212> PRT

<213> Hepatitis B Virus

<400> 42

Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro
1 5 10 15

Asn Ala Pro Ile
20

<210> 43

<211> 15

<212> PRT

<213> Hepatitis B Virus

<400> 43

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

<210> 44

<211> 15

<212> PRT

<213> Hepatitis B Virus

<400> 44

Lys Gln Cys Phe Arg Lys Leu Pro Val Asn Arg Pro Ile Asp Trp
1 5 10 15

<210> 45

<211> 15

<212> PRT

<213> Hepatitis B Virus

<400> 45

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Ala Ala Asn Trp Ile Leu Arg Gly Thr Ser Phe Val Tyr Val Pro
1 5 10 15

<210> 46

<211> 15

<212> PRT

<213> Hepatitis B Virus

<400> 46

Lys Gln Ala Phe Thr Phe Ser Pro Thr Tyr Lys Ala Phe Leu Cys
1 5 10 15

<210> 47

<211> 13

<212> PRT

<213> Hepatitis B Virus

<400> 47

Ala Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala
1 5 10

<210> 48

<211> 10

<212> PRT

<213> Hepatitis C Virus

<400> 48

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

<210> 49

<211> 10

<212> PRT

<213> Hepatitis C Virus

<400> 49

Phe Thr Asp Asn Ser Ser Pro Pro Ala Val
1 5 10

<210> 50

<211> 10

<212> PRT

<213> Hepatitis C Virus

<400> 50

Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala
 1 5 10

<210> 51

<211> 10

<212> PRT

<213> Hepatitis C Virus

<400> 51

Val Leu Val Gly Gly Val Leu Ala Ala Leu
 1 5 10

<210> 52

<211> 10

<212> PRT

<213> Hepatitis C Virus

<400> 52

Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu
 1 5 10

<210> 53

<211> 9

<212> PRT

<213> Hepatitis C Virus

<400> 53

His Met Trp Asn Phe Ile Ser Gly Ile
 1 5

<210> 54

<211> 9

<212> PRT

<213> Hepatitis C Virus

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Thr Leu Trp Ala Arg Met Ile Leu Met
1 5

<210> 55

<211> 10

<212> PRT

<213> Hepatitis C Virus

<400> 55

Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu
1 5 10

<210> 56

<211> 9

<212> PRT

<213> Hepatitis C Virus

<400> 56

Lys Leu Gln Asp Cys Thr Met Leu Val
1 5

<210> 57

<211> 9

<212> PRT

<213> Hepatitis C Virus

<400> 57

Asn Ile Ile Met Tyr Ala Pro Thr Leu
1 5

<210> 58

<211> 9

<212> PRT

<213> Hepatitis C Virus

<400> 58

Ala Val Cys Thr Arg Gly Val Ala Lys
1 5

<210> 59

<211> 9

<212> PRT

<213> Hepatitis C Virus

<400> 59

Lys Thr Ser Glu Arg Ser Gln Pro Arg
1 5

<210> 60

<211> 9

<212> PRT

<213> Hepatitis C Virus

<400> 60

Ser Thr Asn Pro Lys Pro Gln Arg Lys
1 5

<210> 61

<211> 9

<212> PRT

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<400> 61

Ala Ala Tyr Ala Ala Gln Gly Tyr Lys
1 5

<210> 62

<211> 9

<212> PRT

<213> Hepatitis C Virus

<400> 62

Gln Tyr Leu Ala Gly Leu Ser Thr Leu
1 5

<210> 63

<211> 9

<212> PRT

<213> Hepatitis C Virus

<400> 63

Met Tyr Thr Asn Val Asp Gln Asp Leu
1 5

<210> 64

<211> 10

<212> PRT

<213> Hepatitis C Virus

<400> 64

Phe Trp Ala Lys His Met Trp Asn Phe Ile
1 5 10

<210> 65

<211> 9

<212> PRT

<213> Hepatitis C Virus

<400> 65

Val Ile Lys Gly Gly Arg His Leu Ile
1 5

<210> 66

<211> 9

<212> PRT

<213> Hepatitis C Virus

<400> 66

Cys Leu Ile Arg Leu Lys Pro Thr Leu
1 5

<210> 67

<211> 10

<212> PRT

<213> Hepatitis C Virus

<400> 67

Leu Pro Arg Arg Gly Pro Arg Leu Gly Val
1 5 10

<210> 68

<211> 10

<212> PRT

<213> Hepatitis C Virus

<400> 68

Ala Pro Thr Leu Trp Ala Arg Met Ile Leu
1 5 10

<210> 69

<211> 10

<212> PRT

<213> Hepatitis C Virus

<400> 69

Leu Pro Ile Asn Ala Leu Ser Asn Ser Leu
1 5 10

<210> 70

<211> 9

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Ser Phe Ser Ile Phe Leu Leu Ala Leu
1 5

<210> 71

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<213> Hepatitis C Virus

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Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val
1 5 10

<210> 72

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<400> 72

Tyr Arg Arg Cys Arg Ala Ser Gly Val Leu
1 5 10

<210> 73

<211> 9

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Asp Pro Arg Arg Arg Ser Arg Asn Leu
1 5

<210> 74

<211> 9

<212> PRT

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<400> 74

Gly Pro Arg Leu Gly Val Arg Ala Thr
1 5

<210> 75

<211> 9

<212> PRT

<213> Hepatitis C Virus

<400> 75

Leu Pro Gly Cys Ser Phe Ser Ile Phe
1 5

<210> 76

<211> 9

<212> PRT

<213> Hepatitis C Virus

<400> 76

Leu Ile Arg Leu Lys Pro Thr Leu His
1 5

<210> 77

<211> 9

<212> PRT

<213> Hepatitis C Virus

<400> 77

His Pro Asn Ile Glu Glu Val Ala Leu
1 5

<210> 78

<211> 9

<212> PRT

<213> Hepatitis C Virus

<400> 78

Phe Pro Tyr Leu Val Ala Tyr Gln Ala
1 5

<210> 79

<211> 9

<212> PRT

<213> Hepatitis C Virus

<400> 79

Ala Glu Thr Ala Gly Ala Arg Leu Val
1 5

<210> 80

<211> 9

<212> PRT

<213> Hepatitis C Virus

<400> 80

Ala Glu Gln Phe Lys Gln Lys Ala Leu
1 5

<210> 81

<211> 9

<212> PRT

<213> Hepatitis C Virus

<400> 81

Asp Tyr Pro Tyr Arg Leu Trp His Tyr
1 5

<210> 82

<211> 15

<212> PRT

<213> Hepatitis C Virus

<400> 82

Ala Val Gly Ile Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala
1 5 10 15

<210> 83

<211> 14

<212> PRT

<213> Hepatitis C Virus

<400> 83

Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr
1 5 10

<210> 84

<211> 14

<212> PRT

<213> Hepatitis C Virus

<400> 84

Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp
1 5 10

<210> 85

<211> 19

<212> PRT

<213> Hepatitis C Virus

<400> 85

Cys Val Thr Gln Thr Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile
1 5 10 15

Glu Thr Thr

<210> 86

<211> 20

<212> PRT

<213> Hepatitis C Virus

<400> 86

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

Gly Leu Pro Val
20

<210> 87

<211> 16

<212> PRT

<213> Hepatitis C Virus

<400> 87

Thr Ser Thr Trp Val Leu Val Gly Gly Val Leu Ala Ala Leu Ala Ala
1 5 10 15

<210> 88

<211> 15

<212> PRT

<213> Hepatitis C Virus

<400> 88

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

<210> 89

<211> 16

<212> PRT

<213> Hepatitis C Virus

<400> 89

Gly Ile Gln Tyr Leu Ala Gly Leu Ser Thr Leu Pro Gly Asn Pro Ala
1 5 10 15

<210> 90

<211> 15

<212> PRT

<213> Hepatitis C Virus

<400> 90

Ser Thr Leu Leu Phe Asn Ile Leu Gly Gly Trp Val Ala Ala Gln
1 5 10 15

<210> 91

<211> 18

<212> PRT

<213> Hepatitis C Virus

<400> 91

Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala Leu
1 5 10 15

Val Val

<210> 92

<211> 16

<212> PRT

<213> Hepatitis C Virus

<400> 92

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

<210> 93

<211> 16

<212> PRT

<213> Hepatitis C Virus

<400> 93

Met Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val Ser Pro
1 5 10 15

<210> 94

<211> 15

<212> PRT

<213> Hepatitis C Virus

<400> 94

Ser Met Ser Tyr Thr Trp Thr Gly Ala Leu Ile Thr Pro Cys Ala
1 5 10 15

<210> 95

<211> 725

<212> PRT

<213> Artificial sequence

<220>

<223> HBV Polypeptide Protein

<400> 95

Met Gly Thr Ser Phe Val Tyr Val Pro Ser Ala Leu Asn Pro Ala Asp
1 5 10 15

Gly Pro Gly Pro Gly Leu Cys Gln Val Phe Ala Asp Ala Thr Pro Thr
20 25 30

Gly Trp Gly Leu Gly Pro Gly Pro Gly Arg His Tyr Leu His Thr Leu
35 40 45

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Trp Lys Ala Gly Ile Leu Tyr Lys Gly Pro Gly Pro Gly Pro His His
 50 55 60
 Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr Leu
 65 70 75 80
 Ala Gly Pro Gly Pro Gly Glu Ser Arg Leu Val Val Asp Phe Ser Gln
 85 90 95
 Phe Ser Arg Gly Asn Gly Pro Gly Pro Gly Pro Phe Leu Leu Ala Gln
 100 105 110
 Phe Thr Ser Ala Ile Cys Ser Val Val Gly Pro Gly Pro Gly Leu Val
 115 120 125
 Pro Phe Val Gln Trp Phe Val Gly Leu Ser Pro Thr Val Gly Pro Gly
 130 135 140
 Pro Gly Leu His Leu Tyr Ser His Pro Ile Ile Leu Gly Phe Arg Lys
 145 150 155 160
 Ile Gly Pro Gly Pro Gly Ser Ser Asn Leu Ser Trp Leu Ser Leu Asp
 165 170 175
 Val Ser Ala Ala Phe Gly Pro Gly Pro Gly Leu Gln Ser Leu Thr Asn
 180 185 190
 Leu Leu Ser Ser Asn Leu Ser Trp Leu Gly Pro Gly Pro Gly Ala Gly
 195 200 205
 Phe Phe Leu Leu Thr Arg Ile Leu Thr Ile Pro Gln Ser Gly Pro Gly
 210 215 220
 Pro Gly Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala Tyr Arg
 225 230 235 240
 Pro Pro Asn Ala Pro Ile Gly Pro Gly Pro Gly Val Gly Pro Leu Thr
 245 250 255
 Val Asn Glu Lys Arg Arg Leu Lys Leu Ile Gly Pro Gly Pro Gly Lys
 260 265 270
 Gln Cys Phe Arg Lys Leu Pro Val Asn Arg Pro Ile Asp Trp Gly Pro
 275 280 285
 Gly Pro Gly Ala Ala Asn Trp Ile Leu Arg Gly Thr Ser Phe Val Tyr
 290 295 300
 Val Pro Gly Pro Gly Pro Gly Lys Gln Ala Phe Thr Phe Ser Pro Thr
 305 310 315 320

Tyr Lys Ala Phe Leu Cys Gly Pro Gly Pro Gly Phe Leu Leu Ser Leu
 325 330 335
 Gly Ile His Leu Asn Ala Ala Ala Lys Tyr Thr Ser Phe Pro Trp Leu
 340 345 350
 Leu Asn Ala Ala Ala Arg Phe Ser Trp Leu Ser Leu Leu Val Pro Phe
 355 360 365
 Asn Ala Ala Phe Pro His Cys Leu Ala Phe Ser Tyr Met Lys Ala Ala
 370 375 380
 Leu Val Val Asp Phe Ser Gln Phe Ser Arg Gly Ala Ile Leu Leu Leu
 385 390 395 400
 Cys Leu Ile Phe Leu Leu Asn Ala Ala Ala His Thr Leu Trp Lys Ala
 405 410 415
 Gly Ile Leu Tyr Lys Lys Ala Trp Met Met Trp Tyr Trp Gly Pro Ser
 420 425 430
 Leu Tyr Lys Ala Tyr Pro Ala Leu Met Pro Leu Tyr Ala Cys Ile Gly
 435 440 445
 Ala Ala Ala Trp Leu Ser Leu Leu Val Pro Phe Val Asn Ala Ala Ala
 450 455 460
 Gly Phe Leu Leu Thr Arg Ile Leu Thr Ile Asn Ala Ala Ala Ile Pro
 465 470 475 480
 Ile Pro Ser Ser Trp Ala Phe Lys Ala Ala Ala Glu Tyr Leu Val Ser
 485 490 495
 Phe Gly Val Trp Asn Leu Pro Ser Asp Phe Phe Pro Ser Val Lys Ala
 500 505 510
 Ala Ala Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Lys Ala Ala Ala
 515 520 525
 Asp Leu Leu Asp Thr Ala Ser Ala Leu Tyr Asn Ser Trp Pro Lys Phe
 530 535 540
 Ala Val Pro Asn Leu Lys Ala Ala Ala Ser Ala Ile Cys Ser Val Val
 545 550 555 560
 Arg Arg Lys Leu Ser Leu Asp Val Ser Ala Ala Phe Tyr Asn Ala Ala
 565 570 575
 Ala Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Lys Ala Ala
 580 585 590
 Asn Val Ser Ile Pro Trp Thr His Lys Gly Ala Ala Gly Leu Ser Arg

595

600

605

Tyr Val Ala Arg Leu Asn Ala Ala Ala Ser Thr Leu Pro Glu Thr Thr
610 615 620

Val Val Arg Arg Lys His Pro Ala Ala Met Pro His Leu Leu Lys Ala
625 630 635 640

Ala Ala Arg Trp Met Cys Leu Arg Arg Phe Ile Ile Asn Ala Ser Phe
645 650 655

Cys Gly Ser Pro Tyr Lys Ala Ala Tyr Met Asp Asp Val Val Leu Gly
660 665 670

Val Asn Ala Leu Trp Phe His Ile Ser Cys Leu Thr Phe Lys Ala Ala
675 680 685

Ala Thr Pro Ala Arg Val Thr Gly Gly Val Phe Lys Ala Ala Ala Leu
690 695 700

Thr Phe Gly Arg Glu Thr Val Leu Glu Tyr Lys Gln Ala Phe Thr Phe
705 710 715 720

Ser Pro Thr Tyr Lys
725

<210> 96

<211> 665

<212> PRT

<213> Artificial sequence

<220>

<223> HCV Polyepitope Protein

<400> 96

Met Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Gly
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Pro Gly Pro Gly Ser Thr Leu Leu Phe Asn Ile Leu Gly Gly Trp Val
20 25 30

Ala Ala Gln Gly Pro Gly Pro Gly Cys Val Thr Gln Thr Val Asp Phe
35 40 45

Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr Gly Pro Gly Pro Gly
50 55 60

Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala Leu
65 70 75 80

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Val Val Gly Pro Gly₈₅ Pro Gly Gly Glu Gly₉₀ Ala Val Gln Trp Met₉₅ Asn
 Arg Leu Ile Ala₁₀₀ Phe Ala Ser Gly₁₀₅ Pro Gly Pro Gly Met₁₁₀ Asn Arg Leu
 Ile Ala Phe₁₁₅ Ala Ser Arg Gly₁₂₀ Asn His Val Ser Pro Gly₁₂₅ Pro Gly Pro
 Gly Ser₁₃₀ Met Ser Tyr Thr Trp₁₃₅ Thr Gly Ala Leu Ile₁₄₀ Thr Pro Cys Ala
 Gly₁₄₅ Pro Gly Pro Gly Thr₁₅₀ Pro Ala Glu Thr Thr₁₅₅ Val Arg Leu Arg Ala₁₆₀
 Tyr Met Asn Thr₁₆₅ Gly Leu Pro Val Gly₁₇₀ Pro Gly Pro Gly Ala₁₇₅ Val
 Gly Ile Phe Arg₁₈₀ Ala Ala Val Cys Thr₁₈₅ Arg Gly Val Ala Gly₁₉₀ Pro Gly
 Pro Gly Gly₁₉₅ Ile Gln Tyr Leu Ala₂₀₀ Gly Leu Ser Thr Leu₂₀₅ Pro Gly Asn
 Pro Ala Gly Pro Gly Pro Gly₂₁₅ Thr Ser Thr Trp Val₂₂₀ Leu Val Gly Gly
 Val₂₂₅ Leu Ala Ala Leu Ala₂₃₀ Ala Gly Pro Gly Pro₂₃₅ Gly Gly Tyr Lys Val₂₄₀
 Leu Val Leu Asn Pro₂₄₅ Ser Val Ala Ala Thr₂₅₀ Gly Pro Gly Pro Gly₂₅₅ Gly
 Lys Pro Ala Ile₂₆₀ Ile Pro Asp Arg Glu₂₆₅ Val Leu Tyr Arg Glu₂₇₀ Lys Ala
 Val Ile Lys₂₇₅ Gly Gly Arg His Leu₂₈₀ Ile Lys Ala Gly Pro₂₈₅ Arg Leu Gly
 Val Arg₂₉₀ Ala Thr Lys Ala Ala₂₉₅ Ala Gln Tyr Leu Ala₃₀₀ Gly Leu Ser Thr
 Leu Asn Ala Ala Ala Pro₃₁₀ Thr Leu Trp Ala Arg₃₁₅ Met Ile Leu Asn Ala₃₂₀
 Ala His Pro Asn Ile₃₂₅ Glu Glu Val Ala Leu₃₃₀ Asn Leu Val Asp Ile₃₃₅ Leu
 Ala Gly Tyr Gly₃₄₀ Ala Lys His Met Trp₃₄₅ Asn Phe Ile Ser Gly₃₅₀ Ile Asn

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Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Lys Leu Gln Asp Cys Thr
355 360 365

Met Leu Val Asn Ala Ala Ala Glu Gln Phe Lys Gln Lys Ala Leu
370 375 380

Lys Thr Ser Glu Arg Ser Gln Pro Arg Asn Ala Ala Phe Pro Tyr Leu
385 390 395 400

Val Ala Tyr Gln Ala Lys Ala Ala Met Tyr Thr Asn Val Asp Gln Asp
405 410 415

Leu Asn Thr Leu Trp Ala Arg Met Ile Leu Met Asn Leu Pro Ile Asn
420 425 430

Ala Leu Ser Asn Ser Leu Lys Ser Thr Asn Pro Lys Pro Gln Arg Lys
435 440 445

Asn Asp Tyr Pro Tyr Arg Leu Trp His Tyr Lys Ala Ala Cys Leu Ile
450 455 460

Arg Leu Lys Pro Thr Leu Asn Ile Ile Met Tyr Ala Pro Thr Leu Lys
465 470 475 480

Ala Ala Val Ala Thr Asp Ala Leu Met Thr Gly Tyr Asn Leu Pro Gly
485 490 495

Cys Ser Phe Ser Ile Phe Lys Tyr Arg Arg Cys Arg Ala Ser Gly Val
500 505 510

Leu Lys Ala Ala Val Leu Val Gly Gly Val Leu Ala Ala Leu Asn Gly
515 520 525

Leu Leu Gly Cys Ile Ile Thr Ser Leu Asn Ala Ala Tyr Ala Ala Gln
530 535 540

Gly Tyr Lys Lys Asp Pro Arg Arg Arg Ser Arg Asn Leu Lys Ala Ala
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<211> 17

<212> PRT

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<220>

<223> Tag

<400> 97

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His

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<211> 2217

<212> DNA

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<223> HBV Polyepitope construct with linker and tag His6

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<223> Plasmid pcI857

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