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SEQUENCE LISTING

<110> Precision Biosciences, Inc.

<120> ENGINEERED NUCLEASES SPECIFIC FOR RECOGNITION SEQUENCES IN THE HEPATITIS B VIRUS GENOME

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<220>

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<211> 3247

<212> DNA

<213> Hepatitis B virus

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<221> HBV genotype G

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<212> DNA

<213> Hepatitis B virus

<220>

<221> HBV 1-2 recognition sequence (sense)

<222> (1)..(22)

<400> 10

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<211> 22

<212> DNA

<213> Hepatitis B virus

<220>

<221> HBV 1-2 recognition sequence (antisense)

<222> (1)..(22)

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<213> Hepatitis B virus

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<221> HBV 5-6 recognition sequence (sense)

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<221> HBV 5-6 recognition sequence (antisense)

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<221> HBV 7-8 recognition sequence (sense)

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<221> HBV 7-8 recognition sequence (antisense)

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<211> 354

<212> PRT

<213> Artificial

<220>

<223> Synthetic Sequence

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<221> HBV 1-2x.2

<222> (1)..(354)

<223> full sequence

<400> 18

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35 40 45

Thr Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val
50 55 60

Gly Tyr Val His Asp Tyr Gly Ser Val Ser Ala Tyr Arg Leu Ser Gln
65 70 75 80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys
85 90 95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu
100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp
115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr
130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly

145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser

165 170 175

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

180 185 190

Gly Thr Gly Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val

195 200 205

Asp Gly Asp Gly Ser Ile Tyr Ala Ser Ile Arg Pro Ser Gln Asp Gln

210 215 220

Lys Phe Lys His Arg Leu Ile Leu Val Phe Ala Val Ser Gln Lys Thr

225 230 235 240

Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly

245 250 255

Tyr Val Arg Asp Thr Gly Ser Val Ser Glu Tyr Arg Leu Ser Glu Ile
260 265 270

Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu
275 280 285

Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro
290 295 300

Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val
305 310 315 320

Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser
325 330 335

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Ser Pro

<210> 19

<211> 354

<212> PRT

<213> Artificial

<220>

<223> Synthetic Sequence

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<221> HBV 1-2x.14

<222> (1)..(354)

<223> full sequence

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35 40 45

Thr Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val
50 55 60

Gly Tyr Val Ser Asp Tyr Gly Ser Val Ser Arg Tyr His Leu Ser Glu
65 70 75 80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys
85 90 95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu
100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp
115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr

130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly
145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser
165 170 175

Ser Pro Gly Ser Gly Ile Ser Glu Ala Leu Arg Ala Gly Ala Gly Ser
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Gly Thr Gly Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val
195 200 205

Asp Gly Asp Gly Ser Ile Tyr Ala Cys Ile Arg Pro Ala Gln Asp Ser
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Lys Phe Lys His Arg Leu Ile Leu Ala Leu Glu Val Gly Gln Lys Thr
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Arg Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly
245 250 255

Tyr Val Val Asp Asn Gly Ser Val Ser Arg Tyr Ile Leu Ser Gln Ile
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Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu
275 280 285

Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro
290 295 300

Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val
305 310 315 320

Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser
325 330 335

Glu Thr Val Arg Ala Val Leu Asp Ser Leu Ser Glu Lys Lys Lys Ser

340 345 350

Ser Pro

<210> 20

<211> 354

<212> PRT

<213> Artificial

<220>

<223> Synthetic Sequence

<220>

<221> HBV 1-2x.68

<222> (1)..(354)

<223> full sequence

<400> 20

Met Asn Thr Lys Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe

1 5 10 15

Val Asp Gly Asp Gly Ser Ile Tyr Ala Cys Ile Arg Pro Asp Gln Ser
20 25 30

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

Thr Arg Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val
50 55 60

Gly Tyr Val Val Asp Asn Gly Ser Val Ser Arg Tyr Ile Leu Ser Glu
65 70 75 80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys
85 90 95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu
100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp

115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr

130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly

145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser

165 170 175

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

180 185 190

Gly Thr Gly Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val

195 200 205

Asp Gly Asp Gly Ser Ile Tyr Ala Cys Ile Ala Pro Arg Gln Trp Ser

210 215 220

Lys Phe Lys His Ser Leu Glu Leu Arg Phe Ala Val Phe Gln Lys Thr
225 230 235 240

Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly
245 250 255

Tyr Val Ser Asp Tyr Gly Ser Val Ser Arg Tyr His Leu Ser Glu Ile
260 265 270

Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu
275 280 285

Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro
290 295 300

Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val
305 310 315 320

Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser

325 330 335

Glu Thr Val Arg Ala Val Leu Asp Ser Leu Ser Glu Lys Lys Lys Ser

340 345 350

Ser Pro

<210> 21

<211> 354

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 1-2x.93

<222> (1)..(354)

<223> full sequence

<400> 21

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Met Asn Thr Lys Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe
1               5                  10                  15

Val Asp Gly Asp Gly Ser Ile Tyr Ala Thr Ile Arg Pro Asp Gln Thr
            20                  25                  30

Tyr Lys Phe Lys His Arg Leu Ile Leu Gln Phe Ala Val Ser Gln Lys
        35                  40                  45

Thr Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val
    50                  55                  60

Gly Tyr Val Arg Asp Thr Gly Ser Val Ser Glu Tyr Arg Leu Ser Gln
65                  70                  75                  80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys
                85                  90                  95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu
```

100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp
115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr
130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly
145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser
165 170 175

Ser Pro Gly Ser Gly Ile Ser Glu Ala Leu Arg Ala Gly Ala Gly Ser
180 185 190

Gly Thr Gly Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val
195 200 205

Asp Gly Asp Gly Ser Ile Phe Ala Cys Ile Arg Pro Val Gln Trp Ser
210 215 220

Lys Phe Lys His Ser Leu Glu Leu Cys Phe Thr Val Thr Gln Lys Thr
225 230 235 240

Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly
245 250 255

Tyr Val His Asp Tyr Gly Ser Val Ser Ala Tyr Arg Leu Ser Gln Ile
260 265 270

Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu
275 280 285

Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro
290 295 300

Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val

305 310 315 320

Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser

325 330 335

Glu Thr Val Arg Ala Val Leu Asp Ser Leu Ser Glu Lys Lys Lys Ser

340 345 350

Ser Pro

<210> 22

<211> 354

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 5-6x.33

<222> (1)..(354)

<223> full sequence

<400> 22

Met Asn Thr Lys Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe
1 5 10 15

Val Asp Gly Asp Gly Ser Ile Tyr Ala Arg Ile Arg Pro Ser Gln Ser
20 25 30

Ser Lys Phe Lys His Lys Leu Thr Leu Val Phe Ala Val Ala Gln Lys
35 40 45

Thr Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val
50 55 60

Gly Tyr Val His Asp Glu Gly Ser Val Ser Gln Tyr Arg Leu Ser Gln
65 70 75 80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys

85 90 95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu
100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp
115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr
130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly
145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser
165 170 175

Ser Pro Gly Ser Gly Ile Ser Glu Ala Leu Arg Ala Gly Ala Gly Ser
180 185 190

Gly Thr Gly Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val
195 200 205

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

Lys Phe Lys His Ala Leu His Leu Met Phe Thr Val Ser Gln Lys Thr
225 230 235 240

Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly
245 250 255

Tyr Val Ile Asp Gln Gly Ser Val Ser Glu Tyr Arg Leu Ser Gln Ile
260 265 270

Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu
275 280 285

Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro

290 295 300

Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val
305 310 315 320

Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser
325 330 335

Glu Thr Val Arg Ala Val Leu Asp Ser Leu Ser Glu Lys Lys Lys Ser
340 345 350

Ser Pro

<210> 23

<211> 354

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 5-6x.84

<222> (1)..(354)

<223> full sequence

<400> 23

```
Met Asn Thr Lys Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe
1               5                  10                  15

Val Asp Gly Asp Gly Ser Ile Phe Ala Arg Ile Arg Pro Gly Gln Asp
            20                  25                  30

Tyr Lys Phe Lys His Asn Leu Val Leu Thr Phe Arg Val Ala Gln Lys
        35                  40                  45

Thr Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val
    50                  55                  60

Gly Tyr Val Leu Asp Glu Gly Ser Val Ser Gln Tyr Tyr Leu Ser Glu
```

65 70 75 80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys
85 90 95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu
100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp
115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr
130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly
145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser
165 170 175

Ser Pro Gly Ser Gly Ile Ser Glu Ala Leu Arg Ala Gly Ala Gly Ser
180 185 190

Gly Thr Gly Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val
195 200 205

Asp Gly Asp Gly Ser Ile Asn Ala Ser Ile Glu Pro Val Gln Lys Pro
210 215 220

Lys Phe Lys His Thr Leu His Leu Arg Phe Glu Val Ser Gln Lys Thr
225 230 235 240

Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly
245 250 255

Tyr Val Tyr Asp Gln Gly Ser Val Ser Ser Tyr Arg Leu Ser Glu Ile
260 265 270

Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu

275 280 285

Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro

290 295 300

Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val

305 310 315 320

Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser

325 330 335

Glu Thr Val Arg Ala Val Leu Asp Ser Leu Ser Glu Lys Lys Lys Ser

340 345 350

Ser Pro

<210> 24

<211> 354

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 5-6x.90

<222> (1)..(354)

<223> full sequence

<400> 24

Met Asn Thr Lys Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe
1 5 10 15

Val Asp Gly Asp Gly Ser Ile Tyr Ala Arg Ile Arg Pro Arg Gln Asn
20 25 30

Phe Lys Phe Lys His Ala Leu Val Leu Gln Phe Arg Val Ser Gln Lys
35 40 45

Thr Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val

50 55 60

Gly Tyr Val Leu Asp Glu Gly Ser Val Ser Gln Tyr Tyr Leu Ser Gln
65 70 75 80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys
85 90 95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu
100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp
115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr
130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly
145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser
165 170 175

Ser Pro Gly Ser Gly Ile Ser Glu Ala Leu Arg Ala Gly Ala Gly Ser
180 185 190

Gly Thr Gly Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val
195 200 205

Asp Gly Asp Gly Ser Ile Val Ala Gln Ile His Pro Ala Gln Lys Asn
210 215 220

Lys Phe Lys His Gly Leu Arg Leu Gln Phe Tyr Val Tyr Gln Lys Thr
225 230 235 240

Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly
245 250 255

Tyr Val Tyr Asp Gln Gly Ser Val Ser Cys Tyr Arg Leu Ser Gln Ile

260 265 270

Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu
275 280 285

Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro
290 295 300

Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val
305 310 315 320

Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser
325 330 335

Glu Thr Val Arg Ala Val Leu Asp Ser Leu Ser Glu Lys Lys Lys Ser
340 345 350

Ser Pro

<210> 25

<211> 354

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 5-6x.4

<222> (1)..(354)

<223> full sequence

<400> 25

Met Asn Thr Lys Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe
1 5 10 15

Val Asp Gly Asp Gly Ser Ile Tyr Ala Thr Ile Gln Pro Val Gln Thr
20 25 30

Arg Lys Phe Lys His Ile Leu Arg Leu Trp Phe Thr Val His Gln Lys

35 40 45

Thr Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val

50 55 60

Gly Tyr Val Val Asp Ala Gly Ser Val Ser Glu Tyr Arg Leu Ser Glu

65 70 75 80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys

85 90 95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu

100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp

115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr

130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly
145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser
165 170 175

Ser Pro Gly Ser Gly Ile Ser Glu Ala Leu Arg Ala Gly Ala Gly Ser
180 185 190

Gly Thr Gly Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val
195 200 205

Asp Gly Asp Gly Ser Ile Tyr Ala Arg Ile Arg Pro Thr Gln Gly Ser
210 215 220

Lys Phe Lys His Lys Leu Thr Leu Cys Phe Arg Val Ala Gln Lys Thr
225 230 235 240

Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly

245 250 255

Tyr Val Leu Asp Glu Gly Ser Val Ser Gln Tyr Tyr Leu Ser Gln Ile
260 265 270

Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu
275 280 285

Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro
290 295 300

Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val
305 310 315 320

Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser
325 330 335

Glu Thr Val Arg Ala Val Leu Asp Ser Leu Ser Glu Lys Lys Lys Ser
340 345 350

Ser Pro

<210> 26

<211> 351

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 5-6x.5

<222> (1)..(351)

<223> full sequence

<400> 26

Met Asn Thr Lys Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe

1 5 10 15

Val Asp Gly Asp Gly Ser Ile Tyr Ala Thr Ile His Pro Thr Gln Lys

20 25 30

Ala Lys Phe Lys His Val Leu Ala Leu Arg Phe Ser Val Cys Gln Lys
35 40 45

Thr Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val
50 55 60

Gly Tyr Val Tyr Asp Leu Gly Ser Val Ser Glu Tyr Arg Leu Ser Gln
65 70 75 80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys
85 90 95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu
100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp
115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr
130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly
145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser
165 170 175

Ser Pro Gly Ser Gly Ile Ser Glu Ala Leu Arg Ala Gly Ala Gly Ser
180 185 190

Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp
195 200 205

Gly Ser Ile Tyr Ala Arg Ile Arg Pro Leu Gln His Gly Lys Phe Lys
210 215 220

His Lys Leu His Leu Ala Phe Arg Val Ala Gln Lys Thr Gln Arg Arg

225 230 235 240

Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Phe
245 250 255

Asp Asp Gly Ser Val Ser Gln Tyr Thr Leu Ser Gln Ile Lys Pro Leu
260 265 270

His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys
275 280 285

Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys
290 295 300

Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile
305 310 315 320

Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val
325 330 335

Arg Ala Val Leu Asp Ser Leu Ser Glu Lys Lys Lys Ser Ser Pro
340 345 350

<210> 27

<211> 354

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 5-6x.68

<222> (1)..(354)

<223> full sequence

<400> 27

Met Asn Thr Lys Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe
1 5 10 15

Val Asp Gly Asp Gly Ser Ile Tyr Ala Gln Ile Met Pro Arg Gln Arg

20 25 30

Ala Lys Phe Lys His Val Leu Lys Leu Asn Phe Ala Val Cys Gln Lys
35 40 45

Thr Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val
50 55 60

Gly Tyr Val Thr Asp Gln Gly Ser Val Ser Glu Tyr Arg Leu Ser Glu
65 70 75 80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys
85 90 95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu
100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp
115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr
130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly
145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser
165 170 175

Ser Pro Gly Ser Gly Ile Ser Glu Ala Leu Arg Ala Gly Ala Gly Ser
180 185 190

Gly Thr Gly Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val
195 200 205

Asp Gly Asp Gly Ser Ile Tyr Ala Arg Ile Arg Pro Arg Gln Ser Ser
210 215 220

Lys Phe Lys His Arg Leu Leu Leu Phe Phe Arg Val Ser Gln Lys Thr

225 230 235 240

Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly
245 250 255

Tyr Val Leu Asp Glu Gly Ser Val Ser Gln Tyr Tyr Leu Ser Glu Ile
260 265 270

Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu
275 280 285

Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro
290 295 300

Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val
305 310 315 320

Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser
325 330 335

Glu Thr Val Arg Ala Val Leu Asp Ser Leu Ser Glu Lys Lys Lys Ser
340 345 350

Ser Pro

<210> 28
<211> 354
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<220>
<221> HBV 5-6x.79
<222> (1)..(354)
<223> full sequence

<400> 28

Met Asn Thr Lys Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe

1 5 10 15

Val Asp Gly Asp Gly Ser Ile Tyr Ala Thr Ile Glu Pro Val Gln Lys
20 25 30

Asn Lys Phe Lys His Gln Leu Arg Leu Cys Phe Ala Val Cys Gln Lys
35 40 45

Thr Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val
50 55 60

Gly Tyr Val Cys Asp Thr Gly Ser Val Ser Glu Tyr Arg Leu Ser Gln
65 70 75 80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys
85 90 95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu
100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp
115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr
130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly
145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser
165 170 175

Ser Pro Gly Ser Gly Ile Ser Glu Ala Leu Arg Ala Gly Ala Gly Ser
180 185 190

Gly Thr Gly Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val
195 200 205

Asp Gly Asp Gly Ser Ile Tyr Ala Arg Ile Arg Pro Cys Gln Gly Cys

210 215 220

Lys Phe Lys His Ala Leu Lys Leu Thr Phe Arg Val Ala Gln Lys Thr
225 230 235 240

Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly
245 250 255

Tyr Val Cys Asp Glu Gly Ser Val Ser Gln Tyr Tyr Leu Ser Gln Ile
260 265 270

Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu
275 280 285

Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro
290 295 300

Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val
305 310 315 320

Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser
325 330 335

Glu Thr Val Arg Ala Val Leu Asp Ser Leu Ser Glu Lys Lys Lys Ser
340 345 350

Ser Pro

<210> 29

<211> 354

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 7-8x.2

<222> (1)..(354)

<223> full sequence

<400> 29

Met Asn Thr Lys Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe
1 5 10 15

Val Asp Gly Asp Gly Ser Ile Tyr Ala Thr Ile Ser Pro Ala Gln Ala
20 25 30

Tyr Lys Phe Lys His Arg Leu Gly Leu Phe Phe Glu Val Asp Gln Lys
35 40 45

Thr Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val
50 55 60

Gly Tyr Val His Asp Arg Gly Ser Val Ser Arg Tyr Lys Leu Ser Glu
65 70 75 80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys
85 90 95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu
100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp
115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr
130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly
145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser
165 170 175

Ser Pro Gly Ser Gly Ile Ser Glu Ala Leu Arg Ala Gly Ala Gly Ser
180 185 190

Gly Thr Gly Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val

195 200 205

Asp Gly Asp Gly Ser Ile Tyr Ala Arg Ile Val Pro Cys Gln Arg Ser

210 215 220

Lys Phe Lys His Ala Leu Arg Leu Glu Phe Thr Val Arg Gln Lys Thr

225 230 235 240

Arg Arg Arg Trp Ile Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly

245 250 255

Tyr Val Tyr Asp Ser Gly Ser Val Ser Arg Tyr Tyr Leu Ser Gln Ile

260 265 270

Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu

275 280 285

Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro

290 295 300

Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val
305 310 315 320

Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser
325 330 335

Glu Thr Val Arg Ala Val Leu Asp Ser Leu Ser Glu Lys Lys Lys Ser
340 345 350

Ser Pro

<210> 30

<211> 354

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 7-8x.9

<222> (1)..(354)

<223> full sequence

<400> 30

Met Asn Thr Lys Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe
1 5 10 15

Val Asp Gly Asp Gly Ser Ile Tyr Ala Thr Ile Ser Pro Ala Gln Ala
20 25 30

Tyr Lys Phe Lys His Arg Leu Gly Leu Phe Phe Glu Val Asp Gln Lys
35 40 45

Thr Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val
50 55 60

Gly Tyr Val His Asp Arg Gly Ser Val Ser Arg Tyr Lys Leu Ser Gln
65 70 75 80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys
85 90 95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu
100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp
115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr
130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly
145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser
165 170 175

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

180 185 190

Gly Thr Gly Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val
195 200 205

Asp Gly Asp Gly Ser Ile Tyr Ala Arg Ile Val Pro Cys Gln Arg Ser
210 215 220

Lys Phe Lys His Ala Leu Arg Leu Glu Phe Thr Val Arg Gln Lys Thr
225 230 235 240

Arg Arg Arg Trp Ile Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly
245 250 255

Tyr Val Phe Asp Asp Gly Ser Val Ser Arg Tyr Tyr Leu Ser Gln Ile
260 265 270

Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu
275 280 285

Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro
290 295 300

Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val
305 310 315 320

Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser
325 330 335

Glu Thr Val Arg Ala Val Leu Asp Ser Leu Ser Glu Lys Lys Lys Ser
340 345 350

Ser Pro

<210> 31
<211> 354
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 7-8x.17

<222> (1)..(354)

<223> full sequence

<400> 31

Met Asn Thr Lys Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe
1 5 10 15

Val Asp Gly Asp Gly Ser Ile Tyr Ala Thr Ile Ser Pro Ala Gln Ala
20 25 30

Tyr Lys Phe Lys His Arg Leu Gly Leu Phe Phe Glu Val Asp Gln Lys
35 40 45

Thr Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val
50 55 60

Gly Tyr Val His Asp Arg Gly Ser Val Ser Arg Tyr Lys Leu Ser Gln
65 70 75 80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys
85 90 95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu
100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp
115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr
130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly
145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser

165 170 175

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

180 185 190

Gly Thr Gly Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val

195 200 205

Asp Gly Asp Gly Ser Ile Tyr Ala Arg Ile Val Pro Cys Gln Arg Ser

210 215 220

Lys Phe Lys His Ala Leu Arg Leu Glu Phe Thr Val Arg Gln Lys Thr

225 230 235 240

Arg Arg Arg Trp Ile Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly

245 250 255

Tyr Val Phe Asp Asp Gly Ser Val Ser Arg Tyr Tyr Leu Ser Gln Ile

260 265 270

Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu
275 280 285

Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro
290 295 300

Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val
305 310 315 320

Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser
325 330 335

Glu Thr Val Arg Ala Val Leu Asp Arg Leu Ser Glu Lys Lys Lys Ser
340 345 350

Ser Pro

<210> 32

<211> 354

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 7-8x.44

<222> (1)..(354)

<223> full sequence

<400> 32

Met Asn Thr Lys Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe
1 5 10 15

Val Asp Gly Asp Gly Ser Ile Tyr Ala Thr Ile Ser Pro Ala Gln Ala
20 25 30

Tyr Lys Phe Lys His Arg Leu Gly Leu Phe Phe Glu Val Asp Gln Lys
35 40 45

Thr Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val
50 55 60

Gly Tyr Val His Asp Arg Gly Ser Val Ser Arg Tyr Lys Leu Ser Gln
65 70 75 80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys
85 90 95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu
100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp
115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr
130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly

145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser

165 170 175

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

180 185 190

Gly Thr Gly Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val

195 200 205

Asp Gly Asp Gly Ser Ile Tyr Ala Arg Ile Val Pro Cys Gln Arg Ser

210 215 220

Lys Phe Lys His Ala Leu Arg Leu Glu Phe Ala Val Arg Gln Lys Thr

225 230 235 240

Gln Arg Arg Trp Ile Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly

245 250 255

Tyr Val Phe Asp Asp Gly Ser Val Ser Arg Tyr Tyr Leu Ser Glu Ile
260 265 270

Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu
275 280 285

Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro
290 295 300

Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val
305 310 315 320

Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser
325 330 335

Glu Thr Val Arg Ala Val Leu Asp Ser Leu Ser Glu Lys Lys Lys Ser
340 345 350

Ser Pro

<210> 33

<211> 354

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 11-12x.26

<222> (1)..(354)

<223> full sequence

<400> 33

Met Asn Thr Lys Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe
1 5 10 15

Val Asp Gly Asp Gly Ser Ile Asn Ala Ser Ile Ala Pro Arg Gln Ser
20 25 30

Phe Lys Phe Lys His Gly Leu Lys Leu Arg Phe Glu Val Gly Gln Lys
35 40 45

Thr Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val
50 55 60

Gly Tyr Val Tyr Asp Asn Gly Ser Val Ser Val Tyr Ser Leu Ser Gln
65 70 75 80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys
85 90 95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu
100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp
115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr

130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly
145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser
165 170 175

Ser Pro Gly Ser Gly Ile Ser Glu Ala Leu Arg Ala Gly Ala Gly Ser
180 185 190

Gly Thr Gly Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val
195 200 205

Asp Gly Asp Gly Ser Ile Tyr Ala Ser Ile Arg Pro Arg Gln Tyr Ala
210 215 220

Lys Phe Lys His Asp Leu Glu Leu Arg Phe Asn Val Arg Gln Lys Thr
225 230 235 240

Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly
245 250 255

Tyr Val Val Asp Trp Gly Ser Val Ser Thr Tyr Gln Leu Ser Gln Ile
260 265 270

Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu
275 280 285

Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro
290 295 300

Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val
305 310 315 320

Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser
325 330 335

Glu Thr Val Arg Ala Val Leu Asp Ser Leu Ser Glu Lys Lys Lys Ser

340 345 350

Ser Pro

<210> 34

<211> 354

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 11-12x.9

<222> (1)..(354)

<223> full sequence

<400> 34

Met Asn Thr Lys Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe

1 5 10 15

Val Asp Gly Asp Gly Ser Ile His Ala Cys Ile Arg Pro Arg Gln Thr
20 25 30

Ala Lys Phe Lys His Ser Leu Leu Leu Arg Phe Gln Val Gly Gln Lys
35 40 45

Thr Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val
50 55 60

Gly Tyr Val Tyr Asp Asn Gly Ser Val Ser Val Tyr Glu Leu Ser Gln
65 70 75 80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys
85 90 95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu
100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp

115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr

130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly

145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser

165 170 175

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

180 185 190

Gly Thr Gly Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val

195 200 205

Asp Gly Asp Gly Ser Ile Tyr Ala Ala Ile Arg Pro Lys Gln Thr Arg

210 215 220

Lys Phe Lys His Glu Leu Gln Leu Thr Phe Asn Val Arg Gln Lys Ser
225 230 235 240

Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly
245 250 255

Tyr Val Leu Asp Trp Gly Ser Val Ser Thr Tyr Ile Leu Ser Gln Ile
260 265 270

Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu
275 280 285

Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro
290 295 300

Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val
305 310 315 320

Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser

325 330 335

Glu Thr Val Arg Ala Val Leu Asp Ser Leu Ser Glu Lys Lys Lys Ser

340 345 350

Ser Pro

<210> 35

<211> 354

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 11-12x.13

<222> (1)..(354)

<223> full sequence

<400> 35

Met Asn Thr Lys Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe
1 5 10 15

Val Asp Gly Asp Gly Ser Ile His Ala Cys Ile Arg Pro Arg Gln Thr
20 25 30

Ala Lys Phe Lys His Ser Leu Leu Leu Arg Phe Gln Val Gly Gln Lys
35 40 45

Thr Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val
50 55 60

Gly Tyr Val Tyr Asp Asn Gly Ser Val Ser Val Tyr Glu Leu Ser Gln
65 70 75 80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys
85 90 95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu

100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp
115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr
130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly
145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser
165 170 175

Ser Pro Gly Ser Gly Ile Ser Glu Ala Leu Arg Ala Gly Ala Gly Ser
180 185 190

Gly Thr Gly Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val
195 200 205

Asp Gly Asp Gly Ser Ile Tyr Ala Ala Ile Arg Pro Lys Gln Thr Arg
210 215 220

Lys Phe Lys His Glu Leu Gln Leu Thr Phe Asn Val Arg Gln Lys Thr
225 230 235 240

Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly
245 250 255

Tyr Val Leu Asp Trp Gly Ser Val Ser Thr Tyr Ile Leu Ser Gln Ile
260 265 270

Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu
275 280 285

Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro
290 295 300

Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val

305 310 315 320

Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser

325 330 335

Glu Thr Val Arg Ala Val Leu Asp Ser Leu Ser Glu Lys Lys Lys Ser

340 345 350

Ser Pro

<210> 36

<211> 354

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 11-12x.16

<222> (1)..(354)

<223> full sequence

<400> 36

Met Asn Thr Lys Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe
1 5 10 15

Val Asp Gly Asp Gly Ser Ile His Ala Thr Ile Ser Pro Arg Gln Thr
20 25 30

Phe Lys Phe Lys His Gly Leu Arg Leu Arg Phe Glu Val Gly Gln Lys
35 40 45

Thr Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Gly
50 55 60

Gly Tyr Val Tyr Asp Asn Gly Ser Val Ser Val Tyr Ser Leu Ser Gln
65 70 75 80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys

85 90 95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu
100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp
115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr
130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly
145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser
165 170 175

Ser Pro Gly Ser Gly Ile Ser Glu Ala Leu Arg Ala Gly Ala Gly Ser
180 185 190

Gly Thr Gly Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val
195 200 205

Asp Gly Asp Gly Ser Ile Tyr Ala Ser Ile Arg Pro Arg Gln Gln Ala
210 215 220

Lys Phe Lys His Ser Leu Glu Leu His Phe Asn Val Arg Gln Lys Thr
225 230 235 240

Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly
245 250 255

Tyr Val Val Asp Glu Gly Ser Val Ser Thr Tyr Leu Leu Ser Glu Ile
260 265 270

Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu
275 280 285

Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro

290 295 300

Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val
305 310 315 320

Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser
325 330 335

Glu Thr Val Arg Ala Val Leu Asp Ser Leu Ser Glu Lys Lys Lys Ser
340 345 350

Ser Pro

<210> 37

<211> 354

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 11-12x.27

<222> (1)..(354)

<223> full sequence

<400> 37

Met Asn Thr Lys Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe
1 5 10 15

Val Asp Gly Asp Gly Ser Ile His Ala Cys Ile Arg Pro Arg Gln Thr
20 25 30

Ala Lys Phe Lys His Ser Leu Leu Leu Arg Phe Gln Val Gly Gln Lys
35 40 45

Thr Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val
50 55 60

Gly Tyr Val Tyr Asp Asn Gly Ser Val Ser Val Tyr Glu Leu Ser Glu

65 70 75 80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys
85 90 95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu
100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp
115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr
130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly
145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser
165 170 175

Ser Pro Gly Ser Gly Ile Ser Glu Ala Leu Arg Ala Gly Ala Gly Ser
180 185 190

Gly Thr Gly Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val
195 200 205

Asp Gly Asp Gly Ser Ile Tyr Ala Ser Ile Arg Pro Arg Gln Tyr Ala
210 215 220

Lys Phe Lys His Asp Leu Glu Leu Arg Phe Asn Val Arg Gln Lys Thr
225 230 235 240

Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly
245 250 255

Tyr Val Val Asp Trp Gly Ser Val Ser Thr Tyr Gln Leu Ser Gln Ile
260 265 270

Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu

275 280 285

Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro

290 295 300

Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val

305 310 315 320

Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser

325 330 335

Glu Thr Val Arg Ala Val Leu Asp Ser Leu Ser Glu Lys Lys Lys Ser

340 345 350

Ser Pro

<210> 38

<211> 354

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 11-12x.41

<222> (1)..(354)

<223> full sequence

<400> 38

Met Asn Thr Lys Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe
1 5 10 15

Val Asp Gly Asp Gly Ser Ile His Ala Cys Ile Arg Pro Arg Gln Thr
20 25 30

Ala Lys Phe Lys His Ser Leu Leu Leu Arg Phe Gln Val Gly Gln Lys
35 40 45

Thr Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val

50 55 60

Gly Tyr Val Tyr Asp Asn Gly Ser Val Ser Val Tyr Glu Leu Ser Lys
65 70 75 80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys
85 90 95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu
100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp
115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr
130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly
145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser
165 170 175

Ser Pro Gly Ser Gly Ile Ser Glu Ala Leu Arg Ala Gly Ala Gly Ser
180 185 190

Gly Thr Gly Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val
195 200 205

Asp Gly Asp Gly Ser Ile Tyr Ala Ser Ile Arg Pro Arg Gln Leu Ala
210 215 220

Lys Phe Lys His Thr Leu Glu Leu His Phe Asn Val Arg Gln Lys Thr
225 230 235 240

Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly
245 250 255

Tyr Val Leu Asp Ser Gly Ser Val Ser Thr Tyr Leu Leu Ser Gln Ile

260 265 270

Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu
275 280 285

Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro
290 295 300

Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val
305 310 315 320

Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser
325 330 335

Glu Thr Val Arg Ala Val Leu Asp Ser Leu Ser Glu Lys Lys Lys Ser
340 345 350

Ser Pro

<210> 39

<211> 354

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 11-12x.48

<222> (1)..(354)

<223> full sequence

<400> 39

Met Asn Thr Lys Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe
1 5 10 15

Val Asp Gly Asp Gly Ser Ile His Ala Cys Ile Arg Pro Arg Gln Thr
20 25 30

Ala Lys Phe Lys His Ser Leu Leu Leu Arg Phe Gln Val Gly Gln Lys

35 40 45

Thr Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val

50 55 60

Gly Tyr Val Tyr Asp Asn Gly Ser Val Ser Val Tyr Glu Leu Ser Lys

65 70 75 80

Ile Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys

85 90 95

Leu Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu

100 105 110

Pro Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp

115 120 125

Val Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr

130 135 140

Ser Glu Thr Val Arg Ala Val Leu Asp Ser Leu Pro Gly Ser Val Gly
145 150 155 160

Gly Leu Ser Pro Ser Gln Ala Ser Ser Ala Ala Ser Ser Ala Ser Ser
165 170 175

Ser Pro Gly Ser Gly Ile Ser Glu Ala Leu Arg Ala Gly Ala Gly Ser
180 185 190

Gly Thr Gly Tyr Asn Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val
195 200 205

Asp Gly Asp Gly Ser Ile Tyr Ala Ala Ile Arg Pro Lys Gln Thr Arg
210 215 220

Lys Phe Lys His Glu Leu Gln Leu Thr Phe Asn Val Arg Gln Lys Thr
225 230 235 240

Gln Arg Arg Trp Phe Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly

245 250 255

Tyr Val Leu Asp Trp Gly Ser Val Ser Thr Tyr Ile Leu Ser Gln Ile
260 265 270

Lys Pro Leu His Asn Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu
275 280 285

Lys Gln Lys Gln Ala Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro
290 295 300

Ser Ala Lys Glu Ser Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val
305 310 315 320

Asp Gln Ile Ala Ala Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser
325 330 335

Glu Thr Val Arg Ala Val Leu Asp Ser Leu Ser Glu Lys Lys Lys Ser
340 345 350

Ser Pro

<210> 40

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 1-2x.2-2

<222> (1)..(147)

<223> HBV1-binding subunit

<400> 40

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser

1 5 10 15

Ile Phe Ala Cys Ile Arg Pro Val Gln Trp Ser Lys Phe Lys His Ser

20 25 30

Leu Glu Leu Cys Phe Thr Val Thr Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val His Asp Tyr
50 55 60

Gly Ser Val Ser Ala Tyr Arg Leu Ser Gln Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala

130 135 140

Val Leu Asp

145

<210> 41

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 1-2x.14-2

<222> (1)..(147)

<223> HBV1-binding subunit

<400> 41

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser

1 5 10 15

Ile Tyr Ala Cys Ile Ala Pro Arg Gln Trp Ser Lys Phe Lys His Ser
20 25 30

Leu Glu Leu Arg Phe Ala Val Phe Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Ser Asp Tyr
50 55 60

Gly Ser Val Ser Arg Tyr His Leu Ser Glu Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp
145

<210> 42
<211> 147
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<220>
<221> HBV 1-2x.68-2
<222> (1)..(147)
<223> HBV1-binding subunit

<400> 42

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Cys Ile Ala Pro Arg Gln Trp Ser Lys Phe Lys His Ser
20 25 30

Leu Glu Leu Arg Phe Ala Val Phe Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Ser Asp Tyr
50 55 60

Gly Ser Val Ser Arg Tyr His Leu Ser Glu Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp
145

<210> 43
<211> 147
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<220>

<221> HBV 1-2x.93-2

<222> (1)..(147)

<223> HBV1-binding subunit

<400> 43

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Phe Ala Cys Ile Arg Pro Val Gln Trp Ser Lys Phe Lys His Ser
20 25 30

Leu Glu Leu Cys Phe Thr Val Thr Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val His Asp Tyr
50 55 60

Gly Ser Val Ser Ala Tyr Arg Leu Ser Gln Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp
145

<210> 44
<211> 147
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 1-2x.2-3

<222> (1)..(147)

<223> HBV2-binding subunit

<400> 44

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Ser Ile Arg Pro Ser Gln Asp Gln Lys Phe Lys His Arg
20 25 30

Leu Ile Leu Val Phe Ala Val Ser Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Arg Asp Thr
50 55 60

Gly Ser Val Ser Glu Tyr Arg Leu Ser Glu Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp
145

<210> 45

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 1-2x.14-3

<222> (1)..(147)

<223> HBV2-binding subunit

<400> 45

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Cys Ile Arg Pro Ala Gln Asp Ser Lys Phe Lys His Arg
20 25 30

Leu Ile Leu Ala Leu Glu Val Gly Gln Lys Thr Arg Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Val Asp Asn
50 55 60

Gly Ser Val Ser Arg Tyr Ile Leu Ser Gln Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp

<210> 46

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 1-2x.68-3

<222> (1)..(147)

<223> HBV2-binding subunit

<400> 46

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Cys Ile Arg Pro Asp Gln Ser Ser Lys Phe Lys His Arg
20 25 30

Leu Val Leu Gly Phe Glu Val Gly Gln Lys Thr Arg Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Val Asp Asn
50 55 60

Gly Ser Val Ser Arg Tyr Ile Leu Ser Glu Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala

130 135 140

Val Leu Asp

145

<210> 47

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 1-2x.93-3

<222> (1)..(147)

<223> HBV2-binding subunit

<400> 47

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser

1 5 10 15

Ile Tyr Ala Thr Ile Arg Pro Asp Gln Thr Tyr Lys Phe Lys His Arg
20 25 30

Leu Ile Leu Gln Phe Ala Val Ser Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Arg Asp Thr
50 55 60

Gly Ser Val Ser Glu Tyr Arg Leu Ser Gln Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala

115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala

130 135 140

Val Leu Asp

145

<210> 48

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 5-6x.33-2

<222> (1)..(147)

<223> HBV5-binding subunit

<400> 48

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Trp Ala Thr Ile Glu Pro Leu Gln Lys Arg Lys Phe Lys His Ala
20 25 30

Leu His Leu Met Phe Thr Val Ser Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Ile Asp Gln
50 55 60

Gly Ser Val Ser Glu Tyr Arg Leu Ser Gln Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser

100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala

115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala

130 135 140

Val Leu Asp

145

<210> 49

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 5-6x.84-2

<222> (1)..(147)

<223> HBV5-binding subunit

<400> 49

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Asn Ala Ser Ile Glu Pro Val Gln Lys Pro Lys Phe Lys His Thr
20 25 30

Leu His Leu Arg Phe Glu Val Ser Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Tyr Asp Gln
50 55 60

Gly Ser Val Ser Ser Tyr Arg Leu Ser Glu Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala

85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser

100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala

115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala

130 135 140

Val Leu Asp

145

<210> 50

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 5-6x.90-2

<222> (1)..(147)

<223> HBV5-binding subunit

<400> 50

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Val Ala Gln Ile His Pro Ala Gln Lys Asn Lys Phe Lys His Gly
20 25 30

Leu Arg Leu Gln Phe Tyr Val Tyr Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Tyr Asp Gln
50 55 60

Gly Ser Val Ser Cys Tyr Arg Leu Ser Gln Ile Lys Pro Leu His Asn

65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp
145

<210> 51
<211> 147
<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 5-6x.4-2

<222> (1)..(147)

<223> HBV5-binding subunit

<400> 51

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Thr Ile Gln Pro Val Gln Thr Arg Lys Phe Lys His Ile
20 25 30

Leu Arg Leu Trp Phe Thr Val His Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Val Asp Ala

50 55 60

Gly Ser Val Ser Glu Tyr Arg Leu Ser Glu Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp
145

<210> 52

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 5-6x.5-2

<222> (1)..(147)

<223> HBV5-binding subunit

<400> 52

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Thr Ile His Pro Thr Gln Lys Ala Lys Phe Lys His Val
20 25 30

Leu Ala Leu Arg Phe Ser Val Cys Gln Lys Thr Gln Arg Arg Trp Phe

35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Tyr Asp Leu

50 55 60

Gly Ser Val Ser Glu Tyr Arg Leu Ser Gln Ile Lys Pro Leu His Asn

65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala

85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser

100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala

115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala

130 135 140

Val Leu Asp

145

<210> 53

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 5-6x.68-2

<222> (1)..(147)

<223> HBV5-binding subunit

<400> 53

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser

1 5 10 15

Ile Tyr Ala Gln Ile Met Pro Arg Gln Arg Ala Lys Phe Lys His Val

20 25 30

Leu Lys Leu Asn Phe Ala Val Cys Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Thr Asp Gln
50 55 60

Gly Ser Val Ser Glu Tyr Arg Leu Ser Glu Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp
145

<210> 54
<211> 147
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<220>
<221> HBV 5-6x.79-2
<222> (1)..(147)
<223> HBV5-binding subunit

<400> 54

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser

1 5 10 15

Ile Tyr Ala Thr Ile Glu Pro Val Gln Lys Asn Lys Phe Lys His Gln
20 25 30

Leu Arg Leu Cys Phe Ala Val Cys Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Cys Asp Thr
50 55 60

Gly Ser Val Ser Glu Tyr Arg Leu Ser Gln Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp
145

<210> 55
<211> 147
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<220>
<221> HBV 5-6x.33-3
<222> (1)..(147)
<223> HBV6-binding subunit

<400> 55

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Arg Ile Arg Pro Ser Gln Ser Ser Lys Phe Lys His Lys
20 25 30

Leu Thr Leu Val Phe Ala Val Ala Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val His Asp Glu
50 55 60

Gly Ser Val Ser Gln Tyr Arg Leu Ser Gln Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp
145

<210> 56
<211> 147
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<220>

<221> HBV 5-6x.84-3

<222> (1)..(147)

<223> HBV6-binding subunit

<400> 56

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Phe Ala Arg Ile Arg Pro Gly Gln Asp Tyr Lys Phe Lys His Asn
20 25 30

Leu Val Leu Thr Phe Arg Val Ala Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Leu Asp Glu
50 55 60

Gly Ser Val Ser Gln Tyr Tyr Leu Ser Glu Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp
145

<210> 57
<211> 147
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 5-6x.90-3

<222> (1)..(147)

<223> HBV6-binding subunit

<400> 57

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Arg Ile Arg Pro Arg Gln Asn Phe Lys Phe Lys His Ala
20 25 30

Leu Val Leu Gln Phe Arg Val Ser Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Leu Asp Glu
50 55 60

Gly Ser Val Ser Gln Tyr Tyr Leu Ser Gln Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp
145

<210> 58

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 5-6x.4-3

<222> (1)..(147)

<223> HBV6-binding subunit

<400> 58

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Arg Ile Arg Pro Thr Gln Gly Ser Lys Phe Lys His Lys
20 25 30

Leu Thr Leu Cys Phe Arg Val Ala Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Leu Asp Glu
50 55 60

Gly Ser Val Ser Gln Tyr Tyr Leu Ser Gln Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp

<210> 59

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 5-6x.5-3

<222> (1)..(147)

<223> HBV6-binding subunit

<400> 59

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Arg Ile Arg Pro Leu Gln His Gly Lys Phe Lys His Lys
20 25 30

Leu His Leu Ala Phe Arg Val Ala Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Phe Asp Asp
50 55 60

Gly Ser Val Ser Gln Tyr Thr Leu Ser Gln Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala

130 135 140

Val Leu Asp

145

<210> 60

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 5-6x.68-3

<222> (1)..(147)

<223> HBV6-binding subunit

<400> 60

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser

1 5 10 15

Ile Tyr Ala Arg Ile Arg Pro Arg Gln Ser Ser Lys Phe Lys His Arg
20 25 30

Leu Leu Leu Phe Phe Arg Val Ser Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Leu Asp Glu
50 55 60

Gly Ser Val Ser Gln Tyr Tyr Leu Ser Glu Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala

115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala

130 135 140

Val Leu Asp

145

<210> 61

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 5-6x.79-3

<222> (1)..(147)

<223> HBV6-binding subunit

<400> 61

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Arg Ile Arg Pro Cys Gln Gly Cys Lys Phe Lys His Ala
20 25 30

Leu Lys Leu Thr Phe Arg Val Ala Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Cys Asp Glu
50 55 60

Gly Ser Val Ser Gln Tyr Tyr Leu Ser Gln Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser

100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala

115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala

130 135 140

Val Leu Asp

145

<210> 62

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 7-8x.2-2

<222> (1)..(147)

<223> HBV7-binding subunit

<400> 62

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Arg Ile Val Pro Cys Gln Arg Ser Lys Phe Lys His Ala
20 25 30

Leu Arg Leu Glu Phe Thr Val Arg Gln Lys Thr Arg Arg Arg Trp Ile
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Tyr Asp Ser
50 55 60

Gly Ser Val Ser Arg Tyr Tyr Leu Ser Gln Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala

85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser

100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala

115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala

130 135 140

Val Leu Asp

145

<210> 63

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 7-8x.9-2

<222> (1)..(147)

<223> HBV7-binding subunit

<400> 63

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Arg Ile Val Pro Cys Gln Arg Ser Lys Phe Lys His Ala
20 25 30

Leu Arg Leu Glu Phe Thr Val Arg Gln Lys Thr Arg Arg Arg Trp Ile
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Phe Asp Asp
50 55 60

Gly Ser Val Ser Arg Tyr Tyr Leu Ser Gln Ile Lys Pro Leu His Asn

65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp
145

<210> 64
<211> 147
<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 7-8x.17-2

<222> (1)..(147)

<400> 64

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Arg Ile Val Pro Cys Gln Arg Ser Lys Phe Lys His Ala
20 25 30

Leu Arg Leu Glu Phe Thr Val Arg Gln Lys Thr Arg Arg Arg Trp Ile
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Phe Asp Asp
50 55 60

Gly Ser Val Ser Arg Tyr Tyr Leu Ser Gln Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp
145

<210> 65

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 7-8x.44-2

<222> (1)..(147)

<223> HBV7-binding subunit

<400> 65

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Arg Ile Val Pro Cys Gln Arg Ser Lys Phe Lys His Ala
20 25 30

Leu Arg Leu Glu Phe Ala Val Arg Gln Lys Thr Gln Arg Arg Trp Ile
35 40 45

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Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Phe Asp Asp
    50                  55                  60

Gly Ser Val Ser Arg Tyr Tyr Leu Ser Glu Ile Lys Pro Leu His Asn
65                  70                  75                  80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
                85                  90                  95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
            100                 105                 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
        115                 120                 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
    130                 135                 140
```

Val Leu Asp

145

<210> 66

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 7-8x.2-3

<222> (1)..(147)

<223> HBV8-binding subunit

<400> 66

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser

1 5 10 15

Ile Tyr Ala Thr Ile Ser Pro Ala Gln Ala Tyr Lys Phe Lys His Arg

20 25 30

Leu Gly Leu Phe Phe Glu Val Asp Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val His Asp Arg
50 55 60

Gly Ser Val Ser Arg Tyr Lys Leu Ser Glu Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala

130 135 140

Val Leu Asp

145

<210> 67

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 7-8x.9-3

<222> (1)..(147)

<223> HBV8-binding subunit

<400> 67

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser

1 5 10 15

Ile Tyr Ala Thr Ile Ser Pro Ala Gln Ala Tyr Lys Phe Lys His Arg
20 25 30

Leu Gly Leu Phe Phe Glu Val Asp Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val His Asp Arg
50 55 60

Gly Ser Val Ser Arg Tyr Lys Leu Ser Gln Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala

115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala

130 135 140

Val Leu Asp

145

<210> 68

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 7-8x.17-3

<222> (1)..(147)

<223> HBV8-binding subunit

<400> 68

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Thr Ile Ser Pro Ala Gln Ala Tyr Lys Phe Lys His Arg
20 25 30

Leu Gly Leu Phe Phe Glu Val Asp Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val His Asp Arg
50 55 60

Gly Ser Val Ser Arg Tyr Lys Leu Ser Gln Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser

100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala

115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala

130 135 140

Val Leu Asp

145

<210> 69

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 7-8x.44-3

<222> (1)..(147)

<223> HBV8-binding subunit

<400> 69

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Thr Ile Ser Pro Ala Gln Ala Tyr Lys Phe Lys His Arg
20 25 30

Leu Gly Leu Phe Phe Glu Val Asp Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val His Asp Arg
50 55 60

Gly Ser Val Ser Arg Tyr Lys Leu Ser Gln Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp
145

<210> 70
<211> 147
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 11-12x.26-2

<222> (1)..(147)

<223> HBV11-binding subunit

<400> 70

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Ser Ile Arg Pro Arg Gln Tyr Ala Lys Phe Lys His Asp
20 25 30

Leu Glu Leu Arg Phe Asn Val Arg Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Val Asp Trp
50 55 60

Gly Ser Val Ser Thr Tyr Gln Leu Ser Gln Ile Lys Pro Leu His Asn

65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala

85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser

100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala

115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala

130 135 140

Val Leu Asp

145

<210> 71

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 11-12x.9-2

<222> (1)..(147)

<223> HBV11-binding subunit

<400> 71

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Ala Ile Arg Pro Lys Gln Thr Arg Lys Phe Lys His Glu
20 25 30

Leu Gln Leu Thr Phe Asn Val Arg Gln Lys Ser Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Leu Asp Trp

50 55 60

Gly Ser Val Ser Thr Tyr Ile Leu Ser Gln Ile Lys Pro Leu His Asn

65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala

85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser

100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala

115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala

130 135 140

Val Leu Asp

145

<210> 72

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 11-12x.13-2

<222> (1)..(147)

<223> HBV11-binding subunit

<400> 72

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Ala Ile Arg Pro Lys Gln Thr Arg Lys Phe Lys His Glu
20 25 30

Leu Gln Leu Thr Phe Asn Val Arg Gln Lys Thr Gln Arg Arg Trp Phe

35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Leu Asp Trp

50 55 60

Gly Ser Val Ser Thr Tyr Ile Leu Ser Gln Ile Lys Pro Leu His Asn

65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala

85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser

100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala

115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala

130 135 140

Val Leu Asp

145

<210> 73

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 11-12x.16-2

<222> (1)..(147)

<223> HBV11-binding subunit

<400> 73

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser

1 5 10 15

Ile Tyr Ala Ser Ile Arg Pro Arg Gln Gln Ala Lys Phe Lys His Ser
20 25 30

Leu Glu Leu His Phe Asn Val Arg Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Val Asp Glu
50 55 60

Gly Ser Val Ser Thr Tyr Leu Leu Ser Glu Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp
145

<210> 74
<211> 147
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<220>
<221> HBV 11-12x.27-2
<222> (1)..(147)
<223> HBV11-binding subunit

<400> 74

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser

1 5 10 15

Ile Tyr Ala Ser Ile Arg Pro Arg Gln Tyr Ala Lys Phe Lys His Asp

20 25 30

Leu Glu Leu Arg Phe Asn Val Arg Gln Lys Thr Gln Arg Arg Trp Phe

35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Val Asp Trp

50 55 60

Gly Ser Val Ser Thr Tyr Gln Leu Ser Gln Ile Lys Pro Leu His Asn

65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala

85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser

100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp
145

<210> 75
<211> 147
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<220>
<221> HBV 11-12x.41-2
<222> (1)..(147)

<223> HBV11-binding subunit

<400> 75

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Ser Ile Arg Pro Arg Gln Leu Ala Lys Phe Lys His Thr
20 25 30

Leu Glu Leu His Phe Asn Val Arg Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Leu Asp Ser
50 55 60

Gly Ser Val Ser Thr Tyr Leu Leu Ser Gln Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp
145

<210> 76
<211> 147
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Sequence

<220>

<221> HBV 11-12x.48-2

<222> (1)..(147)

<223> HBV11-binding subunit

<400> 76

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Tyr Ala Ala Ile Arg Pro Lys Gln Thr Arg Lys Phe Lys His Glu
20 25 30

Leu Gln Leu Thr Phe Asn Val Arg Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Leu Asp Trp
50 55 60

Gly Ser Val Ser Thr Tyr Ile Leu Ser Gln Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp
145

<210> 77
<211> 147
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 11-12x.26-3

<222> (1)..(147)

<223> HBV12-binding subunit

<400> 77

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile Asn Ala Ser Ile Ala Pro Arg Gln Ser Phe Lys Phe Lys His Gly
20 25 30

Leu Lys Leu Arg Phe Glu Val Gly Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Tyr Asp Asn
50 55 60

Gly Ser Val Ser Val Tyr Ser Leu Ser Gln Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp
145

<210> 78

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 11-12x.9-3

<222> (1)..(147)

<223> HBV12-binding subunit

<400> 78

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile His Ala Cys Ile Arg Pro Arg Gln Thr Ala Lys Phe Lys His Ser
20 25 30

Leu Leu Leu Arg Phe Gln Val Gly Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

```
Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Tyr Asp Asn
    50                  55                  60

Gly Ser Val Ser Val Tyr Glu Leu Ser Gln Ile Lys Pro Leu His Asn
65                  70                  75                  80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
                85                  90                  95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
            100                 105                 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
        115                 120                 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
    130                 135                 140
```

Val Leu Asp

145

<210> 79

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 11-12x.13-3

<222> (1)..(147)

<223> HBV12-binding subunit

<400> 79

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser

1 5 10 15

Ile His Ala Cys Ile Arg Pro Arg Gln Thr Ala Lys Phe Lys His Ser

20 25 30

Leu Leu Leu Arg Phe Gln Val Gly Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Tyr Asp Asn
50 55 60

Gly Ser Val Ser Val Tyr Glu Leu Ser Gln Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala

130 135 140

Val Leu Asp

145

<210> 80

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 11-12x.16-3

<222> (1)..(147)

<223> HBV12-binding subunit

<400> 80

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser

1 5 10 15

Ile His Ala Thr Ile Ser Pro Arg Gln Thr Phe Lys Phe Lys His Gly
20 25 30

Leu Arg Leu Arg Phe Glu Val Gly Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Gly Gly Tyr Val Tyr Asp Asn
50 55 60

Gly Ser Val Ser Val Tyr Ser Leu Ser Gln Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala

115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala

130 135 140

Val Leu Asp

145

<210> 81

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 11-12x.27-3

<222> (1)..(147)

<223> HBV12-binding subunit

<400> 81

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile His Ala Cys Ile Arg Pro Arg Gln Thr Ala Lys Phe Lys His Ser
20 25 30

Leu Leu Leu Arg Phe Gln Val Gly Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Tyr Asp Asn
50 55 60

Gly Ser Val Ser Val Tyr Glu Leu Ser Glu Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser

100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala

115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala

130 135 140

Val Leu Asp

145

<210> 82

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 11-12x.41-3

<222> (1)..(147)

<223> HBV12-binding subunit

<400> 82

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile His Ala Cys Ile Arg Pro Arg Gln Thr Ala Lys Phe Lys His Ser
20 25 30

Leu Leu Leu Arg Phe Gln Val Gly Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Tyr Asp Asn
50 55 60

Gly Ser Val Ser Val Tyr Glu Leu Ser Lys Ile Lys Pro Leu His Asn
65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala
85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser
100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala
115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala
130 135 140

Val Leu Asp
145

<210> 83
<211> 147
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic Sequence

<220>

<221> HBV 11-12x.48-3

<222> (1)..(147)

<223> HBV12-binding subunit

<400> 83

Lys Glu Phe Leu Leu Tyr Leu Ala Gly Phe Val Asp Gly Asp Gly Ser
1 5 10 15

Ile His Ala Cys Ile Arg Pro Arg Gln Thr Ala Lys Phe Lys His Ser
20 25 30

Leu Leu Leu Arg Phe Gln Val Gly Gln Lys Thr Gln Arg Arg Trp Phe
35 40 45

Leu Asp Lys Leu Val Asp Glu Ile Gly Val Gly Tyr Val Tyr Asp Asn
50 55 60

Gly Ser Val Ser Val Tyr Glu Leu Ser Lys Ile Lys Pro Leu His Asn

65 70 75 80

Phe Leu Thr Gln Leu Gln Pro Phe Leu Lys Leu Lys Gln Lys Gln Ala

85 90 95

Asn Leu Val Leu Lys Ile Ile Glu Gln Leu Pro Ser Ala Lys Glu Ser

100 105 110

Pro Asp Lys Phe Leu Glu Val Cys Thr Trp Val Asp Gln Ile Ala Ala

115 120 125

Leu Asn Asp Ser Lys Thr Arg Lys Thr Thr Ser Glu Thr Val Arg Ala

130 135 140

Val Leu Asp

145

<210> 84

<211> 22

<212> DNA

<213> Hepatitis B virus

<400> 84

ccccttctcg tgttacaggc gg 22

<210> 85

<211> 22

<212> DNA

<213> Hepatitis B virus

<400> 85

gatgatctgg tattgggggc ca 22

<210> 86

<211> 22

<212> DNA

<213> Hepatitis B virus

<400> 86

tttgctgatg caacccccac tg 22