

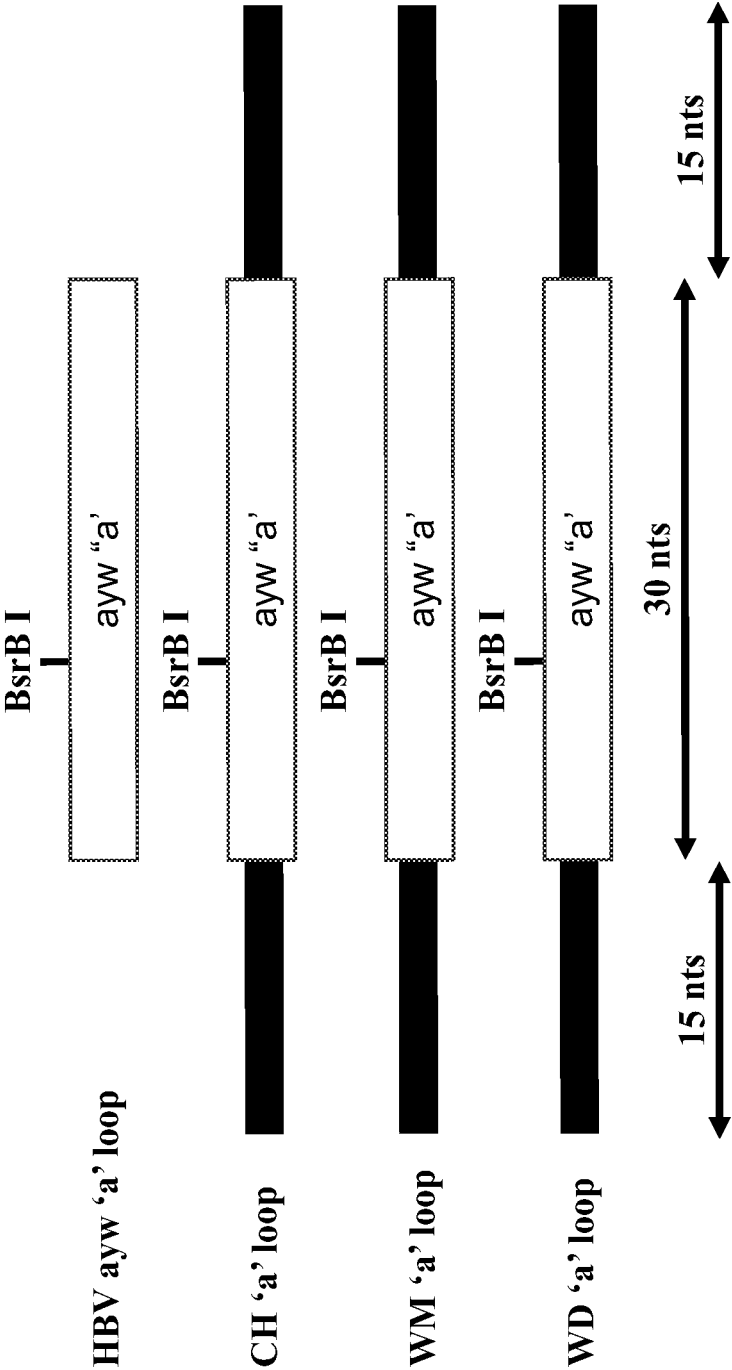


FIG. 1

FIG. 2

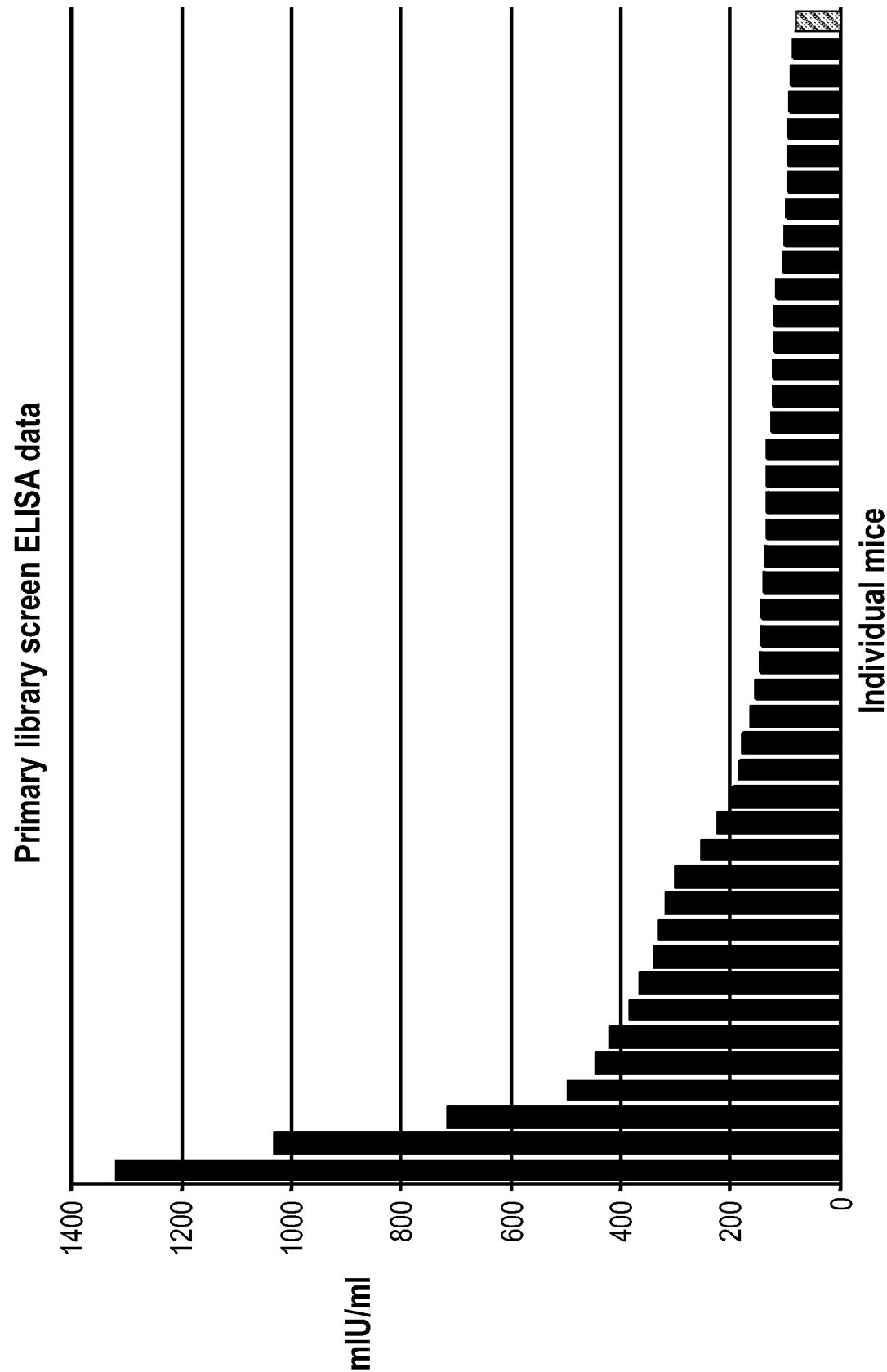


FIG. 3

Human Hepatitis B Virus Envelope (subtype ayw) (SEQ ID NO:1)

ATGCAGTGGAATCCACAACCTTCCACCAACTCTGCAAGATCCAGAGTGAGAGGCCGTGATT
TCCCTGGTGGCTCCAGTTCAGGAACAGTAAACCCCTGTTCTGACTACTGCCCTCCTCCCTATC
GTCAATCTTCTCGAGGATTGGGGACCCCTGCCCTGAACATGGAGAACATCACATCAGGATTCCCTA
GGACCCCTTCTCGTGTACAGGGGGGTTTCTTCTTGTGACAAAGAAATCCTCACAAATACCGCAGA
GTCTAGACTCGTGGTGGACTTCTCTCAATTTTCTAGGGGAACTACCGTGTGTCTTGGCCAAA
TTCGCAGTCCCCAACCTCCAATCACTACCCAACCTCTTGTCTCCAACTTGTCTGGTTATCGC
TGGATGTCTGCGGCGTTTATCATCTTCTCTTCACTCCCTGCTGCTATGCCCTCATCTCTTGT
TGGTTCTTCTGGACTATCAAGGTATGTTGCCCGTTTGTCCCTCTAATCCAGGATCCTCAACAAC
CAGCAGGGACCATGCCGGACCTGCATGACTACTGCTCAAGGAACCTCTATGTATCCCTCCTGT
TGCTGTACCAAACCTTCGGACGGAAATTGCACCTGTATTCCCATCCCATCATCTGGGCTTTCG
GAAAATTCCCTATGGGAGTGGGCTCAGCCCCGTTTCTCCTGGCTCAGTTTACTAGTGCCATTGT
TCAGTGGTTCGTAGGGCTTTCCCCCACTGTTTGGCTTTCAGTTATATGGATGATGTGGTATTGG
GGGCCAAGTCTGTACAGCATCTTGAGTCCCTTTTACCCTGTTACCAATTTTCTTTGTCTTT
GGTATACATTAA

Human Hepatitis B Virus Envelope (subtype ayw) (SEQ ID NO:2)

MQWNSTTFHQTLQDPRVRGLYFPAGSSSGTVNPNVLTASPLSSIFSRIGDPALNMENITSGFL
GPLLVLAQGFELLTRILLIPQSLDSWWTSLNFLGGTTVCLGQNSQSPSTSNHSPSCPPTCPGYR
WMCLRRFIIFFILLCLIFLLVLDYQGMPLVCPFLIPGSSTTSTGPCRTCMTTAQGTSMYPSC
CCTKPSDGNCTCIPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFLSPTVWLSVIWMMWYW
GPSLYSILSPFLPLLPIFFCLWVYI

FIG. 4

Woolly Monkey Hepatitis Virus Envelope (SEQ ID NO:3)

ATGCAGTGGAATTCCACTTCCCTTCCAGAGTTATCTTCAGAAATCCAAAGGTCAGAGGC
CTCTACTTTCCCTGCTGGCTCAACTTCAAGCATTGTCAACCTGTTCGACCACTG
CCTCCACCACATCGTCAAGCTTCTCGACGACTGGGTCCCTGTCAGCACCATGGACA
TCACTTCATCAGGATTCCTAGGACCCCTTCTCGCATTACAGGCGGTGTTTTTCTTGT
GACAAAATCCTCACAAATGCCACAGAGTCTAGACTCGTTGTGACTTCTCTCAATTT
TCTAGGGGGAACACAGCGTGTCTGGCCTAAATTCGAGTCCCCAACCTCCAGTCA
CTCACCAACCTGCTGCCACCGACTTGTCTGGGTATCGCTGGATGTGTTGCGGCGT
TCTATCATCTTCTCTTCAATCCTGCTTCTATGCCTCATCTTCTTGTGTTCTTCTGGA
CTACCAAGGTATGTTGCCCGTGTGCTCTTCTACCAACAGTTACAGGAACAACAAC
AACAAAGGACCCCTGCAGACCTGCACGCCAATGTTCCAGGCACTCTTTCGTATCC
CTCATGTTGCTGTACCAAACCTACGACGGAACCTGCACTTGTATTCCTCATCCCCC
ATCATGGGCTTTCGCAAGTTCTATGGGACTGGGCTTAGCCCGTTTCTCCTGGCTC
AATTCACTTCTGCCATTGTTTCAGTGGTTCGACGGGCTTCCCCCACTGTATGGCTT
TAGTTATATGGATGATGTTCTTGGGGGCCAAGTCTGTTACGCACTTGTAGTCCCTT
CTTGCCCTCTGTACCACCTTTCTTTTGGCTTTGGGTATACATTTAA

Woolly Monkey Hepatitis Virus Envelope (SEQ ID NO:4)

MQWNSTFSQSYLQNPQVRGLYFPAGGSTSSIVNPVPTASTSSSFSTGVPVSTMDITSS
GFLGPLLALQAVFLLTKILTMPQSLDSLWTSNLFGLGTPACPGLSQSPTSSHSPTCCPP
TCPGYRWMCLRRSHIFLLCLIFLLVLLDYQGMLPVCPLLPVTVTGTTTTTGPCRTCTPI
VPGISSYSPCCCTKPTDGNCTCIPSSWAFKFLWDWALARFSWLSLLPFVQWFAGLS
PTVWLLVIWMMWFWGPSLFSILSPFLPLPLFFFWLVVYI

FIG. 5

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HBV (adw2) PreS2 plus Woodchuck Hepatitis Virus S Envelope (SEQ ID NO:5)

ATGCAGTGGAAATCCACTGCCTTCCACCAAACTCTGCAGGATCCCAGAGTCAGGGGT
CTGTATCTTCTGCTGGTCCAGTTCAGGAACAGTAACCCCTGCTCCGAATATT
GCCTCTCACATCTCGTCAATCTCCGCGAGACTGGGACCCCTGTGACGAACATGTCA
CCATCAAGTCTCCTAGGACTCCTCGCAGGATTACAGGTGGTGTATTCTTGTGGACA
AAATCCTAACAAATAGCTCAGAAATCTAGATTGGTGGTGGACTTCTCTCAGTTTTC
GGGGGCATACCAGAGTGCACTGGCCAAAATTTCGCAGTTCCAAACTTGCAAAACACTT
GCCAACCTCCTGTCCACCAACTTGCAATGGCTTTCGTTGGATGTATCTGCGGCGTTT
ATCATATACCTATTAGTCCTGCTGTGCTCTTCAACCCACACAGAAACAGTCAATTG
GAAAGGTTTAATACCTGTCTGTCTCTTCAACCCACACAGAAACAGTCAATTG
CAGACAATGCACAAATCTCTGCACAAGACATGTATACTCCTCCTACTGTTGTTGTTA
AAACCTACGGCAGGAAATTGCACCTTGTGGCCCATCCCTTCATCATGGGCTTTAGGA
AATTACCTATGGGAGTGGCCTTAGCCCGTTTCTCTTGGCTCAATTACTAGTGCCCT
TGCTTCAATGGTAGGAGGAATTTCCCTCATTTGCGTGGTTTTGCTTATATGGATGAT
TTGGTTTTGGGGCCCGCACTTCTGAGCATCTTACCGCCATTATTCCCATATTGTT
CTGTTTTTCTTGATTGGGTATACATTAA

HBV (adw2) PreS2 plus Woodchuck Hepatitis Virus S Envelope (SEQ ID NO:6)

MQWNSTAFHQTLQDPRVRGLYLPAGSSSGTVNPAPNIASHISSISARTGDPVTNMSPPS
LLGLLAGLVVYFLWTKILTIAQNLDWWWTSLSPGGIPECTGQNSQFQCKHLPTSCPP
TCNGFRWMYLRRFIYLLVLLCLIFLLVLLDWKGLIPVCPLQPTTETTVNCRQCTISAQD
MYTPPYCCCLKPTAGNCTCWPPISSWALGNYLWEWALARFSWLNLLVPLLQWLGGISL
IAWFLLIWMIWFWGPALLSILPPFIPIFVLFLLIWWYI

FIG. 6

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Composite Chimpanzee-Gibbon Hepatitis Virus Envelope (SEQ ID NO:7)

ATGCAGTGGAAATTCACAGTATTCCACCAAGCTCTGCAAGATCCCAGAGTACGGGGCCTATACT
TTCCCTGTTGGTGGCTCCAGTTCAGGAACATTGAACCTGTTCGGAATACTGCCTCTCACATCTC
GTCAGTCTTCTCGACGACTGGGACCCCTGCACCGAACATGGAGAACATCACATCAGGATTCCCTA
GGACCCCTGCTGCTGTACAGGCGGGGTTTTTCTTGTGTGACAAAAATCCTCACAAATACCCACAGA
GTCTAGACTCGTGGTGGACTTCTCTCAATTTTCTAGGGGAGCACCCGTGTCTCTGGCCAAAAA
TTCGCAGTCCCCAACCTCCAACTCACTACCAACCTCTTGTCTCTCCAAATTTGTCTCTGGCTATCGC
TGGATGTGCTGCGGCGTTTTATCATCTTCTCTCATCTGCTGCTATGCCATCTTCTTGT
TGGTCTCTTGACTATCAAGGTATGTTGCCCGTTTGTCTCTACTTCCAGGATCATCGACCAC
CAGCACGGGACCATGCAAAACCTGCACGATCCCTGCTCAAGGAACCTCTTTGATTCCCTCATGT
TGTTGTACAAAAACCTTCGGACGGAAATTGCACCTTGATTTCCCATCCCATCGTCTTGGGCTTTTCG
CAAAATTCCTATGGGAGTGGGCTCAGTCCGTTTCTCTCTGGCTCAGTTTACTAGCTCCATTTGT
TCAGTGGTTTCGACGGGCTTTCCCCCAGTCTTGGCTTTTAGCTATATGGATCATCTGGGTATTGG
GGCCCAAATCTGTACAACATCTTGAATCCATTATACCGCTGTACCAATTTTCTTTTGTCTTT
GGGTATACATTAA

Composite Chimpanzee-Gibbon Hepatitis Virus Envelope (SEQ ID NO:8)

MQWNSTVFHQALQDPRVRGLYFPVGGSSGTLNPVPNTASHISSVFSTTGDPAPNMENI
TSGFLGPLLVLQAGFFLLTKILTIQSLDSWWTSLNFLGGAPVCPGQNSQSPTSNHSPTSC
PPICPGYRWMCLRRFIIFLLCLIFLLVLLDYQGMPLVCPLLPGSSTTSTGPCKTCTIPA
QGTSLIPSCCKPKPSDGNCTCIPIPSWAFKFLWEWASVRFSLSLAPFVQWFAGLSP
TAWLLAIWIIWYWGPNLYNILNPFIFLLPIFFCLWVYI

FIG. 7

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6101 nucleic acid sequence (SEQ ID NO:9)

ATGCAGTGGAATTCTACAGTATTCCACCAAACTCTGCAAGATCCAGAGTGGGGGT
CTGTATCTTCCTGCTGGTGGCTCAGTTACAGAACAGTAACCCCTGTTCTGACTACTG
CCTCTCCCTTATCGTCAATCTTCTCGAGGATTGGGGACCCCTGCGCTGAACATGGAGA
ACATCACATCAGGATTCCTAGGACCCCTTCTCGTGTACAGGCGGGGTTTTTCTTGAT
GACAAAAATCCTCACAAATGCCGAGAGTCTAGACTCGTGTGACTTCTCTCAATTT
TCTAGGAGAGCACCCGTGTGTCTGGCCAAAATTTCGCAGTCCCCAACCTCCAATCA
CTCACCAACCTCTTGTCTCTCCAAATTGTCTGGCTATCGCTGGATGTGTCTGCGCGGT
TTTATCATCTTCTCTTCA TCCTGCTGCTATGCCTCATCTTCTTGTGTTCTTCTGGA
CTATCGAGGTATGTTGCCCGTTTGCTCTCTACTTCCAGGATCATCGACCAACGACG
GGACCATGCAAAACCTGCACGATCCCTGCTCAAGGAACCTCTTTGATTCCCTCATGTT
GTTGTACAAAACCTTCGGACGGAATTGCACCTTGTAATCCCATCCCATCGTCTTGGGC
TTTCGCAAAATTCCATATGGAGTGGCCTCAGTCCGTTTCTCCTGGCTCAGTTTACTA
GCTCCATTTGTTTCAGCGGTTTCGAGGGCTTTCCCCCACTGCTTGCTTTTAGCTATAT
GGATCATCTGGTATTGGGGGCCAAATCTGTACAACATCTTGAGTCCCTTCTTGCCGCT
GTTACCAATTTTCTTTTGTCTTTGGGTATACATTTAAATGCTAGAGGTACCCCTGA

6101 amino acid sequence (SEQ ID NO:10)

MQWNSTVFHQTLQDPRVGGGLYLPAGGSSSGTVNPVLTASPLSSIFSRIKDPALNMENIT
SGFLGPLLVLQAGFFLMTKILTMPQSLDSWWTSLNFLGRAPVCPGQNSQSPTSNHSPTSC
PPICPGYRWMCLRRFHFILLCLIFLLVLLDYRGMPLVCPLLPGSSTSTGPKCTCTIPA
QGTSLIPSCCCTKPSDGNCTCIPSSWAFKFLWEWASVRFWSLSLLAPFVQRFAGLSPT
AWLLAIWIIWYWGPNLYNILSPFLPLPIFFCLWVYI

FIG. 8

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6102 nucleic acid sequence (SEQ ID NO:11)

ATGCAGTGGAATTCCACAACCTTCCACCAAACCTCTGCAGGATCCAGATCCAGGCAGGGG
TCTGTATCTTCTGCTGGTCCAGTTCAGGAACAGTAACCCCTGCTCCGAATAC
TGCCCTCACATCTCGTCAGTCTTCTCGACGACTGGGACCCCTGCACCGAACATGGA
GAACATCACATCAGGATTCCTAGGACCCCTGCTCGTGTACAGGCGGGGTTTCTTCTT
GTTGACAAAAATCCTCACAAATGCCACAGAGTCTAGACTCGTTGTGGACTTCTCTCAA
TTTTCTAGGGGGAACACGAGCGTGTCTTGGCCAAAATTGCGAGTCCCCAACCTCCAA
TCACTCACCAACCTCTTGTCTCCAACTTGTCTCTGTTATCGCTGGATGTGTCTGCGG
CGTTTATCATCTTCTCTTCATCCTGCTGCTATGCCCTCATCTTCTTGTGGTCTTCT
GGACTATCGAGGTAATGTTGCCCGTTTGTCTCTCTAATTCCAGGATCCTCAACAACCCAG
CACGGGACCTTGCAGGACCTGTATGACTACCGCTCAAGGAACCTCTATGTATCCCTC
ATGTTGTTGTACAAAACCTTCGGACGGAATTGCACCTGTATTCCTCATCCCATCATC
CTGGGCTTTCGGAAAAATTCCTATGGGACTGGGCTCAGCCCGTTTCTCTGGCTCAG
TTTACTAGTGCCATTGTTCAGCGGTTTCGACGGGCTTCTCCCACTGCTTGGCTTCA
GTTATATGATGATGTGTAATGGGACCAAGTCTGTACAGCATCTTGAGTCCCTTT
TTACCGCTGTACCAATTTTCTTTTGTCTTTGGGTATACATTTAA

6102 amino acid sequence (SEQ ID NO:12)

MQWNSTTFHQTLQDPRVRGLYLPAGGSSGTVNPAPNTASHISSVFSTTGDPAPNMENI
TSGFLGPLLVLQAGFFLLTKILTMPQSLDSLWTSNLFLLGGTPACLGQNSQSPTSNHSPTSC
PPTCPGYRWMCLRRFHFLLCLIFLLVLLDYRGMPLVCPPLPGSSTTSTGPCRTCMTT
AQGTSMYPSCCCTKPSDGNCTCIPISSWAFGKFLWDWASARFSWLSLLVPFVQRFAGL
SPTAWLSVIWMMWYWGPSLYSILSPFLPLPIFFCLWVYI

FIG. 9

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6103 nucleic acid sequence (SEQ ID NO:13)

ATGCAGTGGAATTCCACTGCCTTCCACCAAACTCTGCAGGATCCCAGATCAGGGG
TCTGTATCTCCTGCTGGTCCAGTTCAGGAACAGTAAACCCCTGCTCCGAATAT
TGCCCTCACATCTCGTCAATCTCCGCGAGACTGGGACCCCTGCACCGAACATGG
AGAACATCACATCAGGATTCTCTAGGACCCCTGCTCGTGTACAGGCGGTGTTTCT
TGTTGACAAAGAAATCCTCACAAATACCGCAGAGTCTAGACTCGTGGTGACTTCTCTCA
ATTTTCTAGGGGAACTACCGTGTGTCCTGGCCAAATTCGCAGTCCCCAACCTCCA
ATCACTCACCAACCTCTTGTCTCCAACTTGTCCTGGTTATCGCTGGATGTGCTGCG
GCGTTTATCATATACCTATTAGTCTGCTGCTGCTGCCTCATCTTCTTGTGGTTCTT
CTGGACTATCAAGGTATGTTGCCCGTTTGTCCTCTAATTCCAGGATCCTCAACAACC
AGCACGGGACCATGCAAAACCTGTATGACTACCGCTCAAGGAACCTCTATGTATCC
CTCATGTTGTGTACAAACCTTCGGACGGAATTCGACTTGATTCCTCATCCCATC
ATCCTGGGCTTTCGGAAATTCCTATGGGAGTGGCCCTCAGCCCCTTCTCCTGGCT
CAGTTTACTAGTGCCATTGTTCAGCGGTTCGCAGGGCTTTCCTCCACTGTTTGGCTT
TCAGTTATATGATGATTTGTTTGGGGCCAAAGTCTGTACAGCATCTTGAGTCCC
TTTTTACCGCTGTACCAATTTTCTTTTGTCTTTGGGTATACATTAA

6103 amino acid sequence (SEQ ID NO:14)

MQWNSTAFHQTLQDPRVRGLYLPAGGSSGTVNPAPNIASHISSISARTGDPAPNMENIT
SGFLGPLLVLQAVFFLLTRILTIQSLDSWWTSLNFLGGTTVCPGQNSQSPTSNHSPTSCP
PTCPGYRWMCLRRFIYLLVLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCKTCMTT
AQGTSMPSCCCTKPSDGNCTCIPISSWAFGKFLWEWASARFSWLSLLVPFVQRFAGL
SPTVWLSVIWMIWFWGPSLYSILSPFLPLLPPIFFCLWVYI

FIG. 10

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6104 nucleic acid sequence (SEQ ID NO:15)

ATGCAGTGGAAATTCTACAACCTTCCACCAAACTCTGCAGGATCCCAGAGTCAGGGGTCTGTATCT
TCCTGCTGGTGGCTCCAGTTCAGGAACAGTAAACCTGCTCCGAATATTGCCCTCTCACATCTCGT
CAATCTCCGCGAGACTGGGACCTGCGCTGAACATGGAGAACATCACATCAGGATTCCTAGG
ACCCCTTCTCGTGTACAGGCGGGGTTTTCTTGTGACAAAGAAATCCTCACAAATACCAAGAGTC
TAGACTCGTGTGACTTCTCTCAATTTCTAGGGGAACCTACCGTGTCTTTGGCCTAAATTCTG
CAGTCCCCAACCTCCAATCACTACCAACCTCTTGTCTCTCCAACTTGTCTGCTGTTATCGCTGGATG
TGCTGCGGCGTTTTATCATCTTCTCTTCACTCTGCTTCTATGCTCATCTTCTTGTGTTCTTC
TGGACTATCAAGGTATGTTGCCCGTTTGTCCTAATTCCAGGATCCTCAACAACCAACGCGGA
CCATGCAAAACCTGTATGACTACCCCTCAAGGAACCTCTATGTATCCCTCATGTTGCTGTACCAA
ACCTTCGGACGGAATTGCACCTGTATCCCATCCCATCATCTGGGCTTTCGGAAAATTCCTAT
GGGAGTGGGCTCAGCCCGTTTCTCCTGGCTCAGTTTACTAGTGCCATTTGTTCAAGTGGTTCGTA
GGGCTTCCCCCACTGCTTGGCTTTTGGCTATATGGATCATCTGATTTGGGGGCCAAATCTGTA
CAACATCTTGAATCCCCTTTTACCGCTGTACCAATTTTCTTTTGTCTTTTGGGTATACATTTAA

6104 amino acid sequence (SEQ ID NO:16)

MQWNSTTFHQTLQDPRVRGLYLPAGGSSGTVNPAPNIAHSHISSARTGDPALNMENITSGFLGPLLV
LQAGFFLLTRILTIQSLDSWWTSLNFLGGTTVCLGLNSQSPTSNHSPTSCPPTCPGYRWMCLRRFIIFL
FILLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCKTCMTTPQGTSMYPSCCCCTKPSDGNCTCIPSS
WAFGKFLWEWASARFSWLSLLVPFVQWFVGLSPTAWLLAIWIIWYWGPNLYNILNPFLPLPIFFCL
WVYI

FIG. 11

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6105 nucleic acid sequence (SEQ ID NO:17)

ATGCAGTGGAATTCCACTGCCTTCCACCAAACTCTGCAGGATCCCAGATCAGGGG
TCTGTATCTTCTGCTGGTCCAGCTCAGGAACAGTAACCCCTGCTCCGAATAT
TGCCCTCACATCTCGTCAATCTCCGCGAGGATTGGGGACCCCTGCGCTGAACATGGA
GAACATCACATCAGGATTCCTAGGACCCCTTCTCGCAATTACAGGCGGTGTTTCTT
GTTGACAAAATCCTCACAAATGCCACAGAGTCTAGACTCGTGGTGGACTTCTCTCAA
TTTTCTAGGGGAACTACCGTGTGCTTGGCCAAAATTGCGAGTCCCCAACCTCCAA
TCACTCACCAACCTCTTGTCTCTCCAACTTGTCTGTTATCGCTGGATGTGTCTGCGG
CGTTTTATCATCTTCTCTCATCTGCTGCTATGCCTCATCTTCTTGTGTTCTTCT
GGACTATCGAGGTATGTTGCCCGTTTGTCCTCTAATTCCAGGATCCTCAACAACCCAG
CACGGGACCATGCAAAACCTGTATGACTACCGCTCAAGGAACCTCTATGTATCCCTC
ATGTTGTTGTACAAAACCTTCGGACGGAAATTGCACCTGTATCCCATCCCATCATC
CTGGGCTTTCGCAAAATTCCTATGGGAGTGGCCCTCAGCCCGTTTCTCCTGGCTCAG
TTTACTAGTGCCATTGTTTCAGTGGTTCGTAGGGCTTCCCCCACTGTTTGGCTTTCA
GTTATATGGATGATGGTATTGGGGGCCAAAGTCTGTTTCAGCATCTTGAGTCCCTTC
TTGCCCTCTGTACCAATTTTCTTTTGTCTTTGGGTATACATTTAA

6105 amino acid sequence (SEQ ID NO:18)

MQWNSTAFHQTLQDPRVRGLYLPAGGSSGTVNPAPNIASHISSISARIGDPALNMENIT
SGFLGPLLALQAVFFLLTKILTMPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNIHSPTSC
PPTCPGYRWMCLRRFIIFILLCLIFLLVLDDYRGMPLVCPLIPGSSTTSTGPCKTCMTT
AQGTSMYPSCCCTKPSDGNCTCPIPSSWAFAKFLWEWASARFSWLSLLVPFVQWVFVGL
SPTVWLSVIWMMWYWGPSLFSILSPFLPLLPFFCLWVYI

FIG. 12

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6106 nucleic acid sequence (SEQ ID NO:19)

ATGCAGTGGAATTCCACAACCTTCCACCAAACTCTGCAAGATCCAGAGTGAGAGG
CCTGTATTCCCTGCTGGTCCAGTTCAGGACAGTAACCCCTGTTCTGACTAC
TGCCCTCCCTTATCGTCAATCTTCTCGAGGATTGGGGACCCCTGCCTGAACATGGA
GAACATCACATCAGGATTCCTAGGACCCCTTCTCGTGTACAGGCGGGGTTTTTCTT
GTTGACAAGAATCCTCACAAATACCGCAGAGTCTAGACTCGTGTGGACTTCTCTCAG
TTTTCCAGGGGCATACCAGAGTGCACTGGCCAAAATTTCGAGTCCCCAACCTCCA
ATCACTACCAACCTCTTGTCTCCTCAACTTGTCTCTGTTATCGCTGGATGTGTCTGCG
GCGTTTTATCATCTTCCCTCTTCATCCTGCTGCTATGCCCTCATCTTCTTGTGTTCTTC
TGGACTATCGAGGTATGTTGCCCGTTTGTCTCTACTTCCAGGATCCTCAACAACCA
GCACGGGACCCCTGCAGGACCTGTATGACTACCGCTCAAGGAACCTCTATGTATCCCT
CATGTTGCTGTACCAAACTTCGGACGGAAATTGCACCTGTATTCCCATCCCATCAT
CCTGGGCTTTCGCAAAATTCCTATGGAGTGGGCTCAGCCCCGTTTCTCCTGGCTCA
GTTTACTAGTGCCATTGTGTTTCAGTGGTTCGTAGGGCTTTCCCCCACTGTTTGGCTTC
AGTTATATGGATCATCTGTTATTTGGGGGCCAAATCTGTACAACATCTTGAATCCATT
TATACCGCTGTACCAATTTTCTTTTGTCTTTGGGTATACATTTAA

6106 amino acid sequence (SEQ ID NO:20)

MQWNSTTFHQTLQDPRVRGLYFPAGGSSSGTVNPVLTTASPLSSIFSRIIGDPAALNMENIT
SGFLGPLLVLQAGFFLLTRILTIQSLDSLWTSLSFPGGIPECTGQNSQSPTSNHSPSCPPT
CPGYRWMCLRRFHFLLCLIFLLVLLDYRGMPLVCPLLPGSSTTSTGPCRTCMTTAQ
GTSMYPSCCCTKPSDGNCTCIPSSWAFAKFLWEWASARFSWLSLLVPFVQWFWVGLSP
TVWLSVIWIIWYWGPNLYNILNPFIPLLPIFFCLWVYI

FIG. 13

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6107 nucleic acid sequence (SEQ ID NO:21)

ATGCAGTGGAATCCACTGCCTTCCACCAAACTCTGCAGGATCCAGATCAGGGGT
CTGTATCTTCTGCTGGTCCAGTTCAGGAACAGTAAACCTGCTCCGAATATT
GCCTCTCCCTTATCGTCAATCTTCTCGACGACTGGGACCCCTGCACCGAACATGGAG
AACATCACATCAGGATTCCTAGGACCCCTTCTCGTGTTACAGGGGGGTTTTCCTTGT
TGACAAGAATCCTCACAAATACCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAATT
TTCTAGGGGAGCACCCGTGTGCTTGGCCAAAATTTCGCAGTCCCAACCTCCAATC
ACTCACCAACCTCTTGTCTCCAACTTGTCTCTGGTATCGCTGGATGCGTCTGCGGC
GTTTTATCATCTTCTCTTCAATCCTGCTGCTATGCCTCATCTTCTTGTGTTCTTCTG
GACTATCGAGGTATGTTGCCCGTTTGTCTCTAATTCCAGGATCCTCAACAACCGGC
ACGGGACCCCTGCAGGACCTGTATGACTACTGCTCAAGGAACCTCTATGTATCCCTCA
TGTTGTTGTACAAAACCTTCGGACGGAAAATTGCACCTTGATTTCCCATCCCATCCTT
GGGCTTTCGGAAAATTCTATGGGAGTGGGCTCAGCCCGTTTCTCCTGGCTCAGTT
TACTAGTGCCATTGTTTCAGTGTTCGTAGGGCTTTCCTCCCGCTGTATGGCTTTCAGT
TATATGGATGATGTGGTATTGGGGGCCAAGTCTGTACAGCATCTTGAGTCCCTTTT
ACCGCTGTACCAAATTTCTTTTGGCTTTGGGTATACATTTAA

6107 amino acid sequence (SEQ ID NO:22)

MQWNSTAFHQTLQDPRVRGLYLPAGGSSSGTVNPAPNIASPLSSIFSTTGDPAPNMENIT
SGFLGPLLLVLQAGFFLLTRILTIQSLDSWWTSLNFLGGAPVCLGQNSQSPTSNSHSPTSCP
PTCPGYRWMRLRRFIIFLLCLIFLLVLLDYRGMPLVCPPLIPGSSTTGTPCRTCMTTA
QGTSMYPSCCCTKPSDGNCTCIPSPSSWAFGKFLWEWASARFSWLSLLVPFVQWFVGLS
PAVWLSVIWMMWYWGPSLYSILSPFLPLLPIFFWLWVYI

FIG. 14

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6108 nucleic acid sequence (SEQ ID NO:23)

ATGCAGTGGAATTCTACTGCCTTCCACCAAACTCTGCAGGATCCCAGAGTCAGGGGT
CTGTATCTTCTGCTGGTCCAGTTCAGGAACAGTAAACCTGCTCCGAATATTG
CCTCTCACAATCTCGTCAATCTCCGAGGACTGGGACCCTGTGACGAACATGTCAC
CATCAAGTCTCCTAGGACTCCTCGCAGGATTACAGGTGGTGTATTCTTGTGGACAA
AAATCCTAACAAATACCGCAGAGTCTAGACTCGTGGTGACTTCTCTCAATTTTCTAG
GGGAGCACCCGTGTCTCTGGCCAAAATTGCAGTCCCAACCTCCAATCACTCAC
CAACCTCTTGTCTCTCCAAATTTGTCTGGTTATCGCTGGATGTGTCTGCGGCGTTTAT
CATCTTCTCTTCATCCTGCTTCTATGCCCTCATCTTCTTGTGGTCTTCTGGAATATC
AAGGTATGTTGCCGTTTGCTCTCTAATTCAGGATCATCGACCAACAGCAGGGGAC
CATGCAAAACCTGTATGACTACCCCTCAAGGAACCTCTATGTATCCCTCATGTTGTTG
TACCAAAACCTTCGGACGGAATTGCACTGTATTCCTCATCCATCATCCTGGGCTTTC
GGAATAATCCTATGGGAGTGGGCTCAGTCCGTTTCTCTGGCTCAGTTTACTAGCTC
CATTGTTTCAGCGGTTTCGTAAGGCTTTCCCCCACTGTTTGGCTTTCAGTTATATGGAT
GATGTGTTCTGGGGGCCAAGTCTGTTTCAGCATCTTGAGTCCCTTCTTGCCTCTGTAA
CCACTTTCTTTTGGCTTTGGGTATACATTAA

6108 amino acid sequence (SEQ ID NO:24)

MQWNSTAFHQTLQDPRVRGLYLPAGGSSSGTVNPAPNIAHSHISSISARTGDPVTNMSPPSS
LLGLLAGLVVYFLWTKILTIPQSLDSWWTSLNFLGGAPVCPGQNSQSPTSNHSPTSCPPI
CPGYRWMCLRRFIIFLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSGPCKTCMTTPQG
TSMYPSCCCTKPSDGNCTCIPSSWAFGKFLWEWASVRFSWLSLLAPFVQRFVGLSPTV
WLSVIWMMWFWGPSLFSILSPFLPLPLFFWLWVYI

FIG. 15

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6109 nucleic acid sequence (SEQ ID NO:25)

ATGCAGTGGAA TTCTACTGCCTTCCACCAAACTCTGCAGGATCCAGATCAGGGGT
CTGTATCTTCTGCTGGTCCAGTTCAGGAACAGTAAACCCCTGCTCCGAATATT
GCTCTCACATCTCGTCAATCTCCGCGAGACTGGGACCCCTGTGACGAACATGTCA
CCATCAAGTCTCTAGGACTCCTCGCAGGATTACAGGTGGTGATTTCTTGTGGACA
AAATCCTAACAAATACCGCAGAGTCTAGACTCGTGGTGACTTCTCTCAATTTTCTA
GGGGAGCACCCGTGTCTCTGGCCAAAATTTCGCAGTCCCCAACCTCCAATCACTCA
CCAACTCTTGTCTCCTCCAATTTGTCTCTGGTTATCGCTGGATGTGTCTGCGGCGTTTA
TCATCTTCTCTTCATCCTGCTTCTATGCCCTCATCTTCTTGTGTTCTTCTGACTAT
CAAGTATGTTGCCCGTTTGTCTCTCTAAATTCAGGATCATCGACCAACGACGCGGA
CCATGCAAAACCTGTATGACTACCCCTCAAGGAACCTCTATGTATCCCTCATGTTGTT
GTACCAAACTTCGGACGGAAATTGCACCTGATTTCCCATCCCATCATCCTGGGCTT
TCGGAAAATTCTCTATGGGAGTGGGCTCAGTCCGTTTCTCCTGGCTCAGTTTACTAG
CTCCATTTGTTTCAGCGGTTCTGATGGGCTTCCCCCACTGTTTGGCTTTCAGTTATATG
GATGATGTGTTCTGGGGCCAAAGTCTGTTTCAGCATCTTGAGTCCCTTCTTGCCCTCTG
TTACCACTTTTCTTTTGGCTTTGGGTATACATTTAA

6109 amino acid sequence (SEQ ID NO:26)

MQWNSTAFHQTLQDPRVRGLYLPAGSSSGTVNPAPNIA SHISSISARTGDPVTNMSPPS
LLGLLAGLQVVYFLWTKILTIPQSLDSWWTSLNFLGGAPVCPGQNSQSPTSNHSP TSCPPI
CPGYRWMCLRRFIIFLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPKCTCMTTPQG
TSMYPSCCCTKPSDGNCTCIPSSWAFGKFLWEWASVRFSWLSLLAPFVQR FVGLSPTV
WLSVIWMMWFWGPSLFSILSPFLPLLPLFFWLWVYI

FIG. 16

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6111 nucleic acid sequence (SEQ ID NO:27)

ATGCAGTGGAATTCCACTGCCTTCCACCAAACTCTGCAAGATCCAGAGTACGGGGC
CTATACTTTCCTGTTGGTGGCTCCAGTTCAGGAACAGTAAACCCCTGCTCCGAATATT
GCCCTCCCTTATCGTCAATCTTCTCAGGATTGGGACCCCTGCGCTGAACATGGAG
AACATCACATCAGGATTCTAGGACCCCTGCTCGTGTACAGGCGGGGTTTTTCTTG
TTGACAAAAGTCCTCACAAATACCGCAGAGCCTAGACTCGTGGTGGACTTCTCTCAAT
TTTCTAGGGGAACTACCGTGTCTTGGCCAAAATTGCGAGTCCCCAACCTCCAAT
CACTACCAACCTCTTGTCCTCCAACCTTGTCCTGGTTATCGCTGGATGTGTCTGCGGC
GTTTATCATCTCCTCTTCATCCTGCTGCTATGCCTCATCTTCTTGTGTTCTTCTG
GACTATCAGGTATGTTGCCCGTTTGTCCTCTAATTCCAGGATCCTCAACAACCCAGC
ACGGACCCCTGCAGGACCTGTATGACTACCGCTCAAGGAACCTCTATGTATCCCTCA
TGTTGTTGTACAAAACCTTCGGACGGAAATTGCACTTGTAATCCCATCCCATCATCCT
GGGCTTTCGGAAAATTCCCTATGGGAGTGGGCCCTCAGCCCGTTTCTCCTGGCTCAGTT
TACTAGTGCCATTGTTCAGTGGTTCGTAGGGCTTCCCCCCTGCTGGCTTTTAGC
TATATGGATCATCTGGTATTGGGGGCCAAATCTGTACAACATCTTGAATCCATTAT
ACCGCTGTACCAAATTTTCTTTTGTCTTTGGGTATACATTTAA

6111 amino acid sequence (SEQ ID NO:28)

MQWNSTAFHQTLQDPRVRGLYFPVGGSSGTVNPAPNIASPLSSIFSRIGDPALNMENITS
GFLGPLLVLAGFFLLTKVLTIPTQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTSCP
PTCPGYRWMCLRRFIIFILLCLIFLLVLLDYRGMPLVCPPLIPGSSTTSTGPCRTCMTTA
QGTSMYPSCCCTKPSDGNCTCIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFVGLS
PTAWLLAIWIIWYWGPNLYNILNPFIPLLPIFFCLWVYI

FIG. 17

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6201 nucleic acid sequence (SEQ ID NO:29)

ATGAGTGGAAATCCACTGCCTTCCACCAAACTCTGCAGGATCCAGATCAGGGGT
CTGTATCTTCCCTGGTGGCTCCAGCTCAGGAACAGTAAACCCCTGCTCCGAATATT
GCCCTCACATCTCGTCAATCTCCGCGAGGATTGGGACCCCTGCGCTGAACATGGGG
AACATCACATCAGGATTCTAGGACCCCTTCTCGTGTACAGGCGGGTTTTTCTTG
ATGACAAAATCCTCACAAATGCCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAAT
TTCTAGGGGGAACCTACCGTGCCTCCTGGCCAAAATTCGCAGTCCCCAACCTCCAAT
CACTACCAACCTCTTGTCTCCTCAACTTGTCTCTGGTTATCGCTGGATGTGTCTGCGGC
GTTTTATCATCTTCTCTTCACTCTGCTGCTATGCCTCATCTTCTTGTGTTCTTCTG
GACTATCGAGGTATGTTGCCCGTTTGTCTCTACTTCCAGGTCCTCAACAACACG
ACGGACCCCTGCAGGACCTGTATGACTACCGCTCAAGGAACCTCTATGTATCCCTCA
TGTTGCTGTACCAAACTTCGGACGGAAATTGCACCTGTATTCCTCATCCCATCATCCT
GGGCTTTCGCAAAATTCCTATGGGAGTGGGCCTCAGCCCCTTCTCCTGGCTCAGTTT
ACTAGTGCCATTTGTTCAGTGTTCGTAGGGCTTCCCCCCTGTTGGCTTTCAGTT
ATATGATCATCTGTATTGGGGGCCAAATCTGTACAACATCTTGAATCCATTTATA
CCGCTGTTACCAATTTTCTTTTGTCTTTGGGTATACATTTAA

6201 amino acid sequence (SEQ ID NO:30)

MQWNSTAFHQTLQDPRVRGLYLPAGGSSSGTVNPAPNIASHISSISARIGDPALNMG
SGFLGPLLVLQAGFFLMTKILTMPQSLDSWWTSLNFLGGTTVRPGQNSQSPTS
PPTCPGYRWMCLRRFIIFLLCLIFLLVLLDYRGMPLVCPLLPGSSTTSTGPCRT
AQGTSMPSPCCCTKPSDGNCTCIPSPSSWAFKFLWEWASARFSWLSLLVPFVQW
SPTVWLSVIWIIWYWGPNNLYNILNPFIPLLPIFFCLWVYI

FIG. 18

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6202 nucleic acid sequence (SEQ ID NO:31)

ATGCAGTGGAATTCCACTGCCTTCCACCAAACTCTGCAGGATCCAGATCAGGGGT
CTGTATCTTCTGCTGGTCCAGCTCAGGAACAGTAACCCCTGCTCCGAATATT
GCCTCTACATCTCGTCAATCTCCGCGAGGATTAGGGACCCCTGCGCTGAACATGGAG
AACATCGCATCAGGATTCTAGGACCCCTTCTCGCATACAGGCGGTGTTTCTTGT
TGACAAAAATCCTCACAAATGCCACAGAGTCTAGACTCGTGGTGGACTTCTCTCAATT
TTCTAGGGGAACTACCGTGTGTCTTGGCCAAAATTTCGCAGTCCCCAACCTCCAATC
ACTCACCAACCTCTTGTCTCTCCAACTTGTCTCTGTTATCGCTGGATGTGTCTGCGGCG
TTTTATCATCTTCTCTTCACTCTGCTGCTATGCCTCATCTTCTTGTGTTCTTCTGG
ACTATCGAGGTATGTTGCCCGTTTGTCTCTCTAATTCCAGGATCCTCAACAACCAGCA
CGGGACCATGCAAAACCTGTATGACTACCGCTCAAGGAACCTCTATGTATCCCTCAT
GTTGTTGTACAAAACCTTCGGACGGAATTGCACCTGTATCCCATCCCATCATCCT
GGGCTTTCGCAAAATTCCCTATGGGAGTGGGCTCAGCCCGTTTCTCCTGGCTCAGTTT
ACTAGTGCCATTTGTTTCAGTGGTTCGTAGGGCTTCCCCCACTGTTTGGCTTTCAGTT
ATATGGATGATGGTATTGGGGACCAAGTCTGTACAGCATCTTGAGTCCCTTCTTG
CCTCTGTACCACCTTTCTTTTGGCTTTGGGTATACATTTAA

6202 amino acid sequence (SEQ ID NO:32)

MQWNSTAFHQTLQDPRVRGLYLPAGGSSSGTVNPAPNIA SHISSISARIRDPALNMENIA
SGFLGPLLALQAVFFLLTKILTMPQSLDSWWTSLNFLGGTTVCLGQNSQSPTS NHSP TSC
PPTCPGYRWMCLRRFIIFLLCLIFLLVLLDYRGMLPVCPLIPGSSTSTGPCKTCMTT
AQGTSMYPSCCCTKPSDGNCTCIPSSWAFKFLWEWASARFSWLSLLVPFVQW FVGL
SPTVWLSVIWMMWYWGPSLYSILSPFLPLLLPLFFWLWVYI

FIG. 19

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6203 nucleic acid sequence (SEQ ID NO:33)

ATGCAGTGGAATTCTACAACCTTCCACCAAACCTCTGCAGGATCCAGATCCAGTCAGGGG
TCTGTATCTTCTGCTGGTGGCTCCAGTTCAGGAACAGTAAACCCCTGCTCCGAATAT
TGCCCTCACATCTCGTCAATCTCCGCGAGGACTGGGGACCCCTGCGCTGAACATGG
AGAACATCACATCAGGATTCTAGGACCCCTTCTCGTGTTACAGGCGGGGTTTTTCT
TGTTGACAAGAATCCTCACAAATACCACAGAGTCTAGACTCGTGGTGGACTTCTCTCA
ATTTTCTAGGGGAGCACCCGTGTGTCTCTGGCCAAAATTTCGCAGTCCCCAACCTCCA
ATCACTCACCAACCTCTTGTCTCCGATTGTCTCTGGCTATCGCTGGATGTGTCTGC
GGCGTTTATCATCTTCTCTTCAATCCTGCTGCTATGCCTCATCTTCTTGTGTTCTT
CTGGACTATCGAGGTATGTTGCCCGTTTGTCTCTACTTCCAGGATCCTCAACAACC
AGCACGGGACCATGCCGGACCTGCATGACTACCGCTCAAGGAACCTCTATGTATCC
CTCATGTTGCTGTACCAAAACCTTCGGACGGAAGCTGCACTTGTAATCCCATCCCCATC
ATCCTGGGCTTTCGCAAAATTCCTATGGGAGTGGCCCTCAGCCCCTTCTCCTGGCT
CAGTTTACTAGTGCCATTGTTCAGTGGTTCGTAGGGCTTCCCCCGCTGTATGGCTT
TCAGTTATATGGATGATTGTTTTTGGGGGCCAAGTCTGTACAGCATCTTGAGTCCC
TTTTTACCGCTGTACCAATTTTCTTTTGTCTTTTGGGTATACATTTAA

6203 amino acid sequence (SEQ ID NO:34)

MQWNSTTFHQTLQDPRVRGLYLPAGGSSSGTVNPAPNIASSHISISARTGDPALNMENIT
SGFLGPLLVLQAGFFLLTRILTIPOSLDSWWTSLNFLGGTTVCLGLNSQSPTSNSHPTSCP
PTCPGYRWMLRRFIIFLLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPKCTCMTTP
QGTSMPYSCCCTKPSDGNCTCIPSSWAFGKFLWEWASARFSWLSLLVPFVQWVFVGLS
PTAWLLAIWIIWYWGPNLYNILNPFLPLPIFFCLWVYI

FIG. 20

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6204 nucleic acid sequence (SEQ ID NO:35)

ATGCAGTGGAATTCTACAACCTTCCACCAAACTCTGCAGGATCCAGATCAGGGG
TCTGTATCTTCTGCTGGTCCAGTTCAAGAACAGTAACCCCTGCTCCGAATAT
TGCCCTCACATCTCGTCAATCTCCGAGGACTGGGACCCCTGCGCTGAACATGG
AGAACATCACATCAGGATTCCTAGGACCCCTTCTCGTGTACAGGCGGGGTTTTCT
TGTTGACAAGAAATCCTCACAAATACACAGAGTCTAGACTCGTGGTGGACTTCTCTCA
ATTTTCTAGGGGAACTACCGTGTGCTTGGCCTAAATTCGCAGTCCCCAACCTCCA
ATCACTACCAACCTCTTGTCTCTCAACTTGTCTGTTATCGCTGGATGTGTCTGC
GGCGTTTATCATCTTCTCTTCACTCTGCTTCTATGCCTCATCTTCTTGTGGTTCTT
CTGGACTATCAAGGTATGTTGCCCGTTTGTCCCTAAATTCAGGATCCTCAACAACC
AGCACGGGACCATGCAAAACCTGTATGACTACCCCTCAAGGAACCTCTATGTATCC
CTCATGTTGCTGTACCAAAACCTTCGGACGGAATTCACACCTGTATTCCCATCCCATC
ATCCTGGGCTTTCGGAAAATTCCTATGGGAGTGGGCTCAGCCCGTTTCTCCTGGCT
CAGTTTACTAGTGCCATTGTTTCAGTGTTCGTAGGGCTTCCCCCACTGCTTGGCTT
TTGGCTATATGGATCATCTGGTATTGGGGGCCAAATCTGTACAACATCTTGAATCCC
TTTTTACCGCTGTACCAATTTTCTTTTGTCTTTGGGTATACATTTAA

6204 amino acid sequence (SEQ ID NO:36)

MQWNSTTFHQTLQDPRVRGLYLPAGGSSSGTVNPAPNIASHISSISARTGDPALNMENIT
SGFLGPLLVLQAGFFLLTRILTIQSLDSWWTSLNFLGGTTVCLGLNSQSPTSNNHSPSTSCP
PTCPGYRWMCLRRFIHFLILLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCKTCMTTP
QGTSMYPPSCCCTKPSDGNCTCIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFFVGLS
PTAWLLAIWIIWYWGPNLYNILNPFLPLPIFFCLWVYI

FIG. 21

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6205 nucleic acid sequence (SEQ ID NO:37)

ATGCAGTGGAATTCCACAACCTTCCACCAAACTCTGCAGGATCCCAGATCAGGAGG
TCTGTAATCTTCTGCTGGTCCAGTTCAGGAACAGTAAACCCCTGCTCCGAATAC
TGCCCTCACATCTCGTCAGTCTTCTCGACGACTGGGACCCTGCACCCGAACATGGA
GAACATCACATCAGGATTCCTAGGACCCCTGCTCGTGTTACAGGGGGGTTTTTCTT
GTTGACAAAAATCCTCACAAATGCCACAGAGTCTAGACTCGTTGTGGACTTCTCTCAA
TTTTCTAGGGGGAACACACAGCGTGTCTTGGCCAAAAATTCGCAGTCCCCAACCCCAA
TCACTCACCAACCTCTTGGCCCTCCAACCTTGCTCGTTATCGCTGGATGTGTCTGCGG
CGTTTTATCATCTTCCCTTCAATCCTGCTTCTATGCCTCATCTTCTTGTGGTTCTTCT
GGACTATCGAGGTATGTTGCCCGTTTGTCCCTCTAATCCAGGATCCTCAACAACAG
CACGGGACCATGCAAAACCTGTATGACTACCCCTCAAGAACCTCTATGTATCCCTC
ATGTTGCTGTACCAAAACCTTCGGACGGAATTCACCTGTATTCCTCATCCCATCATC
CTGGGCTTTCGGAAAAATTCCTATGGGAGTGGGCCTCAGCCCGTTTCTCCTGGCTCAG
TTTACTAGTGCCATTGTTCAGTGTTCGTAGGGCTTCCCCCACTGCTTGGCTTTTG
GCTATATGGATCATCTGGTATTGGGGGCCAAATCTGTACAACATCTTGAAATCCCTTT
TTACCGCTGTTACCAATTTTCTTTTGTCTTTGGGTATACATTAA

6205 amino acid sequence (SEQ ID NO:38)

MQWNSTTFHQTLQDPRVRGLYLPAGSSSGTVNPA PNTASHISSVFSTTGDPAPNMENI
TSGFLGPLLVLQAGFFLLTKILTMPQSLDSLWTSLNFLGGTPACLGQNSQSPTPNHSPTSC
PPTCPGYRWMCLRRFIHFLFILLCLIFLLVLLDYRGMPLVCPLIPGSSTTSTGPCKTCMTT
PQGTSMYPSCCCTKPSDGNCTCIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFFVGL
SPTAWLLAIWIIWYWGPNLYNILNPFLPLPIFFCLWVYI

FIG. 22

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6206 nucleic acid sequence (SEQ ID NO:39)

ATG CAG TGG AAT TCC ACT GCCTTCCACCAAACTCTGCAGGATCCAGATCAGGGGT
CTGATATCTCCCTGCTGGTCCAGTTCAGGAACAGTAAACCCCTGCTCCGAATATT
GCCTCTACATCTCGTCAATCTCCGCGAGGACTGGGACCCCTGCACCGAACATGGAG
AACATCACATCAGGATTCTAGGACCCCTGCTCGTGTACAGGCGGTGTTTCTTCTGT
TGACAAAGAAATCCTCACAAATACCGCAGAGTCTAGACTCGTGGTGACTTCTCTCAATT
TTCTAGGGGGAACACCCGTGTGTCCTGGCCAAATTCGCAGTCCCCAACCTCCAATC
ACTCACCAACCTCTTGTCTCTCAACTTGTCTGGTTATCGCTGGATGTGTCTGCGGCG
TTTTATCATCTTCTCTTCAATCCTGCTTCTATGCCTCATCTTCTTGTGTTCTTCTGG
ACTATCAAGGTATGTTGCCCGTTTGTCCCCCTAATCCAGGATCCTCAACAACCAAGCA
CGGGACCATGC AAAACCTGTATGACTACCCCTCAAGGAACCTCTATGTATCCCTCAT
GTTGCTGTACCAAACTTCGGACGGAATTCACCTGTATCCCATCCCATCATCCT
GGGCTTTCGGAAAATTCCTATGGAGTGGGCTCAGCCCGTTTCTCCTGGCTCAGTT
TACTAGTGCCATTTGTTACGCGTTCGCAGGGCTTCCCCCCTGTTTGGCTTTCAGT
TATATGGATGATTTGTTTGGGGGCCAAGTCTGTACAGCATCTTGAGTCCCTTTTAA
CCGCTGTACCAATTTTCTTTTGTCTTTGGGTATACATTTAA

6206 amino acid sequence (SEQ ID NO:40)

MQWNSTAFHQTLQDPRVVRGLYLPAGGSSSGTVNPAPNIA SHISSISARTGDPAPNMENIT
SGFLGPLLVLQAVFFLLTRILTI PQSLDSWWTSLNFLGGTPVCPGQNSQSPTSNHSPTSCP
PTCPGYRWMCLRRFIHFLFILLCLIFLLVLLDYQGMLPVCPLIPGSSTTSTGPCKTCMTTP
QGTSMYPPSCCCTKPSDGNCTCIPSSWAFGKFLWEWASARFSWLSLLVPFVQRFAGLSP
TVWLSVIWMIWFWGPSLYSILSPFLPLLPIFFCLWVYI

FIG. 23

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6207 nucleic acid sequence (SEQ ID NO:41)

ATGCAGTGAATTCCACAACCTTCCACCAAACTCTGCAAGATCCCAGAGTGAGAGG
CCTGTAATTTCCCTGCTGGTGGCTCCAGTTCAGGAACAGTAAACCCCTGTTCTGACTAC
TGCCTCTCCCGTATCGTCAATCTTCTCAGAGATTGGGGACCCCTGCGCTGAACATGGA
GAACATCACATCAGGATTCTAGGACCCCTTCTCGTGTACAGCGGGGTTTTTCTT
GTTGACAAGAAATCCTCACAAATACCGCAGAGTCTAGACTCGTTGTGGACTTCTCTCAG
TTTTTCCAGGGGCATACCAGAGTGCACTGGCCAAAATTGCGAGTCCCCAACCTCCA
ATCACTCACCAACCTCTTGTCTCTCCAACTTGTCTGGTTATCGCTGGATGTGTCTGCG
GCGTTTATCATCTTCTCTTCAATCCTGCTGCTATGCCTCATCTTCTTGGTTCTTC
TGGACTATCGAGGTATGTTGCCCGTTTGTCCCTCTACTTCCAGGATCCTCAACAACCA
GCACGGGACCCCTGCAGGACCTGTATGACTACCGCTCAAGGAACCTCTATGTATCCC
TCATGTTGCTGTACCAAACCTTCGGACGGAATTGCACTGTATTCCCATCCCATCA
TCCTGGGCTTTCGCAAAATTCCATATGGAGTGGGCTCAGCCCGTTTCTCCTGGCTC
AGTTTACTAGTGCCATTGTTCAGTGTTCTGTAGGGCTTTCCCCCACTGTTTGGCTTT
CAGTTATATGGATCATCTGGTATTGGGGGCCAAATCTGTACAACATCTTGAATCCAT
TTATACCGCTGTTACCAATTTTCTTTTGTCTTTGGGTATACATTTAA

6207 amino acid sequence (SEQ ID NO:42)

MQWNSTTFHQTLQDPRVRGLYFPAGGSSGTVNPVLTASPVSIFSRIGDPALNMENIT
SGFLGPLLVLQAGFFLLTRILTIQSLDSLWTSLSFPRGIPECTGQNSQSPTSNSHSPTSCPPT
CPGYRWMCLRRFIIFLLCLIFLLVLLDYYRGMLPVCPLLPGSSTTSTGPCRTCMTTAQ
GTSMYPSCCCTKPSDGNCTCIPISSWAFAKFLWEWASARFSWLSLLVPFVQWFVGLSP
TVWLSVIWIIWYWGPNLYNILNPFIPLLPIFFCLWVYI

FIG. 24

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6208 nucleic acid sequence (SEQ ID NO:43)

ATGAGTGGAAATCCACAACCTTCCACCAAACTCTGCAAGATCCAGAGTGAGAGG
CCTGTATTTCCCTGCTGGTCCAGTTCAGGAACAGTAAACCCTGTCTGACTACT
GCCTCTCCCTTATCGTCAATCTTCTCGAGGATTGGGACCCCTGCGCTGAACATGGAG
AACATCACATCAGGATTCTAGGACCCCTTCTCGTGTACAGGCGGGTTTCTTCTGT
TGACAAAGAAATCCTCACAAATACCGCAGAGTCTAGACTGTTGTGGACCTCTCTCAGTT
TTCCAGGGGGCATACCAGAGTGCACTGGCCAAAATTGCGAGTCCCCAACCTCCAATC
ACTCACCAACCTCTTGTCCTCCAACTTGTCCTGGTTATCGCTGGATGTGTCTGCGGCG
TTTTATCATCTTCTCTTCAATCCTGCTGCTATGCCTCATCTTCTTGTGGTCTTCTG
ACTATCGAGGTATGTTGCCCGTTTGTCCTCTACTCCAGGATCCTCAACAACCAAGCA
CGGGACCTGCAGGACCTGTATGACTACCGCTCAAGGAACCTCTATGTATCCCTCAT
GTTGCTGTACCAAACTTCGGACGGAAATTGCACCTGTATTCCTCATCCCATCATCCT
GGGCTTTCGGAAAATTCCCTATGGAGTGGGCCCTCAGTCCGTTTCTCCTGGCTCAGTT
TACTAGCTCCATTGTTCAGCGGTTTCGTAGGGCTTCCCCCCTGTTGGCTTTCAGT
TATATGGATGATGTGTTCTGGGGCCAAGTCTGTTCAGCATCTTGAGTCCCTTCTTG
CCTCTGTACCACTTTTCTTTTGGCTTTGGGTATACATTTAA

6208 amino acid sequence (SEQ ID NO:44)

MQWNSTTFHQTLQDPRVRGLYFPAGGSSGTVNPVLTASPSSIFSIRIGDPALNMENIT
SGFLGPLLLVLQAGFFLLTRILTIQSLDSLWTSLSFPGGIPECTGQNSQSPTSNHSPSCPPT
CPGYRWMCLRRFIIFLLCLIFLLVLLDYRGMPLVCPPLPGSSTTSTGPCRTCMTTAQ
GTSMYPSCCCCTKPSDGNCTCIPSSWAFGKFLWEWASVRFSWLSLLAPFVQRFVGLSPT
VWLSVIWMMWFWGPSLFSILSPFLPLPLFFWLWVYI

FIG. 25

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6209 nucleic acid sequence (SEQ ID NO:45)

ATGCAGTGGAAATTCACCTGCCTTCCACCAAACTCTGCAGGATCCCAGATCAGGGGT
CTGTATCTTCTGCTGGTCCAGCTCAGGAACAGTAACCCCTGCTCCGAATATT
GCCTCTACATCTCGTCAATCTCCGCGAGGATTGGGACCCCTGCGCTGAACATGGAG
AACATCACATCAGGATTCCCTAGGACCCCTTCTCGCAATACAGGCGGTGTTTTTCTTGT
TGACAAAATCCTCACAAATGCCACAGAGTCTAGACTCGTGGTGGACTTCTCTCAATT
TTCTAGGGGGAACCTACCGTGTGCTTGGCCTAAATTTCGCAGTCCCCAACCTCCAATC
ACTCACCAACCTCTTGTCTCCTCCAACTTGTCCTGGTTATCGCTGGATGTGTCTGCGGCG
TTTTATCATCTTCTCTTCATCCTGCTGCTGTGCCTCATCTTCTTGTGTTCTTCTGG
ACTATCGAGGTATGTTGCCCGTTTGTCTCTACTTCCAGGATCCTCAACAACCAAGCA
CGGGACCATGCCGACCTGCATGACTACCGCTCAAGGAACCTCTATGTATCCCTCAT
GTTGCTGTACCAAAACCTTCGGACGGAAGCTGCACCTTGTAATCCCATCCCCCTCATCCT
GGGCTTTCGGAAAAATTCCTATGGGAGTGGGCTCAGTCCGTTTCTCCTGGCTCAGTT
TACTAGTGCCATTTGTTTCAGTGGTTCGCAGGGCTTCCCCCACTGTATGGCTTTTAGT
TATATGATGATGTGTTCTGGGGCCCAAGTCTGTTCAGCATCTTGAGTCCCTTCTT
GCCTCTGTACCAATTTTCTTTTGTCTTTGGGTATACATTAA

6209 amino acid sequence (SEQ ID NO:46)

MQWNSTAFHQTLQDPRVRGLYLPAGGSSSGTVNPAPNIASHISSISARIGDPALNMENIT
SGFLGPLLALQAVFFLLTKILTMPQSLDSWWTSLNFLGGTTVCLGLNSQSPTSNHSPTSC
PPTCPGYRWMCLRRFIIFILLCLIFLLVLLDYRGMLPVCPLLPGSSTTSTGPCRTCMTT
AQGTSMPYSCCCTKPSDGSCTCIPSSWAFGKFLWEWASVRFSLSLVPFVQWFAGL
SPTVWLLVIWMMWFWGPSLFSILSPFLPLLPIFFCLWVYI

FIG. 26

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6210 nucleic acid sequence (SEQ ID NO:47)

ATGCAGTGGAATTCCACTGCCTTCCACCAAACTCTGCAGGATCCCAGAGTCAGGGGT
CTGTATCTTCTGCTGGTCCAGTTCAGGAACAGTAAACCTGCTCCGAATATT
GCCTCTCCCTTATCGTCAATCTTCTCGACGACTGGGACCCCTGCGCTGAACATGGAG
AACATCACATCAGGATTCCTAGGACCCCTTCTCGTGTACAGGCGGGGTTTTCTTGT
TGACAAGAATCCTCACAAATACCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAATT
TTCTAGGGGAGCACCCGTGTCTTTGGCCAAAATTTCGAGTCCCCAACCTCCAATC
ACTACCAACCTCTTGTCTCCTCCAACCTGTCTGTTATCGCTGGATGTGTCTGCGGCG
TTTTATCATCTTCTCTTCATCCTGCTGCTATGCCCTCATCTTCTTGTGTTCTTCTGG
ACTATCGAGGTATGTTGCCCGTTTGTCTCTAATTCCAGGATCCTCAACAACCAAGCA
CGGACCCCTGCAGGACCTGTATGACTGCCGCTCAAGGAACCTCTATGTATCCCTCAT
GTTGCTGTACCAAAACCTTCGGACGGAAATTGCACCTGTATTCCCATCCCATCATCCT
GGGCTTTCGCAAAATTCTATGGGAGTGGCCCTCAGCCCGTTTCTCCTGGCTCAGTT
TACTAGTGCCATTTGTTTCAGTGTTCGTAGGGCTTTCCTCCCACTGTTTGGCTTTCAGT
TATATGGATCATCTGGTATTGGGGGCCAAATCTGTACAACATCTTGAATCCATTAT
ACCGCTGTTACCAATTTTCTTTTGTCTTTGGGTATACATTAA

6210 amino acid sequence (SEQ ID NO:48)

MQWNSTAFHQTLQDPRVRGLYLPAGGSSGTVNPAPNIASPLSSIFSTTGDPALNMENIT
SGFLGPLLVLQAGFFLLTRILTIQSLDSWWTSLNFLGGAPVCLGQNSQSPTSNHSPSTSCP
PTCPGYRWMCLRRFIIFLLCLIFLLVLLDYRGMPLVCPPLPGSSTSTGPCRTCMTAA
QGTSMYPSCCCTKPSDGNCTCIPSSWAFKFLWEWASARFSWLSLLVPFVQWFWVGLS
PTVWLSVIWIIWYWGPNLYNILNPFIPLLPFIFFCLWVYI

FIG. 27

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6211 nucleic acid sequence (SEQ ID NO:49)

ATGCAGTGGAATTCCACAACCTTCCACCAAACTCTGCAGGATCCCAGATCAGGGG
TCTGTATCTTCCCTGGTGGCTCCAGTTCAGGAACAGTAAACCCCTGCTCCGAATAC
TGCCCTCACATCTCGTCAGTCTTCTCGACGACTGGGACCCCTGCACCGAACATGGA
GAACATCACATCAGGATTCCTAGGACCCCTGCTCGTGTACAGGCGGGTTTTTCTT
GTTGACAAAATCCTCACAAATGCCACAGAGTCTAGACTCGTTGTGGACTTCTCTCAA
TTTTCTAGGGGGAACACCAGCGTGTCTTGGCCAAAATTCCGAGTCCCCAACCTCCAA
TCACTCACCAACTCTTGTCTCCTCAACTTGTCTCTGGTCAATCGCTGGAATGTGTCTGCGG
CGTTTATCATCTTCCCTCTTCATCCTGCTGCTATGCCTCATCTTCTTGTGTTCTTCT
GGACTATCGAGGTATGTTGCCCGTTTGTCCTCTAATCCAGGATCCTCAACAACCCAG
CACGGGACCATGCAAAACCTGTATGACTACCCCTCAAGGAACCTCTATGTATCCCTC
ATGTTGCTGTACCAAACTTCGGACGGAATTGCACCTGTATTCCTCATCCCATCATC
CTGGGCTTTCGGAAAATTCTATGGGAGTGGGCTCAGCCCGTTTCTCCTGGCTCAG
TTTACTAGTGCCATTTGTTCAAGTGGTTCGTAGGGCTTTCCTCCCACTGCTTGGCTTTTG
GCTATATGATCATCTGGTATTGGGGGCCAAATCTGTACAACATCTTGAATCCCTTT
TTACCGCTGTTACCAATTTTCTTTTGTCTTTGGGTATACATTAA

6211 amino acid sequence (SEQ ID NO:50)

MQWNSTTFHQTLQDPRVRGLYLPAGSSSGTVNPAPNTASHISSVFSTTGDPAPNMENI
TSGFLGPLLVLQAGFFLLTKILTMPQSLDSLWTSLNFLGGTPACLGQNSQSPTSNHPTSC
PPTCPGHRWMCLRRFIIFLLCLIFLLVLLDYRGMLPVCPLIPGSSTTSTGPCKTCMTT
PQGTSMYPSCCCTKPSDGNCTCIPISSWAFGKFLWEWASARFSWLSLLVPFVQWVFVGL
SPTAWLLAIWIIWYWGPNLYNILNPFLPLPIFFCLWVYI

FIG. 28

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6212 nucleic acid sequence (SEQ ID NO:51)

ATGCAGTGGAATTCCACAACCTTCCACCAAACTCTGCAGGATCCAGATCAGGCGG
TCTGTATCTTCCCTGGTGGCTCCAGTTCAGGAACAGTAAACCTGCTCCGAATAC
TGCCTCTCATCTCGTCAGTCTTCTCGACGACTGGGACCTGCACCGAACATGGA
GAACATCACATCAGGATTCTAGGACCCCTGCTCGTGTACAGGCGGGTTTCTT
GTTGACAAAATCCTCACAAATGCCACAGAGTCTAGACTCGTTGTGGACTTCTCTCAA
TTTTCTAGGGGAACACACGCGTGTCTTGGCCAAAATTGCGAGTCCCCAACCTCCAA
TCACTACCAACCTCTTGTCTCCAACTTGTCTGTGTCATCGCTGGATGTGTCTGCGG
CGTTTATCATCTTCCCTCTTCACTCCTGCTGCTATGCCTCATCTTCTTGTGGTCTTCT
GGACTATCGAGGTATGTTGCCCGTTTGCTCTAATTCCAGGATCCTCAACAACCCAG
CACGGACCATGCAAAACCTGTATGACTACCCCTCAAGGAACCTCTATGTATCCCTC
ATGTTGCTGTACCAAAACCTTCGGACGGAATTGCACCTGTATCCCATCCCATCATC
CTGGGCTTTCGGAAAATTCTATGGGAGTGGGCTCAGCCGTTTCTCCTGGCTCAG
TTTACTAGTGCCATTGTTCAGTGGTTCGTAGGGCTTCCCCCACTGCTTGGCTTTTG
GCTATATGGATCATCTGGTATTGGGGGCCAAATCTGTACAACATCTTGAATCCCTTT
TTACCGCTGTACCAATTCTTTTGTCTTTGGGTATACATTAA

6212 amino acid sequence (SEQ ID NO:52)

MQWNSTAFHQTLQDPRVRGLYLPAGGSSSGTVNPAPNIASHISSISARIGDPALNMENIT
SGFLGPLLALQAVFFLLTKILTMPQSLDSWWTSLNFLGGTTVCLGQNSQSPTSNHSPTSC
PPTCPGYRWMCLRRFIIFLLCLIFLLVLLDYRGMPLVCPPLPGSSTTSTGPKCKTCMTT
AQGTSMPYSCCCTKPSDGNCTCIPISSWAFGKFLWEWASARFSWL SLLAPFVQRFAGL
SPTAWLLAIWIIWYWGPNLYNIMNPELPLLPPIFFCLWVYI

FIG. 29

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6213 nucleic acid sequence (SEQ ID NO:53)

ATGCAGTGGAAATCCACTGCCTTCCACCAAACTCTGCAGGATCCCAGAGTCAGGGGT
CTGTATCTTCCTGCTGGTCCAGTTCAGGAACAGTAACCCCTGCTCCGAATACT
GCCCTCACATCTCGTCAGTCTTCTCGACGACTGGGACCCCTGCACCGAACATGGAG
AACATCACATCAGGATTCTAGGACCCCTGCTCGTGTACAGGCGGGGTTTTCTTG
TTGACAAAATCCTCACAAATGCCACAGAGTCTAGACTCGTTGTGGACTTCTCTCAAT
TTTCTAGGGGAACACAGCGTGTCTTGGCCAAAATTGCGAGTCCCCAACCTCCAAT
CACTACCAACCTCTTGTCTCCTCCAACTTGTCTGTTATCACTGGATGTGCTGCGGC
GTTTATCATCTTCTCTCATCCTGCTGCTATGCCCTCATCTTCTTGTGTTCTCTG
GACTATCGAGGTATGTTGCCGTTTGTCCCTCTACTTCCAGGATCATCGACCAACAGC
ACGGACCATGCAAAACCTGCACGATCCCTGCTCAAGGAACCTCTTTGATTCCCTCA
TGTTGTTGTACAAAACCTTCGGACGGAATTGCACTTGTAATCCCATCCCATCGTCTT
GGGCTTTCGCAAAAATTCCTATGGAGTGGGCCCTCAGCCCGTTTCTCCTGGCTCAGTT
TACTAGTGCCATTGTTTCAGCGGTTTCGACGGGCTTTCCTCCCACTGTTTGGCTTTCAGT
TATATGGATGATTTGGTTTGGGGGCCAAGTCTGTACAGCATCTTGAGTCCCCTTTTA
CCGCTGTACCAATTTCTTTGTCTTTGGGTATACATTAA

6213 amino acid sequence (SEQ ID NO:54)

MQWNSTAFHQTLQDPRVRGLYLPAGGSSSGTVNPAPNTASHISSVFSTTGDPAPNMENI
TSGFLGPLLVLQAGFFLLTKILTMPQSLDSLWTSNFLGGTPACLGQNSQSPTSNIHSPTSC
PPTCPGYHWMCLRRFIIFLLCLIFLLVLLDYRGMPLVCPPLPGSSTTSTGPCKTCTIP
AQGTSLIPSCCCTKPSDGNCTCIPSSWAFKFLWEWASARFSWLSLLVPFVQRFAGLSP
TVWLSVIWMIWFWGPSLYSILSPFLPLLPIFFCLWVYI

FIG. 30

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6214 nucleic acid sequence (SEQ ID NO:55)

ATGCAGTGGAATTCTACTGCCCTTCCACCAAACTCTGCAGGATCCCAGAGTCAGGGG
TCTGTATCTTCTGCTGGTCCAGTTCAGGAACAGTAAACCTGCTCCGAATAT
TGCCCTCACAATCTCGTCAATCTCCGAGGACTGGGACCCCTGTGACGAACATGTC
ACCATCAAGTCTCCTAGGACTCCTAGCAGGATTACAGGTGGTGATTCTTGTGGAC
AAAAATCCTAACAAATACCGCAGAGTCTAGACTCGTGGTGACTTCTCTCAATTTTCT
AGGGGAGCACCCGTGTCTCTGGCCAAAATTGCGAGCCCCCAACCCCAATCACT
CACCAACCTCTTGTCTTCAACTTGTCTGGGTATCGCTGGATGCGTCTGTGGCGTTT
TATCATCTTCTCTTCACTCCTGCTGCTATGCCCTCATCTTCTTGTGGTTCTTCTGGACT
ATCGAGGTGTGTGCCCGTTTGTCTCTCCAATTCCAGGATCCTCAACAACGACACGG
GACCATGCAAAACCTGTATGACTACCGCTCAAGGAACCTCTATGTATCCCTCATGTT
GTTGTACAAAACCTTCGGACGGAAATTGCAACCTGTATCCCATCCCATCCTCGG
CTTTCGGAAAATTCCATGGGAGTGGCCCTCAGCCCGTTTCTCCTGGCTCAGTTTAC
TAGTGCCATTGTTCAGTGGTTCGTAGGGCTTTCCCCCACTGCTTGGCTTTTGGCTAC
ATGGATCATCTGGTATTGGGGGCCAAATCTGTACAACATCTTGAATCCCTTTTACC
GCTGTTACCAATTTCTTTTGTCTTTGGGTATACATTAA

6214 amino acid sequence (SEQ ID NO:56)

MQWNSTAFHQTLQDPRVVRGLYLPAGGSSSGTVNPAPNIASHISSISARTGDPVTNMPSS
LLGLLAGLQVVYFLWTKILTIPQSLDSWWTSLNFLGGAPVCPGQNSQPPTPNHSPTSCPS
TCPGYRWMRLWRFIFILLCLIFLLVLLDYRGVLPVCPPIPGSSTTSTGPCKTCMTTA
QGTSMPSCCCTKPSDGNCTCIPISSWAFGKFLWEWASARFSWLSLLVPFVQWVFGLS
PTAWLLATWIIWYWGPNLYNILNPFLPLPIFFCLWVYI

FIG. 31

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6215 nucleic acid sequence (SEQ ID NO:57)

ATGCAGTGGAATTCTACTGCCTTCCACCAAACTCTGCAGGATCCCAGATCAGGCGG
TCTGTATCTTCCTGCTGGTGGCTCCAGTTCAGGAACAGTAAACCCCTGCTCCGAATAT
TGCCCTCACAATCTCGTCAATCTCCGCGAGGACTGGGACCCTGTGACGAACATGTC
ACCATCAAGTCTCCTAGGACTCCTCGCAGGATTACAGGTGGTGTATTCTTGTGGAC
AAAAATCCTAACAAATACCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAATTTTCT
AGGGGAGCACCCGTGTCTCTGGCCAAATTCGCAGTCCCCAACCTCCAATCACT
CACCAACCTCTTGCTCCAACTTGCTCCTGGTTATCGCTGGATGTGTCTGCGGCGTTT
TATCATCTTCTCTTCATCCTGCTGCTATGCCTCATCTTCTTGTGGTCTTCTTGACT
ATCGAGGTATGTTGCCCGTTTGTCCTCTACTTCCAGGATCCTCAACAACGACACGG
GACCCCTGCAGGACCTGTATGACTACCGCTCAAGGAACCTCTATGTATCCCTCATGTT
GCTGTACCAAACTTCGGACGGAAATTGCACCTGTATTCCCATCCCATCATCCTGGG
CTTTCGCCAAATTCCTATGGGAGTGGGCTCAGCCCGTTTCTCCTGGCTCAGTTTAC
TAGTGCCATTGTTCAGTGTTCGTAGGGCTTTCCTCCCACTGTTTGGCTTTCAGTTAT
ATGGATCATCTGGTATTGGGGGCCAAATCTGTACAACATCTTGAGTCCATTATACC
GCTGTTACCAATTTCTTTGTCTTTGGGTATACATTTAA

6215 amino acid sequence (SEQ ID NO:58)

MQWNSTAFHQTLQDPRVRGLYLPAGSSSGTVNPAPNIAHSHISSISARTGDPVTNMSPPS
LLGLLAGLQVVYFLWTKILTIPQSLDSWWTSLNFLGGAPVCPGQNSQSPTSNHSPSCPP
TCPGYRWMCLRRFIIFLLCLIFLLVLLDYRGMLPVCPLLPGSSTTSTGPCRTCMTTA
QGTSMYPSCCCTKPSDGNCTCIPSSWAFAKFLWEWASARFSLVLLVPFVQWFVGLS
PTVWLSVIWIIWYWGPNLYNILSPFIPLLPFIFFCLWVYI

FIG. 32

1	1	10	20	30	40	50	60
HBV	ATGCAGTGGAAATTCACAAACCTTCCACCAAACTCTGCAAGATCCCAGAGTGAGAGGCCCTG						
CGHV	ATGCAGTGGAAATTCACAGTATTCACCAAGCTCTGCAAGATCCCAGAGTACGGGGCCTA						
HHWHV	ATGCAGTGGAAATTCACACTGCCCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
WMHV	ATGCAGTGGAAATTCACACTTCCCTTCAGAGTTATCTTCAGAAATCCAAAGTCAGAGGCCCTC						
6101	ATGCAGTGGAAATTCACAGTATTCACCAAACTCTGCAAGATCCCAGAGTGGGGGTCTG						
6102	ATGCAGTGGAAATTCACAAACCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6103	ATGCAGTGGAAATTCACACTGCCCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6104	ATGCAGTGGAAATTCACAAACCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6105	ATGCAGTGGAAATTCACAAACCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6106	ATGCAGTGGAAATTCACAAACCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6107	ATGCAGTGGAAATTCACACTGCCCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6108	ATGCAGTGGAAATTCACACTGCCCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6109	ATGCAGTGGAAATTCACACTGCCCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6110	ATGCAGTGGAAATTCACACTGCCCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6111	ATGCAGTGGAAATTCACACTGCCCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGCCTA						
6201	ATGCAGTGGAAATTCACACTGCCCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6202	ATGCAGTGGAAATTCACACTGCCCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6203	ATGCAGTGGAAATTCACAAACCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6204	ATGCAGTGGAAATTCACAAACCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6205	ATGCAGTGGAAATTCACAAACCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6206	ATGCAGTGGAAATTCACACTGCCCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6207	ATGCAGTGGAAATTCACAAACCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6208	ATGCAGTGGAAATTCACAAACCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6209	ATGCAGTGGAAATTCACACTGCCCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6210	ATGCAGTGGAAATTCACACTGCCCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6211	ATGCAGTGGAAATTCACAAACCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6212	ATGCAGTGGAAATTCACACTGCCCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6213	ATGCAGTGGAAATTCACACTGCCCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6214	ATGCAGTGGAAATTCACACTGCCCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						
6215	ATGCAGTGGAAATTCACACTGCCCTTCACCAAACTCTGCAAGATCCCAGAGTACGGGGTCTG						

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FIG. 33
(CONT)

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FIG. 33
(CONT)

	121	130	140	150	160	170	180
HBV							
CGHV	CCCTTATCGTCAATCTTCTCGAGGATTGGGGACCCCTGCGCTGAACATGGAGAACATCACA						
HHWHV	CACATCTCGTCAAGTCTTCTCGACGACTGGGGACCCCTGCACCGAACATGGAGAACATCACA						
WMHV	CACATCTCGTCAATCTCCGCGAGGACTGGGGACCCCTGTGACGAACATGT---CACC--A						
6101	ACCACATCGTCAAGCTTCTCGACGACTGGGGTCCCCTGTACGACCATGGACATCACTTCA						
6102	CCCTTATCGTCAATCTTCTCGAGGATTGGGGACCCCTGCGCTGAACATGGAGAACATCACA						
6103	CACATCTCGTCAATCTCCGCGAGGACTGGGGACCCCTGCACCGAACATGGAGAACATCACA						
6104	CACATCTCGTCAATCTCCGCGAGGACTGGGGACCCCTGCGCTGAACATGGAGAACATCACA						
6105	CACATCTCGTCAATCTCCGCGAGGACTGGGGACCCCTGCGCTGAACATGGAGAACATCACA						
6106	CCCTTATCGTCAATCTTCTCGAGGATTGGGGACCCCTGCGCTGAACATGGAGAACATCACA						
6107	CCCTTATCGTCAATCTTCTCGACGACTGGGGACCCCTGCACCGAACATGGAGAACATCACA						
6108	CACATCTCGTCAATCTCCGCGAGGACTGGGGACCCCTGTGACGAACATGT---CACC--A						
6109	CACATCTCGTCAATCTCCGCGAGGACTGGGGACCCCTGTGACGAACATGT---CACC--A						
6110	CACATCTCGTCAATCTCCGCGAGGACTGGGGACCCCTGTGACGAACATGT---CACC--A						
6111	CCCTTATCGTCAATCTTCTCGAGGATTGGGGACCCCTGCGCTGAACATGGAGAACATCACA						
6201	CACATCTCGTCAATCTCCGCGAGGATTGGGGACCCCTGCGCTGAACATGGGGAACATCACA						
6202	CACATCTCGTCAATCTCCGCGAGGATTAGGGACCCCTGCGCTGAACATGGAGAACATCGCA						
6203	CACATCTCGTCAATCTCCGCGAGGACTGGGGACCCCTGCGCTGAACATGGAGAACATCACA						
6204	CACATCTCGTCAATCTCCGCGAGGACTGGGGACCCCTGCGCTGAACATGGAGAACATCACA						
6205	CACATCTCGTCAATCTTCTCGACGACTGGGGACCCCTGCACCGAACATGGAGAACATCACA						
6206	CACATCTCGTCAATCTCCGCGAGGACTGGGGACCCCTGCACCGAACATGGAGAACATCACA						
6207	CCCGTATCGTCAATCTTCTCGAGGATTGGGGACCCCTGCGCTGAACATGGAGAACATCACA						
6208	CCCTTATCGTCAATCTTCTCGAGGATTGGGGACCCCTGCGCTGAACATGGAGAACATCACA						
6209	CACATCTCGTCAATCTCCGCGAGGATTGGGGACCCCTGCGCTGAACATGGAGAACATCACA						
6210	CCCTTATCGTCAATCTTCTCGACGACTGGGGACCCCTGCGCTGAACATGGAGAACATCACA						
6211	CACATCTCGTCAATCTTCTCGACGACTGGGGACCCCTGCACCGAACATGGAGAACATCACA						
6212	CACATCTCGTCAATCTCCGCGAGGATTGGGGACCCCTGCGCTGAACATGGAGAACATCACA						
6213	CACATCTCGTCAATCTTCTCGACGACTGGGGACCCCTGCACCGAACATGGAGAACATCACA						
6214	CACATCTCGTCAATCTCCGCGAGGACTGGGGACCCCTGCGCTGAACATGGAGAACATCACA						
6215	CACATCTCGTCAATCTCCGCGAGGACTGGGGACCCCTGTGACGAACATGT---CACC--A						

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FIG. 33
(CONT)

181		190		200		210		220		230		240
HBV	TCAGGATTCCTAGGACCCCTTCTCGTGTTACAGCGGGGTTTTTTCTTGTGACAAAGAAATC											
CGHV	TCAGGATTCCTAGGACCCCTGCTCGTGTTACAGCGGGGTTTTTTCTTGTGACAAAAATC											
HHWHV	TCAAGTCTCCTAGGACTCCTCGCAGGATTACAGGTGGTGATTTCTTGTGGACAAAAATC											
WMHV	TCAGGATTCCTAGGACCCCTTCTCGCATTACAGCGGGTGTCTTCTTGTGACAAAAATC											
6101	TCAGGATTCCTAGGACCCCTTCTCGTGTTACAGCGGGGTTTTTTCTTGTGACAAAAATC											
6102	TCAGGATTCCTAGGACCCCTGCTCGTGTTACAGCGGGGTTTTTTCTTGTGACAAAAATC											
6103	TCAGGATTCCTAGGACCCCTGCTCGTGTTACAGCGGGTGTCTTCTTGTGACAAAGAAATC											
6104	TCAGGATTCCTAGGACCCCTTCTCGTGTTACAGCGGGGTTTTTTCTTGTGACAAAGAAATC											
6105	TCAGGATTCCTAGGACCCCTTCTCGTGTTACAGCGGGGTTTTTTCTTGTGACAAAGAAATC											
6106	TCAGGATTCCTAGGACCCCTTCTCGTGTTACAGCGGGGTTTTTTCTTGTGACAAAGAAATC											
6107	TCAGGATTCCTAGGACCCCTTCTCGTGTTACAGCGGGGTTTTTTCTTGTGACAAAGAAATC											
6108	TCAAGTCTCCTAGGACTCCTCGCAGGATTACAGGTGGTGATTTCTTGTGGACAAAAATC											
6109	TCAAGTCTCCTAGGACTCCTCGCAGGATTACAGGTGGTGATTTCTTGTGGACAAAAATC											
6110	TCAAGTCTCCTAGGACTCCTCGCAGGATTACAGGTGGTGATTTCTTGTGGACAAAAATC											
6111	TCAGGATTCCTAGGACCCCTGCTCGTGTTACAGCGGGGTTTTTTCTTGTGACAAAAAGTC											
6201	TCAGGATTCCTAGGACCCCTTCTCGTGTTACAGCGGGGTTTTTTCTTGTGACAAAAATC											
6202	TCAGGATTCCTAGGACCCCTTCTCGCATTACAGCGGGTGTCTTCTTGTGACAAAAATC											
6203	TCAGGATTCCTAGGACCCCTTCTCGTGTTACAGCGGGGTTTTTTCTTGTGACAAAGAAATC											
6204	TCAGGATTCCTAGGACCCCTTCTCGTGTTACAGCGGGGTTTTTTCTTGTGACAAAGAAATC											
6205	TCAGGATTCCTAGGACCCCTGCTCGTGTTACAGCGGGGTTTTTTCTTGTGACAAAAATC											
6206	TCAGGATTCCTAGGACCCCTGCTCGTGTTACAGCGGGTGTCTTCTTGTGACAAAGAAATC											
6207	TCAGGATTCCTAGGACCCCTTCTCGTGTTACAGCGGGGTTTTTTCTTGTGACAAAGAAATC											
6208	TCAGGATTCCTAGGACCCCTTCTCGTGTTACAGCGGGGTTTTTTCTTGTGACAAAGAAATC											
6209	TCAGGATTCCTAGGACCCCTTCTCGCATTACAGCGGGTGTCTTCTTGTGACAAAAATC											
6210	TCAGGATTCCTAGGACCCCTTCTCGTGTTACAGCGGGGTTTTTTCTTGTGACAAAGAAATC											
6211	TCAGGATTCCTAGGACCCCTGCTCGTGTTACAGCGGGGTTTTTTCTTGTGACAAAAATC											
6212	TCAGGATTCCTAGGACCCCTTCTCGCATTACAGCGGGTGTCTTCTTGTGACAAAAATC											
6213	TCAGGATTCCTAGGACCCCTGCTCGTGTTACAGCGGGGTTTTTTCTTGTGACAAAAATC											
6214	TCAGGATTCCTAGGACCCCTTCTCGTGTTACAGCGGGGTTTTTTCTTGTGACAAAGAAATC											
6215	TCAAGTCTCCTAGGACTCCTCGCAGGATTACAGGTGGTGATTTCTTGTGGACAAAAATC											

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241		250		260		270		280		290		300	
HBV	CTCAAA	TACCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAAA	TTTCTAGGGGGA	ACT									
CGHV	CTCAAA	TACCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAAA	TTTCTAGGGGGA	ACT									
HHWHV	CTAA	CAATAGCTCAGAA	TCTAGATTGGTGGTGGACTTCTCTCAG	TTTTCCAGGGGGC	ATA								
WMHV	CTCA	CAATGCCACAGAGTCTAGACTCGTTGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	ACA									
6101	CTCA	CAATGCCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	GCA									
6102	CTCA	CAATGCCACAGAGTCTAGACTCGTTGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	ACA									
6103	CTCA	CAATACCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	ACT									
6104	CTCA	CAATACCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	ACT									
6105	CTCA	CAATACCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	ACT									
6106	CTCA	CAATACCGCAGAGTCTAGACTCGTTGTGGACTTCTCTCAG	TTTTCCAGGGGGC	ATA									
6107	CTCA	CAATACCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	GCA									
6108	CTAA	CAATACCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	GCA									
6109	CTAA	CAATACCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	GCA									
6110	CTAA	CAATACCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	GCA									
6111	CTCA	CAATACCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	ACT									
6201	CTCA	CAATGCCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	ACT									
6202	CTCA	CAATGCCACAGAGTCTAGACTCGTGGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	ACT									
6203	CTCA	CAATACCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	GCA									
6204	CTCA	CAATACCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	ACT									
6205	CTCA	CAATGCCACAGAGTCTAGACTCGTTGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	ACA									
6206	CTCA	CAATACCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	ACA									
6207	CTCA	CAATACCGCAGAGTCTAGACTCGTTGTGGACTTCTCTCAG	TTTCCAGGGGGC	ATA									
6208	CTCA	CAATACCGCAGAGTCTAGACTCGTTGTGGACTTCTCTCAG	TTTCCAGGGGGC	ATA									
6209	CTCA	CAATGCCACAGAGTCTAGACTCGTGGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	ACT									
6210	CTCA	CAATACCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	GCA									
6211	CTCA	CAATGCCACAGAGTCTAGACTCGTTGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	ACA									
6212	CTCA	CAATGCCACAGAGTCTAGACTCGTGGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	ACT									
6213	CTCA	CAATGCCACAGAGTCTAGACTCGTTGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	ACA									
6214	CTCA	CAATACCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	ACT									
6215	CTAA	CAATACCGCAGAGTCTAGACTCGTGGTGGACTTCTCTCAAA	TTTTCTAGGGGGA	GCA									

FIG. 33
(CONT)

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301		310		320		330		340		350		360
HBV	ACCGTGTGTC	TTGGCCAAA	ATTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
CGHV	CCCGTGTGTC	TGCGCAAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
HHWHV	CCAGAGTGC	ACTGGCCAAA	AAATTGCGAGT	TCCAAAAC	TTGCAAA	CACTT	GGCAAC	CACTT	GCCTGT			
WMHV	CCAGCGTGT	CTGGGCTAAA	TTGCGAGT	CCCCCAAC	CTCCAGT	CAC	TCACTCA	CCAAAC	CTGCTGT			
6101	CCCGTGTGTC	TGCGCAAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6102	CCAGCGTGT	CTTGCGCAAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6103	ACCGTGTGTC	TGCGCAAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6104	ACCGTGTGTC	TGCGCTAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6105	ACCGTGTGTC	TGCGCTAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6106	CCAGAGTGC	ACTGGCCAAA	AAATTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6107	CCCGTGTGTC	TGCGCAAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6108	CCCGTGTGTC	TGCGCAAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6109	CCCGTGTGTC	TGCGCAAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6110	CCCGTGTGTC	TGCGCAAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6111	ACCGTGTGTC	TGCGCAAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6201	ACCGTGCGTC	CTGGCCAAA	AAATTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6202	ACCGTGTGTC	TGCGCAAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6203	CCCGTGTGTC	TGCGCAAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6204	ACCGTGTGTC	TGCGCTAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6205	CCAGCGTGT	CTTGCGCAAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6206	CCCGTGTGTC	TGCGCAAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6207	CCAGAGTGC	ACTGGCCAAA	AAATTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6208	CCAGAGTGC	ACTGGCCAAA	AAATTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6209	ACCGTGTGTC	TGCGCTAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6210	CCCGTGTGTC	TGCGCAAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6211	CCAGCGTGT	CTTGCGCAAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6212	ACCGTGTGTC	TGCGCAAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6213	CCAGCGTGT	CTTGCGCAAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6214	ACCGTGTGTC	TGCGCTAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			
6215	CCCGTGTGTC	TGCGCAAAA	TTGCGAGT	CCCCCAAC	CTCCAAAT	CAC	TCACTCA	CCAAAC	CTCTTGT			

FIG. 33
(CONT)

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FIG. 33
(CONT)

HBV	361		370		380		390		400		410		420	
CGHV		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
HWHV		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
WMHV		CCACCAACTTGCAATGGCTTTCGTTGGATGATCTGCGCGGTTTTATCATATACCTATTA												
6101		CCACCAACTTGTCTCGGTTATCGCTGGATGTGTTGCGCGGTTCTATCATCTTCCCTCTTC												
6102		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6103		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATATACCTATTA												
6104		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6105		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6106		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6107		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6108		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6109		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6110		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6111		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6201		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6202		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6203		CCTCCGAATTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6204		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6205		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6206		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6207		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6208		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6209		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6210		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6211		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6212		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6213		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6214		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												
6215		CCTCCAACTTGTCTCGGTTATCGCTGGATGTGTCGCGCGGTTTTATCATCTTCCCTCTTC												

421	430	440	450	460	470	480
HBV	ATCCTGCTGCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCAAGGTATGTTGCCC					
CGHV	ATCCTGCTGCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCGAGGTATGTTGCCC					
HWHV	GTCCTGCTGCTGCTCATCTTCTTGGTTCTCCTGGACTGGAAGGTTAATACCT					
WMHV	ATCCTGCTTCTATGCCCTCATCTTCTTGGTTCTTCTGGACTACCAAGGTATGTTGCCC					
6101	ATCCTGCTGCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCGAGGTATGTTGCCC					
6102	ATCCTGCTGCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCGAGGTATGTTGCCC					
6103	ATCCTGCTGCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCGAGGTATGTTGCCC					
6104	ATCCTGCTTCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCAAGGTATGTTGCCC					
6105	ATCCTGCTTCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCAAGGTATGTTGCCC					
6106	ATCCTGCTGCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCGAGGTATGTTGCCC					
6107	ATCCTGCTGCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCGAGGTATGTTGCCC					
6108	ATCCTGCTTCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCAAGGTATGTTGCCC					
6109	ATCCTGCTTCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCAAGGTATGTTGCCC					
6110	ATCCTGCTTCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCAAGGTATGTTGCCC					
6111	ATCCTGCTGCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCGAGGTATGTTGCCC					
6201	ATCCTGCTGCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCGAGGTATGTTGCCC					
6202	ATCCTGCTGCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCGAGGTATGTTGCCC					
6203	ATCCTGCTGCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCGAGGTATGTTGCCC					
6204	ATCCTGCTTCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCAAGGTATGTTGCCC					
6205	ATCCTGCTTCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCGAGGTATGTTGCCC					
6206	ATCCTGCTTCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCAAGGTATGTTGCCC					
6207	ATCCTGCTGCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCGAGGTATGTTGCCC					
6208	ATCCTGCTGCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCGAGGTATGTTGCCC					
6209	ATCCTGCTGCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCGAGGTATGTTGCCC					
6210	ATCCTGCTGCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCGAGGTATGTTGCCC					
6211	ATCCTGCTGCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCGAGGTATGTTGCCC					
6212	ATCCTGCTGCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCGAGGTATGTTGCCC					
6213	ATCCTGCTGCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCGAGGTATGTTGCCC					
6214	ATCCTGCTTCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCAAGGTATGTTGCCC					
6215	ATCCTGCTGCTATGCCCTCATCTTCTTGGTTCTTCTGGACTATCGAGGTATGTTGCCC					

FIG. 33
(CONT)

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FIG. 33
(CONT)

481		490		500		510		520		530		540
HBV	GTTTGTCCCTCTAATTCCAGGATCCTCA	-----ACAACCAGCACGGGACCATGCCGGACC										
CGHV	GTTTGTCCCTCTACTTCCAGGATCATCG	-----ACCACACAGCACGGGACCATGCAAAACC										
HHVH	GTCGTCCCTCTC-----AACCCACA	-----ACAGAAACAACAGTCAATTGCAGACAA										
WMHV	GTGTGTCCCTCTTCTACCAACAGTTACAGGAACAACAACAACGGGACCCCTGCAGGACC											
6101	GTTTGTCCCTCTACTTCCAGGATCATCG	-----ACCACACAGCACGGGACCATGCAAAACC										
6102	GTTTGTCCCTCTAATTCCAGGATCCTCA	-----ACAACCAGCACGGGACCTTGCAGGACC										
6103	GTTTGTCCCTCTAATTCCAGGATCCTCA	-----ACAACCAGCACGGGACCATGCAAAACC										
6104	GTTTGTCCCTCTAATTCCAGGATCCTCA	-----ACAACCAGCACGGGACCATGCAAAACC										
6105	GTTTGTCCCTCTAATTCCAGGATCCTCA	-----ACAACCAGCACGGGACCATGCAAAACC										
6106	GTTTGTCCCTCTACTTCCAGGATCCTCA	-----ACAACCAGCACGGGACCCCTGCAGGACC										
6107	GTTTGTCCCTCTAATTCCAGGATCCTCA	-----ACAACCAGCACGGGACCCCTGCAGGACC										
6108	GTTTGTCCCTCTAATTCCAGGATCATCG	-----ACCACACAGCACGGGACCATGCAAAACC										
6109	GTTTGTCCCTCTAATTCCAGGATCATCG	-----ACCACACAGCACGGGACCATGCAAAACC										
6110	GTTTGTCCCTCTAATTCCAGGATCATCG	-----ACCACACAGCACGGGACCATGCAAAACC										
6111	GTTTGTCCCTCTAATTCCAGGATCCTCA	-----ACAACCAGCACGGGACCCCTGCAGGACC										
6201	GTTTGTCCCTCTACTTCCAGGGTCTCTCA	-----ACAACCAGCACGGGACCCCTGCAGGACC										
6202	GTTTGTCCCTCTAATTCCAGGATCCTCA	-----ACAACCAGCACGGGACCATGCAAAACC										
6203	GTTTGTCCCTCTACTTCCAGGATCCTCA	-----ACAACCAGCACGGGACCATGCCCAGGACC										
6204	GTTTGTCCCTCTAATTCCAGGATCCTCA	-----ACAACCAGCACGGGACCATGCAAAACC										
6205	GTTTGTCCCTCTAATTCCAGGATCCTCA	-----ACAACCAGCACGGGACCATGCAAAACC										
6206	GTTTGTCCCTCTAATTCCAGGATCCTCA	-----ACAACCAGCACGGGACCATGCAAAACC										
6207	GTTTGTCCCTCTACTTCCAGGATCCTCA	-----ACAACCAGCACGGGACCCCTGCAGGACC										
6208	GTTTGTCCCTCTACTTCCAGGATCCTCA	-----ACAACCAGCACGGGACCCCTGCAGGACC										
6209	GTTTGTCCCTCTACTTCCAGGATCCTCA	-----ACAACCAGCACGGGACCATGCCCAGGACC										
6210	GTTTGTCCCTCTAATTCCAGGATCCTCA	-----ACAACCAGCACGGGACCCCTGCAGGACC										
6211	GTTTGTCCCTCTAATTCCAGGATCCTCA	-----ACAACCAGCACGGGACCATGCAAAACC										
6212	GTTTGTCCCTCTAATTCCAGGATCCTCA	-----ACAACCAGCACGGGACCATGCAAAACC										
6213	GTTTGTCCCTCTACTTCCAGGATCATCG	-----ACCACACAGCACGGGACCATGCAAAACC										
6214	GTTTGTCCCTCTAATTCCAGGATCCTCA	-----ACAACCAGCACGGGACCATGCAAAACC										
6215	GTTTGTCCCTCTACTTCCAGGATCCTCA	-----ACAACCAGCACGGGACCCCTGCAGGACC										

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FIG. 33
(CONT)

541		550		560		570		580		590		600	
HBV	TGCATGACTACTGCTCAAGGAACCTCTATGTATCCCTCCTGTTGCTGTACCAAAACCTTCG												
CGHV	TGCACGATCCCTGCTCAAGGAACCTCTTTGATTCCTCATGTTGTTGTACAAAACCTTCG												
HWHV	TGCACAAATCTCTGCACAAGACATGTATACCTCCCTTACTGTTGTTGTTAAACCTACG												
WMHV	TGCACGCCAATTGTTCCAGGCATCTCTTCGTATCCCTCATGTTGCTGTACCAAAACCTACG												
6101	TGCACGATCCCTGCTCAAGGAACCTCTTTGATTCCTCATGTTGTTGTACAAAACCTTCG												
6102	TGTATGACTACCGCTCAAGGAACCTCTATGTATCCCTCATGTTGTTGTACAAAACCTTCG												
6103	TGTATGACTACCGCTCAAGGAACCTCTATGTATCCCTCATGTTGTTGTACAAAACCTTCG												
6104	TGTATGACTACCCCTCAAGGAACCTCTATGTATCCCTCATGTTGCTGTACCAAAACCTTCG												
6105	TGTATGACTACCCCTCAAGGAACCTCTATGTATCCCTCATGTTGCTGTACCAAAACCTTCG												
6106	TGTATGACTACCGCTCAAGGAACCTCTATGTATCCCTCATGTTGCTGTACCAAAACCTTCG												
6107	TGTATGACTACTGCTCAAGGAACCTCTATGTATCCCTCATGTTGTTGTACAAAACCTTCG												
6108	TGTATGACTACCCCTCAAGGAACCTCTATGTATCCCTCATGTTGTTGTACCAAAACCTTCG												
6109	TGTATGACTACCCCTCAAGGAACCTCTATGTATCCCTCATGTTGTTGTACCAAAACCTTCG												
6110	TGTATGACTACCCCTCAAGGAACCTCTATGTATCCCTCATGTTGTTGTACCAAAACCTTCG												
6111	TGTATGACTACCGCTCAAGGAACCTCTATGTATCCCTCATGTTGTTGTACAAAACCTTCG												
6201	TGTATGACTACCGCTCAAGGAACCTCTATGTATCCCTCATGTTGCTGTACCAAAACCTTCG												
6202	TGTATGACTACCGCTCAAGGAACCTCTATGTATCCCTCATGTTGTTGTACAAAACCTTCG												
6203	TGCATGACTACCGCTCAAGGAACCTCTATGTATCCCTCATGTTGCTGTACCAAAACCTTCG												
6204	TGTATGACTACCCCTCAAGGAACCTCTATGTATCCCTCATGTTGCTGTACCAAAACCTTCG												
6205	TGTATGACTACCCCTCAAGGAACCTCTATGTATCCCTCATGTTGCTGTACCAAAACCTTCG												
6206	TGTATGACTACCCCTCAAGGAACCTCTATGTATCCCTCATGTTGCTGTACCAAAACCTTCG												
6207	TGTATGACTACCGCTCAAGGAACCTCTATGTATCCCTCATGTTGCTGTACCAAAACCTTCG												
6208	TGTATGACTACCGCTCAAGGAACCTCTATGTATCCCTCATGTTGCTGTACCAAAACCTTCG												
6209	TGCATGACTACCGCTCAAGGAACCTCTATGTATCCCTCATGTTGCTGTACCAAAACCTTCG												
6210	TGTATGACTGCGGCTCAAGGAACCTCTATGTATCCCTCATGTTGCTGTACCAAAACCTTCG												
6211	TGTATGACTACCCCTCAAGGAACCTCTATGTATCCCTCATGTTGCTGTACCAAAACCTTCG												
6212	TGTATGACTACCGCTCAAGGAACCTCTATGTATCCCTCATGTTGTTGTACAAAACCTTCG												
6213	TGCACGATCCCTGCTCAAGGAACCTCTTTGATTCCTCATGTTGTTGTACAAAACCTTCG												
6214	TGTATGACTACCCCTCAAGGAACCTCTATGTATCCCTCATGTTGCTGTACCAAAACCTTCG												
6215	TGTATGACTACCGCTCAAGGAACCTCTATGTATCCCTCATGTTGCTGTACCAAAACCTTCG												

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FIG. 33
(CONT)

601		610		620		630		640		650		660	
HBV	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGGGAAA	AAATTCCTATGG							
CGHV	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CGTCTTGGGCT	TTTCGCAGAAA	ATTCCTATGG							
HWHV	GCAGGAAA	TTGCACCTGTAT	TGGCCCATCCCTT	CATCATGGGCT	TTTAGGAAA	TTACCTATGG							
WMHV	GACGGAAA	CTGCACCTGTAT	TCCCATCCCTC	CATCATGGGCT	TTTCGCAGAA	GTTCCTATGG							
6101	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CGTCTTGGGCT	TTTCGCAGAAA	TTCCCTATGG							
6102	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGGGAAA	AAATTCCTATGG							
6103	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGCAGAAA	TTCCCTATGG							
6104	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGGGAAA	AAATTCCTATGG							
6105	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGGGAAA	AAATTCCTATGG							
6106	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGCAGAAA	TTCCCTATGG							
6107	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGGGAAA	AAATTCCTATGG							
6108	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGGGAAA	AAATTCCTATGG							
6109	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGGGAAA	AAATTCCTATGG							
6110	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGGGAAA	AAATTCCTATGG							
6111	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGGGAAA	AAATTCCTATGG							
6201	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGCAGAAA	TTCCCTATGG							
6202	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGCAGAAA	TTCCCTATGG							
6203	GACGGAGCT	GCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGCAGAAA	TTCCCTATGG							
6204	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGCAGAAA	TTCCCTATGG							
6205	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGGGAAA	AAATTCCTATGG							
6206	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGGGAAA	AAATTCCTATGG							
6207	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGCAGAAA	TTCCCTATGG							
6208	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGGGAAA	AAATTCCTATGG							
6209	GACGGAGCT	GCACCTGTAT	TCCCATCCCTC	CATCCTGGGCT	TTTCGGGAAA	AAATTCCTATGG							
6210	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGCAGAAA	TTCCCTATGG							
6211	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGGGAAA	AAATTCCTATGG							
6212	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGGGAAA	AAATTCCTATGG							
6213	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CGTCTTGGGCT	TTTCGCAGAAA	TTCCCTATGG							
6214	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGGGAAA	AAATTCCTATGG							
6215	GACGGAAA	TTGCACCTGTAT	TCCCATCCCAT	CATCCTGGGCT	TTTCGCAGAAA	TTCCCTATGG							

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FIG. 33
(CONT)

661		670		680		690		700		710		720
HBV	GAGTGGG	CCTCAGCCCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGTGGTTC						
CGHV	GAGTGGG	CCTCAGTCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGCGGTTTC						
HWHV	GAGTGGG	CCTTAGCCCCG	TTTCTCCTGGCTCAATT	ACTAGTGCCCTT	GTCTT	CAATGGTTA						
WMHV	GACTGGG	CCTTAGCCCCG	TTTCTCCTGGCTCAATT	CACATT	CTGCCATT	TGTT	CAGTGGTTC					
6101	GAGTGGG	CCTCAGTCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGCGGTTTC						
6102	GACTGGG	CCTCAGCCCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGCGGTTTC						
6103	GAGTGGG	CCTCAGCCCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGCGGTTTC						
6104	GAGTGGG	CCTCAGCCCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGTGGTTC						
6105	GAGTGGG	CCTCAGCCCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGTGGTTC						
6106	GAGTGGG	CCTCAGCCCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGTGGTTC						
6107	GAGTGGG	CCTCAGCCCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGTGGTTC						
6108	GAGTGGG	CCTCAGTCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGCGGTTTC						
6109	GAGTGGG	CCTCAGTCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGCGGTTTC						
6110	GAGTGGG	CCTCAGTCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGCGGTTTC						
6111	GAGTGGG	CCTCAGCCCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGTGGTTC						
6201	GAGTGGG	CCTCAGCCCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGTGGTTC						
6202	GAGTGGG	CCTCAGCCCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGTGGTTC						
6203	GAGTGGG	CCTCAGCCCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGTGGTTC						
6204	GAGTGGG	CCTCAGCCCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGTGGTTC						
6205	GAGTGGG	CCTCAGCCCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGTGGTTC						
6206	GAGTGGG	CCTCAGCCCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGCGGTTTC						
6207	GAGTGGG	CCTCAGCCCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGTGGTTC						
6208	GAGTGGG	CCTCAGTCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGCGGTTTC						
6209	GAGTGGG	CCTCAGTCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGTGGTTC						
6210	GAGTGGG	CCTCAGCCCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGTGGTTC						
6211	GAGTGGG	CCTCAGCCCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGTGGTTC						
6212	GAGTGGG	CCTCAGCCCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGCGGTTTC						
6213	GAGTGGG	CCTCAGCCCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGCGGTTTC						
6214	GAGTGGG	CCTCAGCCCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGTGGTTC						
6215	GAGTGGG	CCTCAGCCCCG	TTTCTCCTGGCTCAGTTT	ACTAGTGCCATT	TGTT	CAGTGGTTC						

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FIG. 33
(CONT)

	721	730	740	750	760	770	780
HBV							
CGHV	GTAGGGCTTTCCCCCACTGTTTGGCTTTCAGTTATATGGATGATGTGGTATTGGGGGCCA						
HWHV	GCAGGGCTTTCCCCCACTGCTTGGCTTTAGCTATATGGATCATCTGGTATTGGGGGCCA						
WMHV	GGAGGAATTTCCCTCATTCGCGTGGTTTTTTCCTTATATGGATGATTTGGTTTTGGGGGCC						
6101	GCAGGGCTTTCCCCCACTGATGGCTTTTAGCTATATGGATCATCTGGTATTGGGGGCCA						
6102	GCAGGGCTTTCTCCCACTGCTTGGCTTTCAGTTATATGGATGATGTGGTATTGGGGACCA						
6103	GCAGGGCTTTCCCCCACTGTTGGCTTTCAGTTATATGGATGATTTGGTTTTGGGGGCCA						
6104	GTAGGGCTTTCCCCCACTGCTTGGCTTTTGGCTATATGGATCATCTGGTATTGGGGGCCA						
6105	GTAGGGCTTTCCCCCACTGCTTGGCTTTTGGCTATATGGATCATCTGGTATTGGGGGCCA						
6106	GTAGGGCTTTCCCCCACTGTTGGCTTTCAGTTATATGGATCATCTGGTATTGGGGGCCA						
6107	GTAGGGCTTTCCCCCGCTGATGGCTTTCAGTTATATGGATGATGTGGTATTGGGGGCCA						
6108	GTAGGGCTTTCCCCCACTGTTGGCTTTCAGTTATATGGATGATGTGGTCTGGGGGCCA						
6109	GTAGGGCTTTCCCCCACTGTTGGCTTTCAGTTATATGGATGATGTGGTCTGGGGGCCA						
6110	GTAGGGCTTTCCCCCACTGTTGGCTTTCAGTTATATGGATGATGTGGTCTGGGGGCCA						
6111	GTAGGGCTTTCCCCCACTGCTTGGCTTTTAGCTATATGGATCATCTGGTATTGGGGGCCA						
6201	GTAGGGCTTTCCCCCACTGTTGGCTTTCAGTTATATGGATCATCTGGTATTGGGGGCCA						
6202	GTAGGGCTTTCCCCCACTGTTGGCTTTCAGTTATATGGATGATGTGGTATTGGGGACCA						
6203	GTAGGGCTTTCCCCCGCTGATGGCTTTCAGTTATATGGATGATTTGGTTTTGGGGGCCA						
6204	GTAGGGCTTTCCCCCACTGCTTGGCTTTTGGCTATATGGATCATCTGGTATTGGGGGCCA						
6205	GTAGGGCTTTCCCCCACTGCTTGGCTTTTGGCTATATGGATCATCTGGTATTGGGGGCCA						
6206	GCAGGGCTTTCCCCCACTGTTGGCTTTCAGTTATATGGATGATTTGGTTTTGGGGGCCA						
6207	GTAGGGCTTTCCCCCACTGTTGGCTTTCAGTTATATGGATCATCTGGTATTGGGGGCCA						
6208	GTAGGGCTTTCCCCCACTGTTGGCTTTCAGTTATATGGATGATGTGGTCTGGGGGCCA						
6209	GCAGGGCTTTCCCCCACTGATGGCTTTTAGTTATATGGATGATGTGGTCTGGGGGCCA						
6210	GTAGGGCTTTCCCCCACTGTTGGCTTTCAGTTATATGGATCATCTGGTATTGGGGGCCA						
6211	GTAGGGCTTTCCCCCACTGCTTGGCTTTTGGCTATATGGATCATCTGGTATTGGGGGCCA						
6212	GCAGGGCTTTCCCCCACTGCTTGGCTTTTAGCTATATGGATCATCTGGTATTGGGGGCCA						
6213	GCAGGGCTTTCCCCCACTGTTGGCTTTCAGTTATATGGATGATTTGGTTTTGGGGGCCA						
6214	GTAGGGCTTTCCCCCACTGCTTGGCTTTTGGCTATATGGATCATCTGGTATTGGGGGCCA						
6215	GTAGGGCTTTCCCCCACTGTTGGCTTTCAGTTATATGGATCATCTGGTATTGGGGGCCA						

781	790	800	810	820	830	840
HBV	AGTCTGTACAGCATCTTGAGTCCCTTTTACCGCTGTTACCAATTTCTTTTGTCTTTGG					
CGHV	AATCTGTACAACATCTTGAATCCATTATACCGCTGTTACCAATTTCTTTTGTCTTTGG					
HHV	GCACTTCTGAGCATCTTACCGCCATTATATCCCATATTGTTCTGTTTCTTTGATTTGG					
WMHV	AGTCTGTTCAGCATCTTGAGTCCCTTCTTGCCCTGTTACCACTTTCTTTTGGCTTTGG					
6101	AATCTGTACAACATCTTGAGTCCCTTCTTGCCGCTGTTACCAATTTCTTTTGTCTTTGG					
6102	AGTCTGTACAGCATCTTGAGTCCCTTTTACCGCTGTTACCAATTTCTTTTGTCTTTGG					
6103	AGTCTGTACAGCATCTTGAGTCCCTTTTACCGCTGTTACCAATTTCTTTTGTCTTTGG					
6104	AATCTGTACAACATCTTGAATCCCTTTTACCGCTGTTACCAATTTCTTTTGTCTTTGG					
6105	AATCTGTACAACATCTTGAATCCCTTTTACCGCTGTTACCAATTTCTTTTGTCTTTGG					
6106	AATCTGTACAACATCTTGAATCCATTATACCGCTGTTACCAATTTCTTTTGTCTTTGG					
6107	AGTCTGTACAGCATCTTGAGTCCCTTTTACCGCTGTTACCAATTTCTTTTGTCTTTGG					
6108	AGTCTGTTCAGCATCTTGAGTCCCTTCTTGCCCTGTTACCACTTTCTTTTGTCTTTGG					
6109	AGTCTGTTCAGCATCTTGAGTCCCTTCTTGCCCTGTTACCACTTTCTTTTGTCTTTGG					
6110	AGTCTGTTCAGCATCTTGAGTCCCTTCTTGCCCTGTTACCACTTTCTTTTGTCTTTGG					
6111	AATCTGTACAACATCTTGAATCCATTATACCGCTGTTACCAATTTCTTTTGTCTTTGG					
6201	AATCTGTACAACATCTTGAATCCATTATACCGCTGTTACCAATTTCTTTTGTCTTTGG					
6202	AGTCTGTACAGCATCTTGAGTCCCTTCTTGCCCTGTTACCACTTTCTTTTGTCTTTGG					
6203	AGTCTGTACAGCATCTTGAGTCCCTTTTACCGCTGTTACCAATTTCTTTTGTCTTTGG					
6204	AATCTGTACAACATCTTGAATCCCTTTTACCGCTGTTACCAATTTCTTTTGTCTTTGG					
6205	AATCTGTACAACATCTTGAATCCCTTTTACCGCTGTTACCAATTTCTTTTGTCTTTGG					
6206	AGTCTGTACAGCATCTTGAGTCCCTTTTACCGCTGTTACCAATTTCTTTTGTCTTTGG					
6207	AATCTGTACAACATCTTGAATCCATTATACCGCTGTTACCAATTTCTTTTGTCTTTGG					
6208	AGTCTGTTCAGCATCTTGAGTCCCTTCTTGCCCTGTTACCACTTTCTTTTGTCTTTGG					
6209	AGTCTGTTCAGCATCTTGAGTCCCTTCTTGCCCTGTTACCAATTTCTTTTGTCTTTGG					
6210	AATCTGTACAACATCTTGAATCCATTATACCGCTGTTACCAATTTCTTTTGTCTTTGG					
6211	AATCTGTACAACATCTTGAATCCCTTTTACCGCTGTTACCAATTTCTTTTGTCTTTGG					
6212	AATCTGTACAACATCATGAATCCCTTTTACCGCTGTTACCAATTTCTTTTGTCTTTGG					
6213	AGTCTGTACAGCATCTTGAGTCCCTTTTACCGCTGTTACCAATTTCTTTTGTCTTTGG					
6214	AATCTGTACAACATCTTGAATCCCTTTTACCGCTGTTACCAATTTCTTTTGTCTTTGG					
6215	AATCTGTACAACATCTTGAGTCCATTATACCGCTGTTACCAATTTCTTTTGTCTTTGG					

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	841	849
HBV	GTATACATT	
CGHV	GTATACATT	
HWHV	GTATACATT	
WMHV	GTATACATT	
6101	GTATACATT	
6102	GTATACATT	
6103	GTATACATT	
6104	GTATACATT	
6105	GTATACATT	
6106	GTATACATT	
6107	GTATACATT	
6108	GTATACATT	
6109	GTATACATT	
6110	GTATACATT	
6111	GTATACATT	
6201	GTATACATT	
6202	GTATACATT	
6203	GTATACATT	
6204	GTATACATT	
6205	GTATACATT	
6206	GTATACATT	
6207	GTATACATT	
6208	GTATACATT	
6209	GTATACATT	
6210	GTATACATT	
6211	GTATACATT	
6212	GTATACATT	
6213	GTATACATT	
6214	GTATACATT	
6215	GTATACATT	

FIG. 33
(CONT)

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FIG. 34

FIG. 34
(CONT)

61	HBV	SGFLGPLLVLQAGFFLLTRILTI	IPQSLDSWWTSLN	FLGGTTVCLGQNSQ	SPTS	NHSP	TSC
		SGFLGPLLVLQAGFFLLTKILTI	IPQSLDSWWTSLN	FLGGAPVCPGQNSQ	SPTS	NHSP	TSC
	CGHV	SSLLGLLAGLQVVFLLTKILTI	AQNLDWWWTSLSF	PGGIP	ECTGQNSQ	FQ	TKHLPTSC
	WHV	SGFLGPLLALQAVFFLLTKILTI	MPQSLDSLWTLN	FLGGTP	ACPLGNSQ	SPTS	SSHSP
	WMHV	SGFLGPLLVLQAGFFLLTKILTI	MPQSLDSWWTSLN	FLGRAPVCPGQNSQ	SPTS	NHSP	TSC
6101		SGFLGPLLVLQAGFFLLTKILTI	MPQSLDSLWTLN	FLGGTP	ACPLGQNSQ	SPTS	NHSP
6102		SGFLGPLLVLQAGFFLLTKILTI	MPQSLDSLWWTSLN	FLGGTTVCLGNSQ	SPTS	NHSP	TSC
6103		SGFLGPLLVLQAVFFLLTRILTI	IPQSLDSWWTSLN	FLGGTTVCPGQNSQ	SPTS	NHSP	TSC
6104		SGFLGPLLVLQAGFFLLTRILTI	IPQSLDSWWTSLN	FLGGTTVCLGNSQ	SPTS	NHSP	TSC
6105		SGFLGPLLVLQAGFFLLTRILTI	IPQSLDSWWTSLN	FLGGTTVCLGNSQ	SPTS	NHSP	TSC
6106		SGFLGPLLVLQAGFFLLTRILTI	IPQSLDSLWTLN	FLGGIP	ECTGQNSQ	SPTS	NHSP
6107		SGFLGPLLVLQAGFFLLTRILTI	IPQSLDSWWTSLN	FLGGAPVCLGQNSQ	SPTS	NHSP	TSC
6108		SSLLGLLAGLQVVFLLTKILTI	IPQSLDSWWTSLN	FLGGAPVCPGQNSQ	SPTS	NHSP	TSC
6109		SSLLGLLAGLQVVFLLTKILTI	IPQSLDSWWTSLN	FLGGAPVCPGQNSQ	SPTS	NHSP	TSC
6110		SSLLGLLAGLQVVFLLTKILTI	IPQSLDSWWTSLN	FLGGAPVCPGQNSQ	SPTS	NHSP	TSC
6111		SGFLGPLLVLQAGFFLLTKVLT	IPQSLDSWWTSLN	FLGGTTVCLGQNSQ	SPTS	NHSP	TSC
6201		SGFLGPLLVLQAGFFLLTKILTI	MPQSLDSWWTSLN	FLGGTVRPGQNSQ	SPTS	NHSP	TSC
6202		SGFLGPLLALQAVFFLLTKILTI	MPQSLDSWWTSLN	FLGGTTVCLGQNSQ	SPTS	NHSP	TSC
6203		SGFLGPLLVLQAGFFLLTRILTI	IPQSLDSWWTSLN	FLGGAPVCPGQNSQ	SPTS	NHSP	TSC
6204		SGFLGPLLVLQAGFFLLTRILTI	IPQSLDSWWTSLN	FLGGTTVCLGNSQ	SPTS	NHSP	TSC
6205		SGFLGPLLVLQAGFFLLTKILTI	MPQSLDSLWTLN	FLGGTP	ACPLGQNSQ	SPTS	PNHSP
6206		SGFLGPLLVLQAVFFLLTRILTI	IPQSLDSWWTSLN	FLGGTPVCPGQNSQ	SPTS	NHSP	TSC
6207		SGFLGPLLVLQAGFFLLTRILTI	IPQSLDSLWTLN	FLGGIP	ECTGQNSQ	SPTS	NHSP
6208		SGFLGPLLVLQAGFFLLTRILTI	IPQSLDSLWTLN	FLGGIP	ECTGQNSQ	SPTS	NHSP
6209		SGFLGPLLALQAVFFLLTKILTI	MPQSLDSWWTSLN	FLGGTTVCLGNSQ	SPTS	NHSP	TSC
6210		SGFLGPLLVLQAGFFLLTRILTI	IPQSLDSWWTSLN	FLGGAPVCLGQNSQ	SPTS	NHSP	TSC
6211		SGFLGPLLVLQAGFFLLTKILTI	MPQSLDSLWTLN	FLGGTP	ACPLGQNSQ	SPTS	NHSP
6212		SGFLGPLLALQAVFFLLTKILTI	MPQSLDSWWTSLN	FLGGTTVCLGQNSQ	SPTS	NHSP	TSC
6213		SGFLGPLLVLQAGFFLLTKILTI	MPQSLDSLWTLN	FLGGTP	ACPLGQNSQ	SPTS	NHSP
6214		SGFLGPLLVLQAGFFLLTRILTI	IPQSLDSWWTSLN	FLGGTTVCLGNSQ	SPTS	NHSP	TSC
6215		SSLLGLLAGLQVVFLLTKILTI	IPQSLDSWWTSLN	FLGGAPVCPGQNSQ	SPTS	NHSP	TSC

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FIG. 34
(CONT)

	121	130	140	150	160	170	180
HBV	PPTCPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYQ	GMPLVCPLIPGSS	--TTSTGPCRT	
CGHV	PPICPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYR	GMPLVCPLIPGSS	--TTSTGPCRT	
HWHV	PPTCNGFRWMYLRRFI	I	YLLVLLCL	IFLLVLLDWK	GLIPVCPLQPTE	--TTVN--CRQ	
WMHV	PPTCPGYRWMCLRRSI	I	FLFILLCL	IFLLVLLDYQ	GMPLVCPLIPGSS	--TTSTGPCRT	
6101	PPICPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYR	GMPLVCPLIPGSS	--TTSTGPCRT	
6102	PPTCPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYR	GMPLVCPLIPGSS	--TTSTGPCRT	
6103	PPTCPGYRWMCLRRFI	I	YLLVLLCL	IFLLVLLDYQ	GMPLVCPLIPGSS	--TTSTGPCRT	
6104	PPTCPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYQ	GMPLVCPLIPGSS	--TTSTGPCRT	
6105	PPTCPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYQ	GMPLVCPLIPGSS	--TTSTGPCRT	
6106	PPTCPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYR	GMPLVCPLIPGSS	--TTSTGPCRT	
6107	PPTCPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYR	GMPLVCPLIPGSS	--TTSTGPCRT	
6108	PPICPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYQ	GMPLVCPLIPGSS	--TTSTGPCRT	
6109	PPICPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYQ	GMPLVCPLIPGSS	--TTSTGPCRT	
6110	PPICPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYQ	GMPLVCPLIPGSS	--TTSTGPCRT	
6111	PPTCPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYR	GMPLVCPLIPGSS	--TTSTGPCRT	
6201	PPTCPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYR	GMPLVCPLIPGSS	--TTSTGPCRT	
6202	PPTCPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYR	GMPLVCPLIPGSS	--TTSTGPCRT	
6203	PPICPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYR	GMPLVCPLIPGSS	--TTSTGPCRT	
6204	PPTCPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYQ	GMPLVCPLIPGSS	--TTSTGPCRT	
6205	PPTCPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYR	GMPLVCPLIPGSS	--TTSTGPCRT	
6206	PPTCPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYQ	GMPLVCPLIPGSS	--TTSTGPCRT	
6207	PPTCPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYR	GMPLVCPLIPGSS	--TTSTGPCRT	
6208	PPTCPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYR	GMPLVCPLIPGSS	--TTSTGPCRT	
6209	PPTCPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYR	GMPLVCPLIPGSS	--TTSTGPCRT	
6210	PPTCPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYR	GMPLVCPLIPGSS	--TTSTGPCRT	
6211	PPTCPGHRWMCLRRFI	I	FLFILLCL	IFLLVLLDYR	GMPLVCPLIPGSS	--TTSTGPCRT	
6212	PPTCPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYR	GMPLVCPLIPGSS	--TTSTGPCRT	
6213	PPTCPGYHWMCLRRFI	I	FLFILLCL	IFLLVLLDYR	GMPLVCPLIPGSS	--TTSTGPCRT	
6214	PPTCPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYQ	GMPLVCPLIPGSS	--TTSTGPCRT	
6215	PPTCPGYRWMCLRRFI	I	FLFILLCL	IFLLVLLDYR	GMPLVCPLIPGSS	--TTSTGPCRT	

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FIG. 34
(CONT)

181	190	200	210	220	230	240
HBV	CMTTAQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASARFSWLSLLVPFVQWF				
CGHV	CTIPAQGTSLIPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASVRFWSLLAPFVQRF				
HWHV	CTISAQDMYTTPYCCCLKPTAGNCTC	WIPSSWALGNYLWEALARFSWNLVPLQLWL				
WMHV	CTPIVPGISSYPSCCCTKPTDGNCTC	IPSSWAFGKFLWDALARFSWNLVPLFVQWF				
6101	CTIPAQGTSLIPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASVRFWSLLAPFVQRF				
6102	CMTTAQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWDASARFSWLSLLVPFVQRF				
6103	CMTTAQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASARFSWLSLLVPFVQRF				
6104	CMTTPQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASARFSWLSLLVPFVQWF				
6105	CMTTPQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASARFSWLSLLVPFVQWF				
6106	CMTTAQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASARFSWLSLLVPFVQWF				
6107	CMTTAQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASARFSWLSLLVPFVQWF				
6108	CMTTPQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASVRFWSLLAPFVQRF				
6109	CMTTPQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASVRFWSLLAPFVQRF				
6110	CMTTPQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASVRFWSLLAPFVQRF				
6111	CMTTAQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASARFSWLSLLVPFVQWF				
6201	CMTTAQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASARFSWLSLLVPFVQWF				
6202	CMTTAQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASARFSWLSLLVPFVQWF				
6203	CMTTAQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASARFSWLSLLVPFVQWF				
6204	CMTTPQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASARFSWLSLLVPFVQWF				
6205	CMTTPQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASARFSWLSLLVPFVQWF				
6206	CMTTPQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASARFSWLSLLVPFVQRF				
6207	CMTTAQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASARFSWLSLLVPFVQWF				
6208	CMTTAQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASVRFWSLLAPFVQRF				
6209	CMTTAQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASVRFWSLLVPFVQWF				
6210	CMTAAQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASARFSWLSLLVPFVQWF				
6211	CMTTPQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASARFSWLSLLVPFVQWF				
6212	CMTTAQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASARFSWLSLLAPFVQRF				
6213	CTIPAQGTSLIPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASARFSWLSLLVPFVQRF				
6214	CMTTPQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASARFSWLSLLVPFVQWF				
6215	CMTTAQGTSMYPSCCCTKPSDGNCTC	IPSSWAFGKFLWEASARFSWLSLLVPFVQWF				

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	241	250	260	270	280
HBV	VGLSPTVWLSVIWMMWYWGPSLYSILSPFLPLLPIFFCLWVYI				
CGHV	AGLSPTAWLLAIWIIWYWGPNLYNILNPFIPLLPIFFCLWVYI				
HWHV	GGISLIAWFLLIWMIWFWGPALLSILPPFIPIFVLFFLIWVYI				
WMHV	AGLSPTVWLLVIWMMWFWGPSLFSILSPFLPLLPLFFWLWVYI				
6101	AGLSPTAWLLAIWIIWYWGPNLYNILSPFLPLLPIFFCLWVYI				
6102	AGLSPTAWLSVIWMMWYWGPSLYSILSPFLPLLPIFFCLWVYI				
6103	AGLSPTVWLSVIWMIWFWGPSLYSILSPFLPLLPIFFCLWVYI				
6104	VGLSPTAWLLAIWIIWYWGPNLYNILNPFLPLLPIFFCLWVYI				
6105	VGLSPTAWLLAIWIIWYWGPNLYNILNPFLPLLPIFFCLWVYI				
6106	VGLSPTVWLSVIWIIWYWGPNLYNILNPFIPLLPIFFCLWVYI				
6107	VGLSPAVWLSVIWMMWYWGPSLYSILSPFLPLLPIFFWLWVYI				
6108	VGLSPTVWLSVIWMMWFWGPSLFSILSPFLPLLPLFFWLWVYI				
6109	VGLSPTVWLSVIWMMWFWGPSLFSILSPFLPLLPLFFWLWVYI				
6110	VGLSPTVWLSVIWMMWFWGPSLFSILSPFLPLLPLFFWLWVYI				
6111	VGLSPTAWLLAIWIIWYWGPNLYNILNPFIPLLPIFFCLWVYI				
6201	VGLSPTVWLSVIWIIWYWGPNLYNILNPFIPLLPIFFCLWVYI				
6202	VGLSPTVWLSVIWMMWYWGPSLYSILSPFLPLLPLFFWLWVYI				
6203	VGLSPAVWLSVIWMIWFWGPSLYSILSPFLPLLPIFFCLWVYI				
6204	VGLSPTAWLLAIWIIWYWGPNLYNILNPFLPLLPIFFCLWVYI				
6205	VGLSPTAWLLAIWIIWYWGPNLYNILNPFLPLLPIFFCLWVYI				
6206	AGLSPTVWLSVIWMIWFWGPSLYSILSPFLPLLPIFFCLWVYI				
6207	VGLSPTVWLSVIWIIWYWGPNLYNILNPFIPLLPIFFCLWVYI				
6208	VGLSPTVWLSVIWMMWFWGPSLFSILSPFLPLLPLFFWLWVYI				
6209	AGLSPTVWLLVIWMMWFWGPSLFSILSPFLPLLPIFFCLWVYI				
6210	VGLSPTVWLSVIWIIWYWGPNLYNILNPFIPLLPIFFCLWVYI				
6211	VGLSPTAWLLAIWIIWYWGPNLYNILNPFLPLLPIFFCLWVYI				
6212	AGLSPTAWLLAIWIIWYWGPNLYNIMNPFLPLLPIFFCLWVYI				
6213	AGLSPTVWLSVIWMIWFWGPSLYSILSPFLPLLPIFFCLWVYI				
6214	VGLSPTAWLLAIWIIWYWGPNLYNILNPFLPLLPIFFCLWVYI				
6215	VGLSPTVWLSVIWIIWYWGPNLYNILSPFIPLLPIFFCLWVYI				

FIG. 34 (CONT)

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(SEQ ID NO: 59)

WT Hepatitis amino acid sequence in BOLD

Summary of amino acid substitutions from shuffled clones in BLACK

Regions of interested are underlined

.....PreS2 B epitope..... PreS2

MQWNSTTFHQTLQDPRVRGLYFPAGSSSGTVNPVLTTASPLSSIFSRIGD

 A G L V APNI HI VSATTR

 V V

..... TM1 CTL Epitope

PALNMENITSGFLGPLLVLQAGFFLLTRILTIPQSLDSWWTSLNFLGGTTV

 VP S--P SL L AA VVY W KV M L S PRRAPA

 T G A G M I E

RP L P P P ST HH R W Y LV TM2

CLGQNSQSPTSNHSPTSCPPTCPGYRWMCLRRFIIIFLFILLCLIFLLVLL

T

 a-loop

DYQGMLPVCPLIPGSSTTSTGPCRTCMTTAQGTSMYPSCCCTKPSDGNCTC

 R V PL G K TIPP LI S

 A

 TM3 TM4

IPIPSSWAFGKFLWEWASARFSWLSLLVPFVQWFVGLSPTVWLSVIWMMWY

 A D V A R A AA LAT II F

WGPSLYSILSPFLPLLPIFFCLWVYI*

 N FN MN I L W

FIG. 35

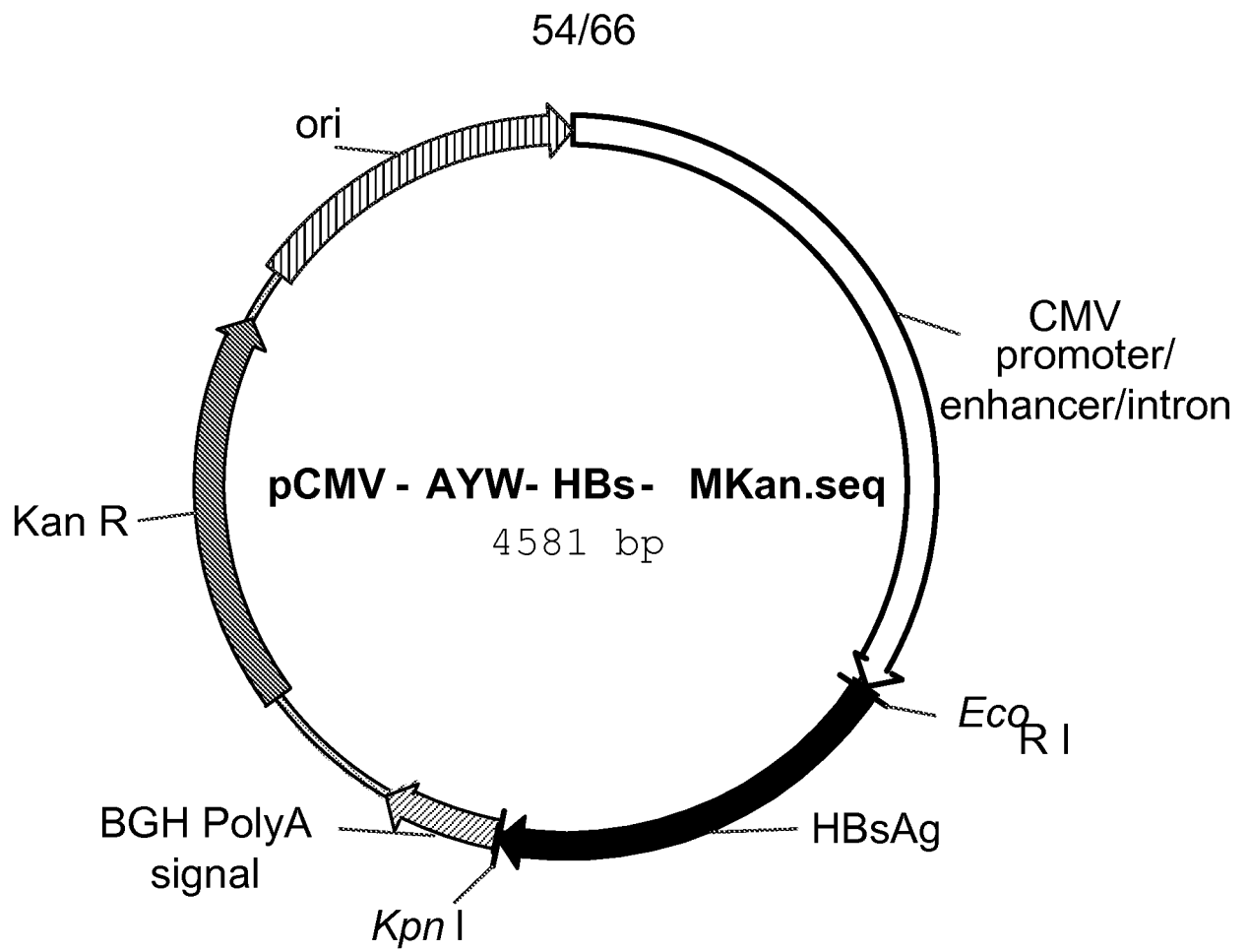


FIG. 36

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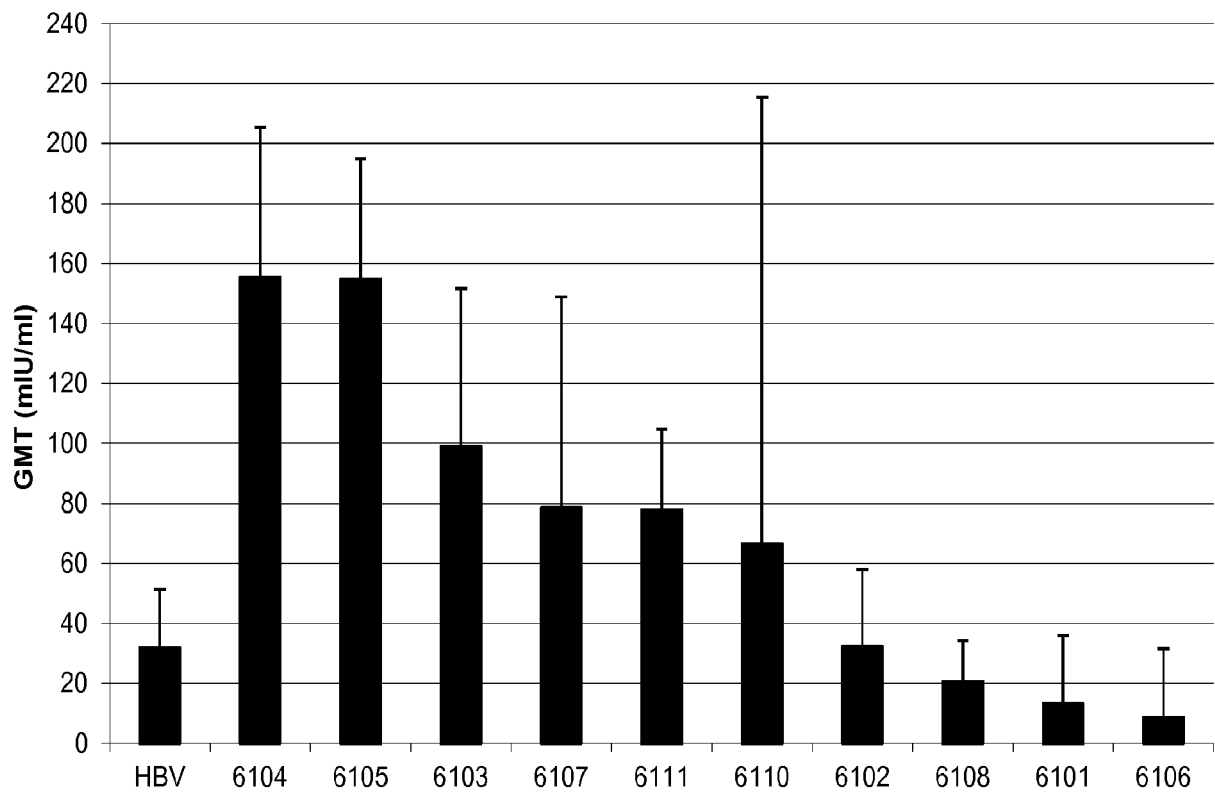


FIG. 37

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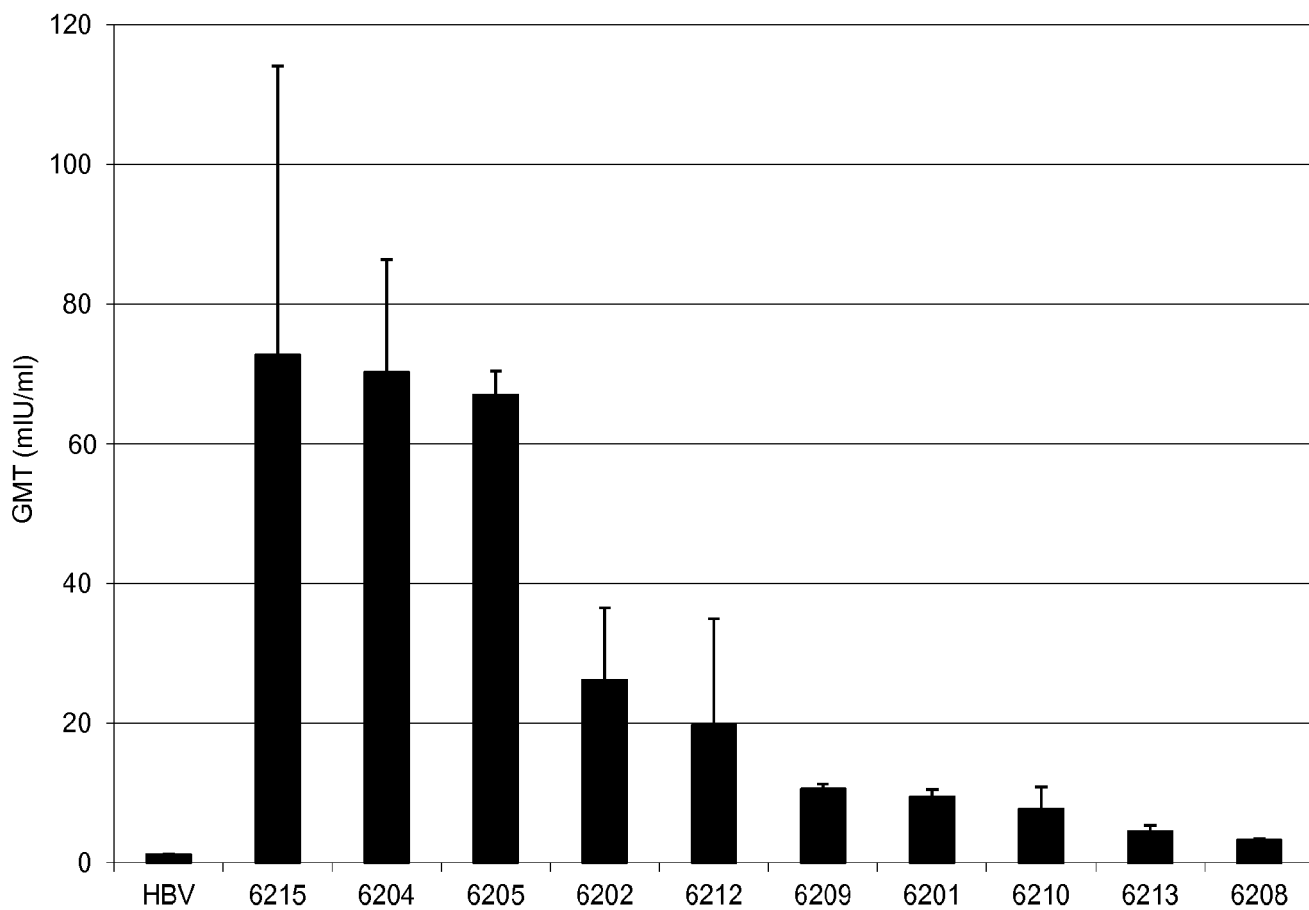


FIG. 38

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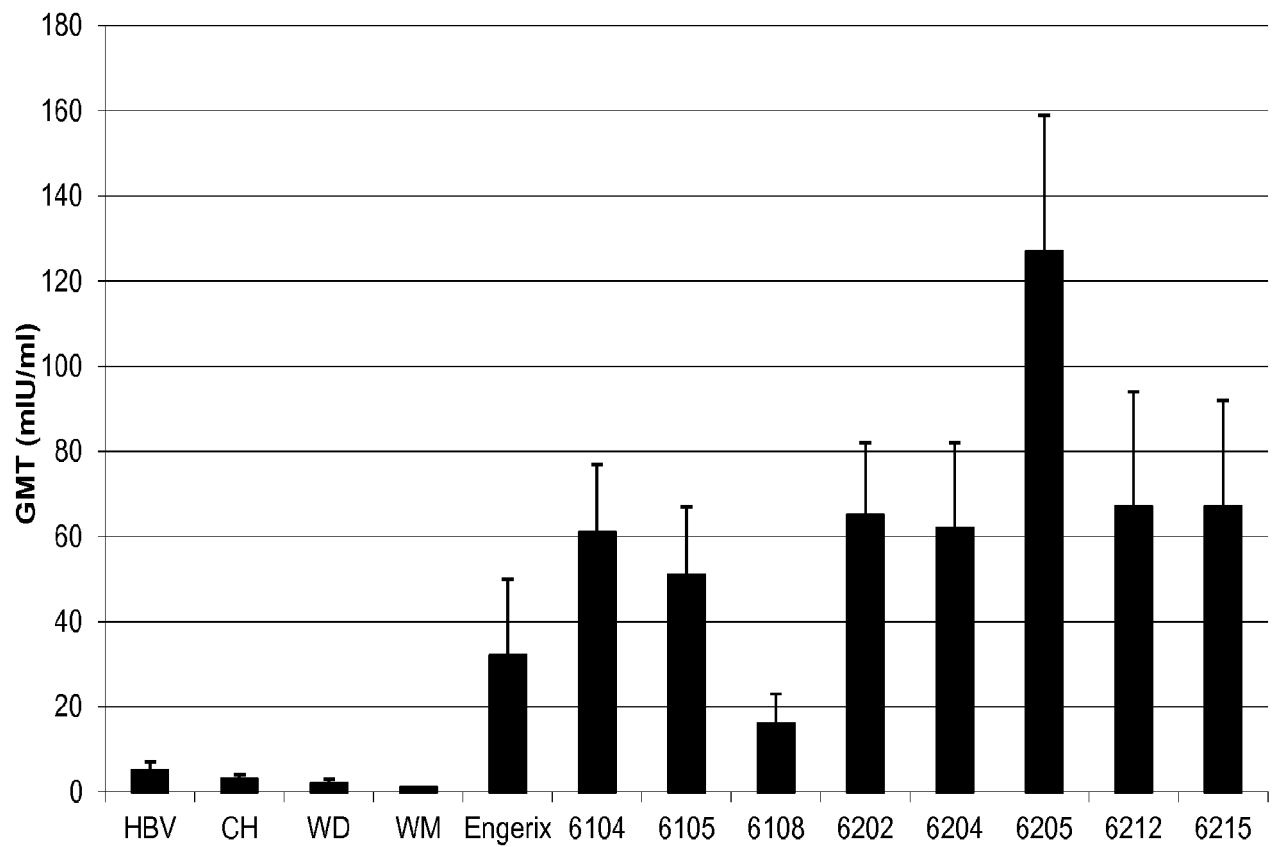


FIG. 39

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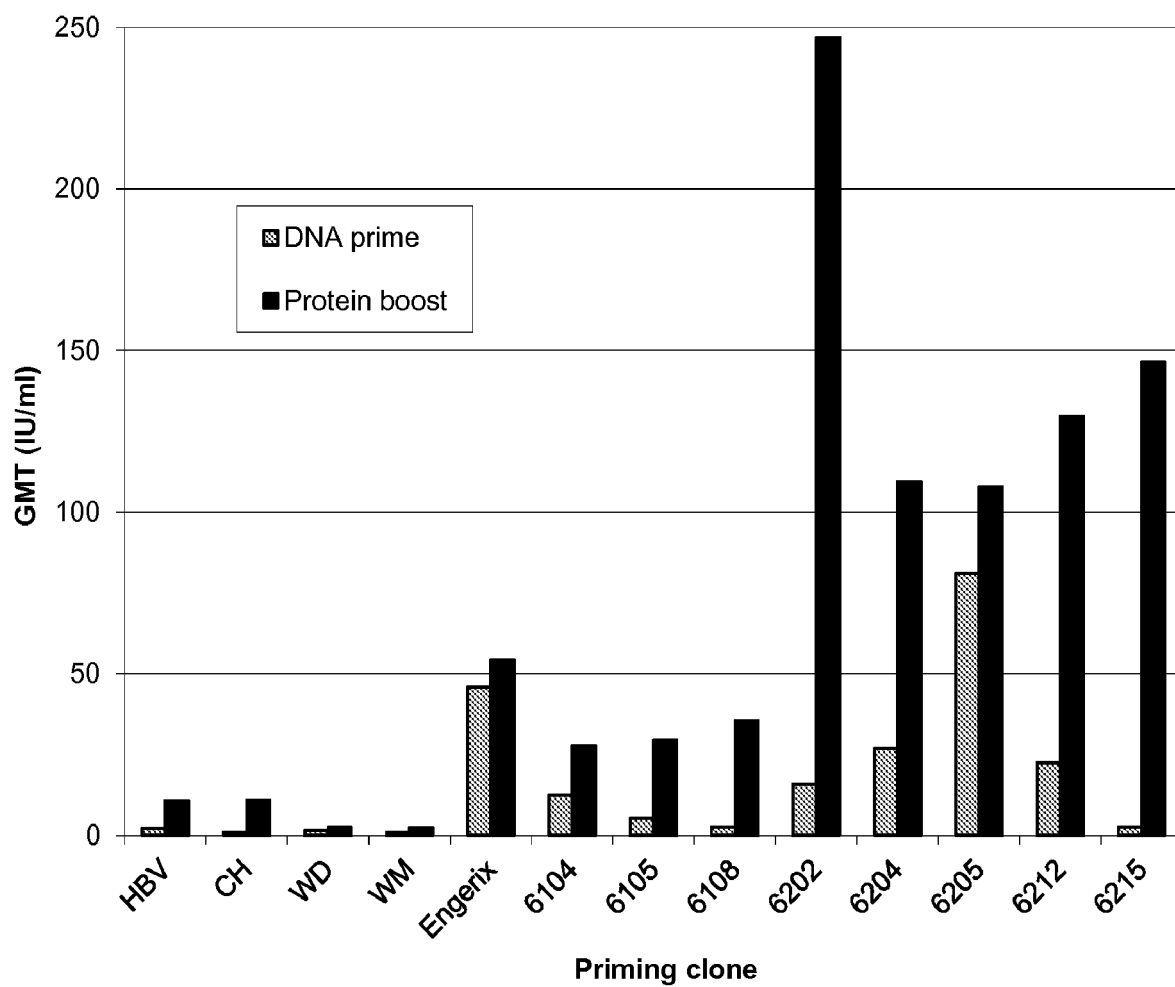


FIG. 40

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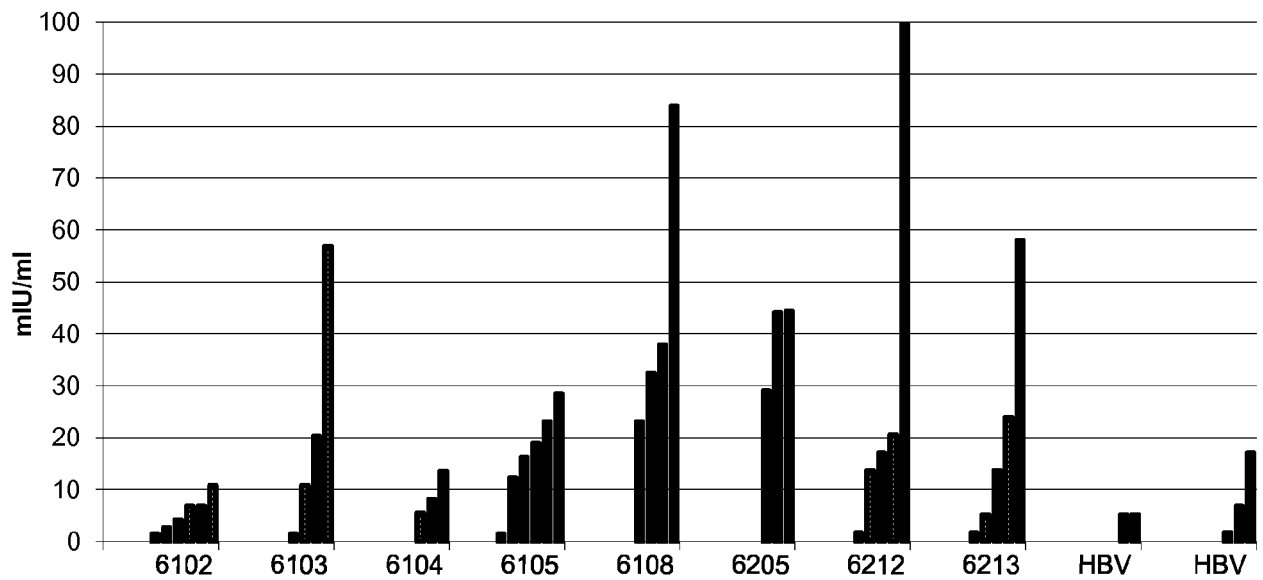


FIG. 41

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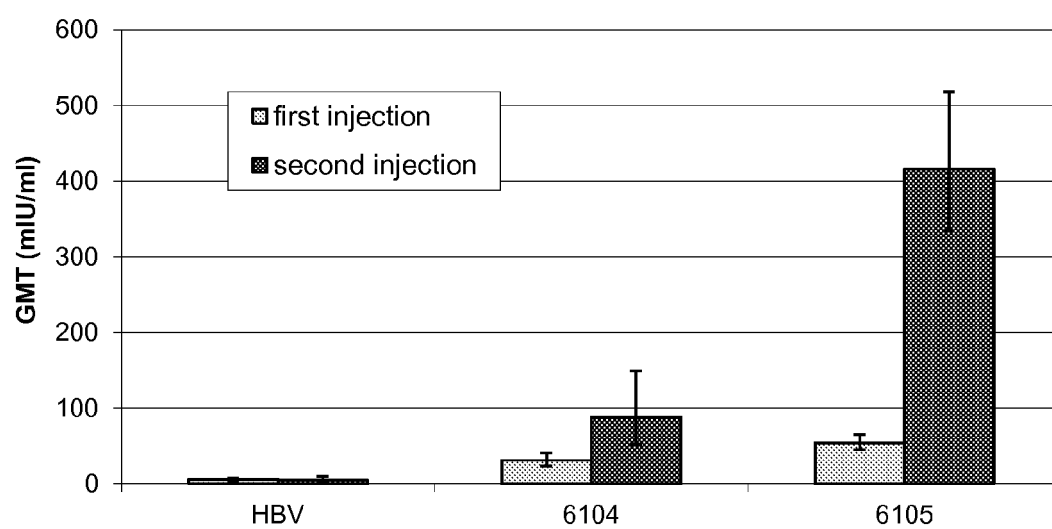


FIG. 42

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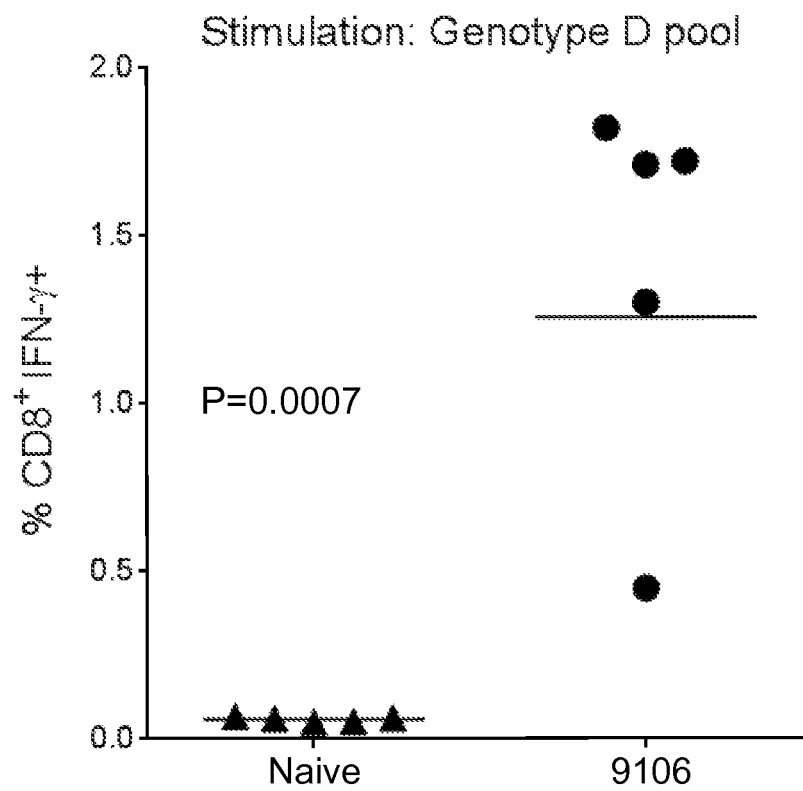


FIG. 43

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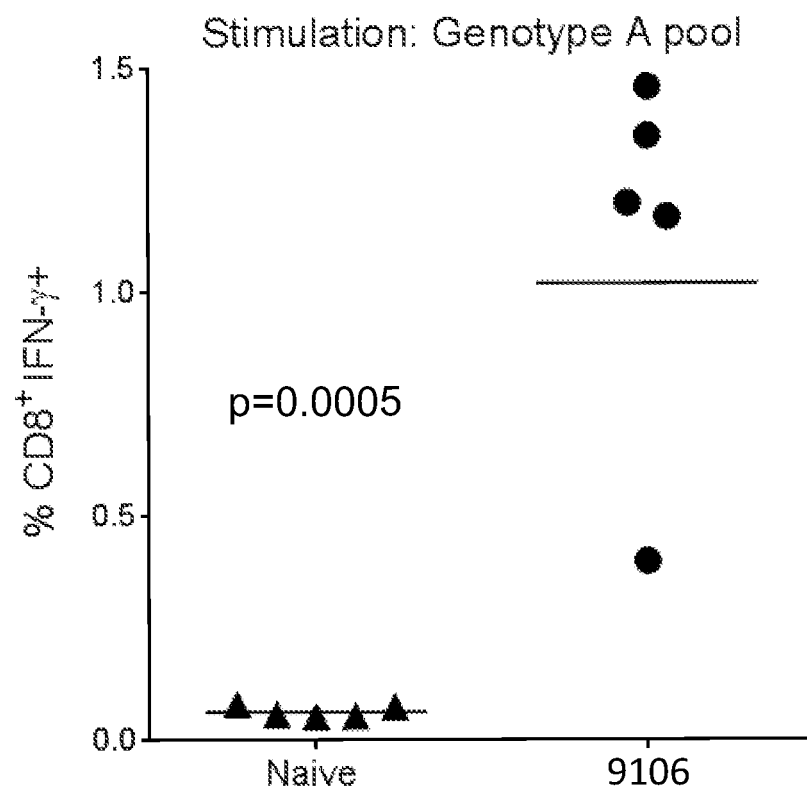


FIG. 44

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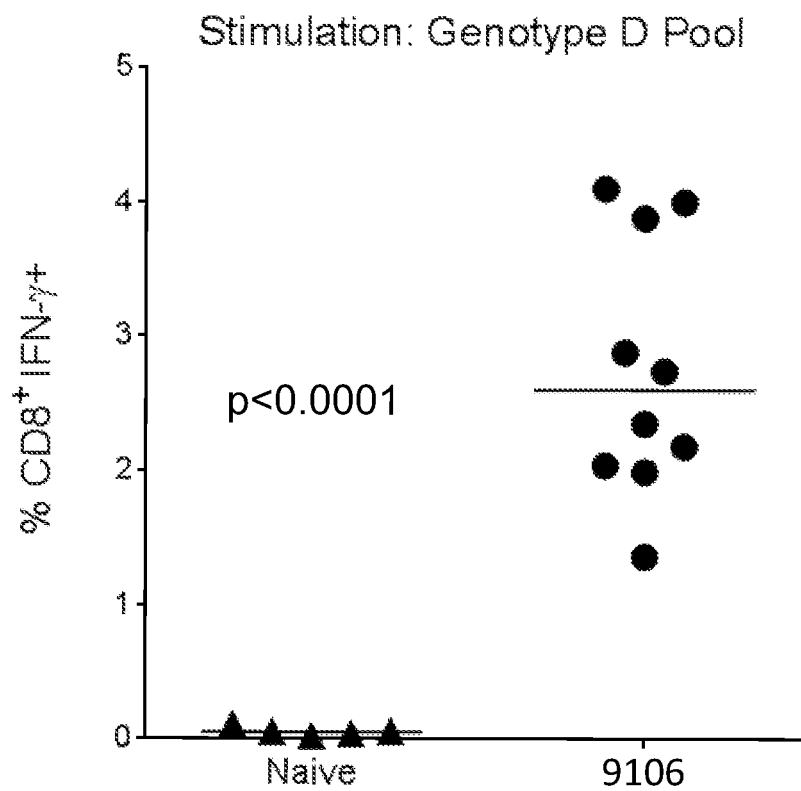


FIG. 45

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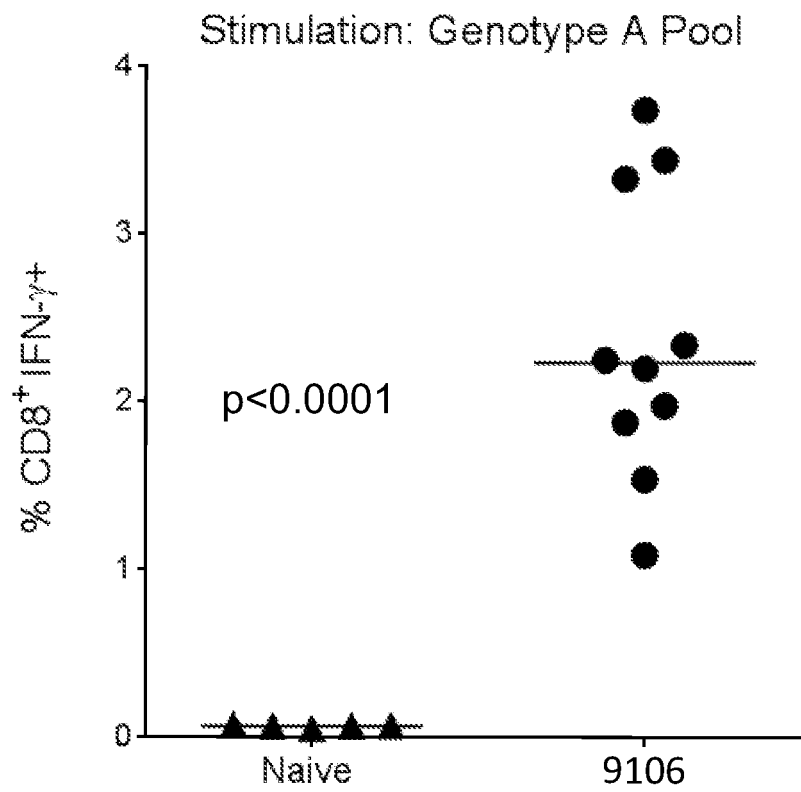


FIG. 46

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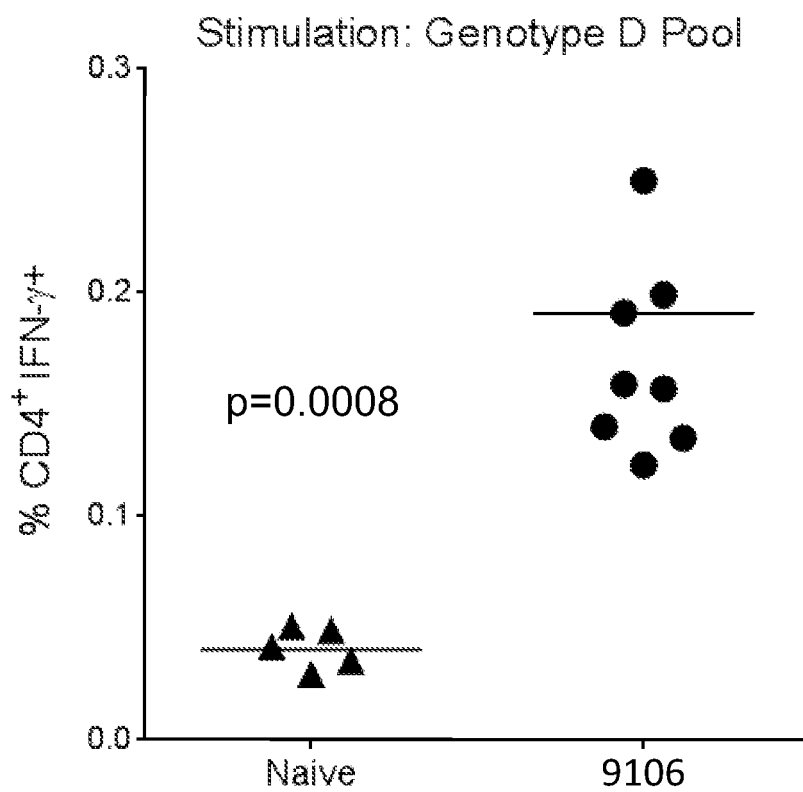


FIG. 47

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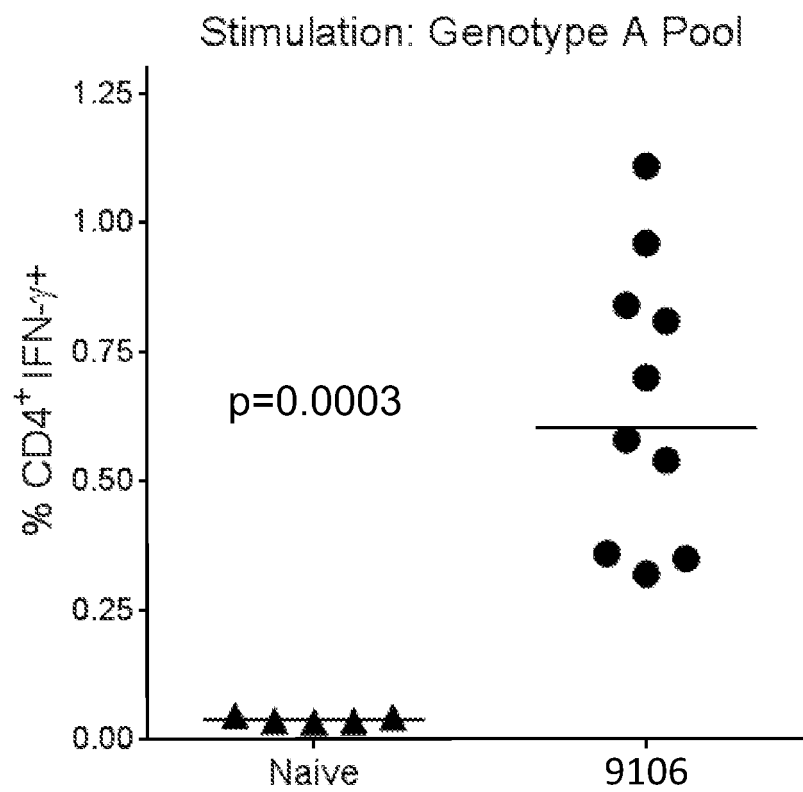


FIG. 48