

AGAGGTACCCCGGGCTGGTATATTTATATGTTGTCAAATAACTCAAAAACCATA
AAAGTTTAAGTTAGCAAGTGTGTACATTTTTACTTGAACAAAAATATTCACCTAC
TACTGTTATAAATCATTATTAACATTAGAGTAAAGAAATATGGATGATAAGAAC
AAGAGTAGTGATATTTTGACAACAATTTTGTTGCAACATTTGAGAAAATTTTGTT
GTTCTCTCTTTTCATTGGTCAAAAACAATAGAGAGAGAGAAAAAGGAAGAGGGAG
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AAATCTAAGCCACGTAGGAGGATAACAGGATCCCCGTAGGAGGATAACATCCA
ATCCAACCAATCACAACAATCCTGATGAGATAACCCACTTTAAGCCCACGCATC
TGTGGCACATCTACATTATCTAAATCACACATTCTTCCACACATCTGAGCCACA
CAAAAACCAATCCACATCTTTATCACCCATTCTATAAAAAATCACACTTTGTGAG
TCTACACTTTGATTCCCTTCAAACACATACAAAGAGAAGAGACTAATTAATTAAT
TAATCATCTTGAGAGAAAATGGCGAAAAACGTTGCGATTTTCGGCTTATTGTTT
TCTCTTCTTGTGTTGGTTCCTTCTCAGATCT

GAGCTCTAAGTTAAATGCTTCTTCGTCTCCTATTTATAATATGGTTTGTTATTG
TTAATTTTGTTCTTGTAGAAGAGCTTAATTAATCGTTGTTGTTATGAAATACTATT
TGTATGAGATGAACTGGTGTAATGTAATTCATTTACATAAGTGGAGTCAGAATC
AGAATGTTTCCTCCATAACTAAGTACATGAAGACCTGCCGCGTACAATTGTC
TTATATTTGAACAATAAAATTGAACATCTTTTGCCACAACCTTTATAAGTGGTTA
ATATAGCTCAAATATATGGTCAAGTTCAATAGATTAAATAATGGAAATATCAGTTA
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CTTTGATAAATGATAGTACA

Fig. 1A

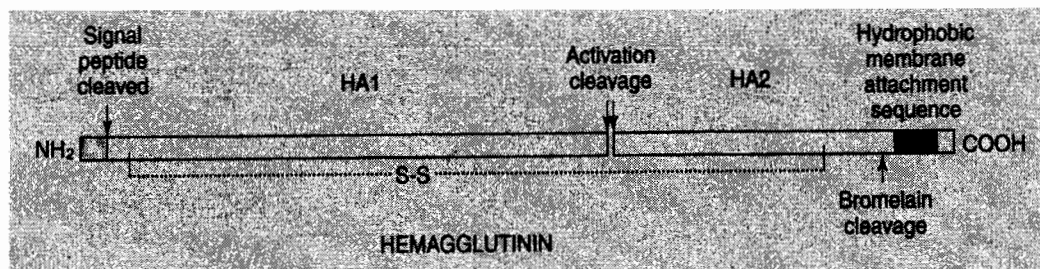


Fig. 1B

Fig. 2A

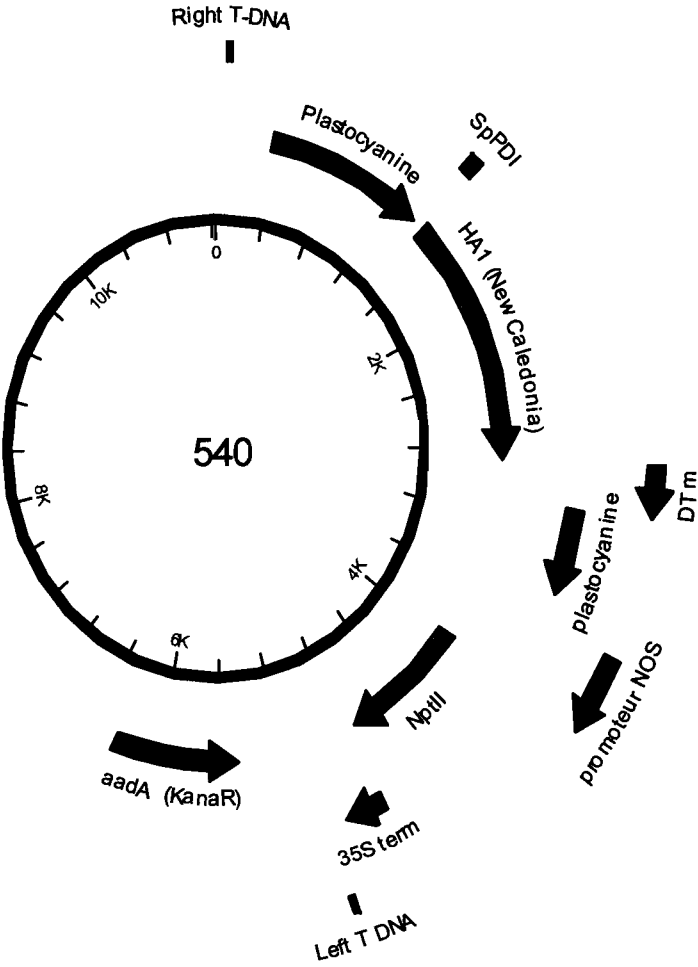


Fig. 2B

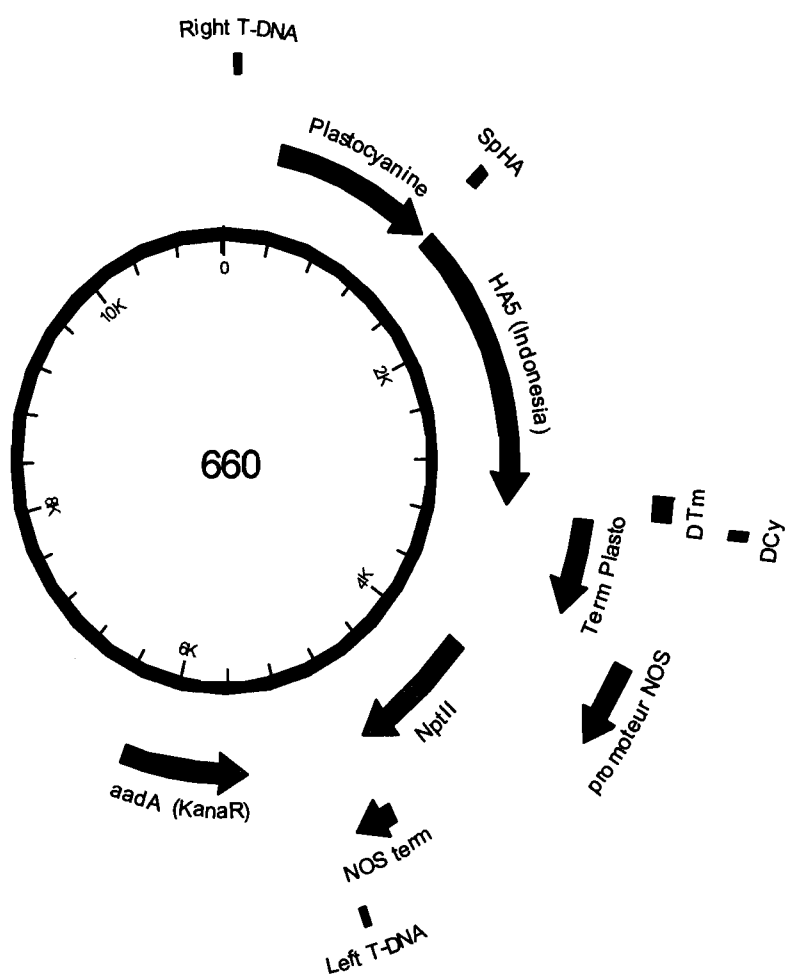


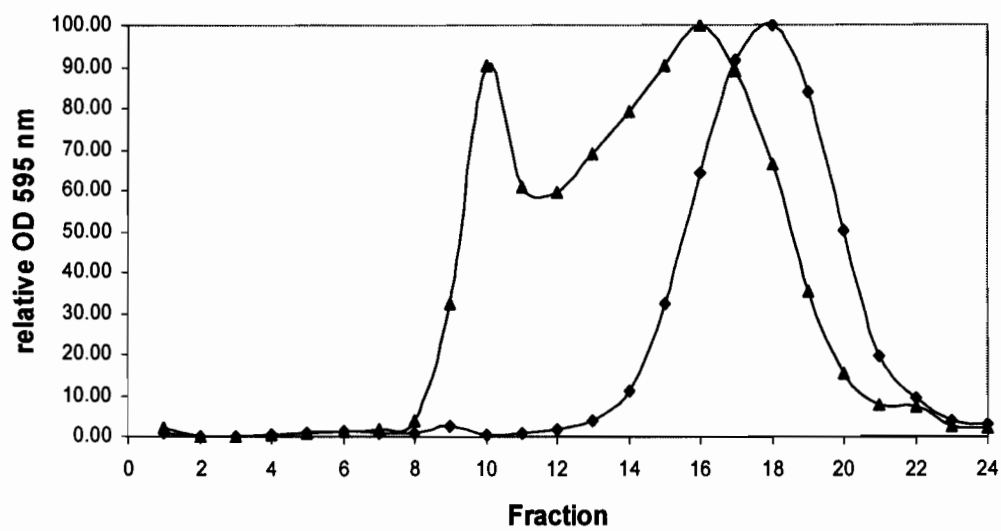
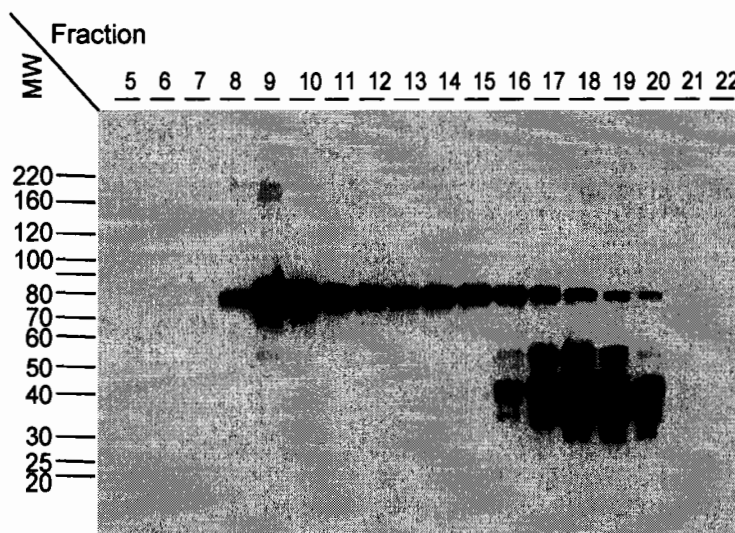
Fig. 3A**Fig. 3B**

Fig. 3C

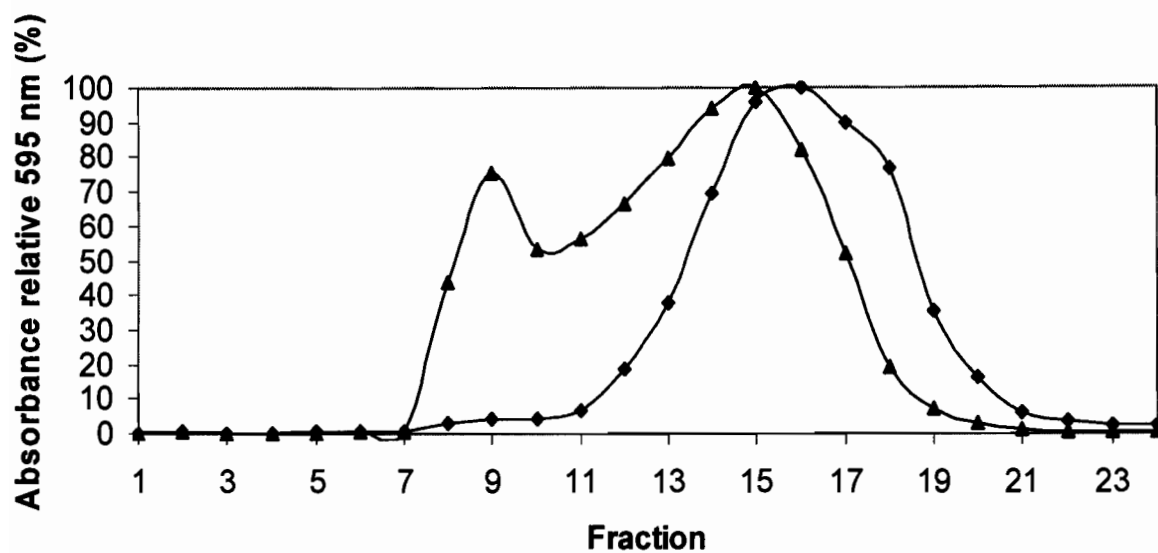


Fig. 3D

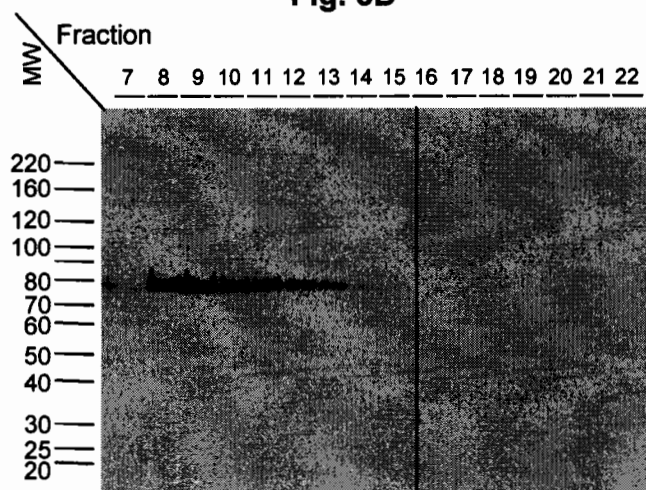


Fig. 4A

SEQ ID NO.1

AGATCTTCGCTGACACAATATGTATAGGCTACCATGCCAACAACTCAACCGACACTGTTGACACAGTAC
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ACTAAAAGGAATAGCCCCACTACAATTGGGTAATTGCAGCGTTGCCGGATGGATCTTAGGAAACCCAGA
ATGCGAATTACTGATTTCCAAGGAATCATGGTCCTACATTGTAGAAACACCAAATCCTGAGAATGGAACA
TGTTACCCAGGGTATTTCCGCCGACTATGAGGAACTGAGGGAGCAATTGAGTTCAGTATCTTCATTTGAG
AGATTGAAAATATTCCCCAAAAGAGCTCATGGCCCAACCACACCGTAACCGGAGTATCAGCATCATGC
TCCCATAATGGGAAAAGCAGTTTTTACAGAAATTTGCTATGGCTGACGGGGAAGAATGGTTTGTACCCA
AACCTGAGCAAGTCCTATGTAAACAACAAAGAGAAAGAAGTCCTTGACTATGGGGTGTTTCATCACCCG
CCTAACATAGGGAACCAAAGGGCACTCTATCATAACAGAAAATGCTTATGTCTCTGTAGTGTCTTCACATT
ATAGCAGAAGATTCACCCCAGAAATAGCCAAAAGACCCAAAGTAAGAGATCAGGAAGGAAGAATCAACT
ACTACTGGACTCTGCTGGAACCTGGGGATACAATAATTTTGAGGCAAATGGAAATCTAATAGCGCCAT
GGTATGCTTTTGAAGTGTAGAGGCTTTGGATCAGGAATCATCACCTCAAATGCACCAATGGATGAAT
GTGATGCGAAGTGTCAAACACCTCAGGGAGCTATAAACAGCAGTCTTCCTTTCCAGAATGTACACCCAG
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TCCCATCCATTCAATCCAGAGGTTTTGTTGGAGCCATTGCCGGTTTCATTGAAGGGGGGTGGACTGGAA
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GGGTTTCTAGACATTTGGACATATAATGCAGAATTGTTGGTTCTACTGGAAAATGAAAGGACTTTGGATT
TCCATGACTCCAATGTGAAGAATCTGTATGAGAAAGTAAAAAGCCAATTAAAGAATAATGCCAAAGAAAT
AGGAAACGGGTGTTTTGAGTTCTATCACAAGTGTAACAATGAATGCATGGAGAGTGTGAAAATGGTAC
CTATGACTATCCAAAATATTCCGAAGAATCAAAGTTAAACAGGGAGAAAATTGATGGAGTGAAAATTGGAA
TCAATGGGAGTATACTAAGAGCTCAGGCCT

Fig. 4B

SEQ ID NO. 2

GGTACCTATGACTATCCAAAATATTCCGAAGAATCAAAGTTAAACAGGGAGAAAATTGATGGAGTGAAAT
TGGAATCAATGGGAGTATACCAAGATTCTGGCGATCTACTCAACTGTCGCCAGTTCCTGGTTCTTTGGT
CTCCCTGGGGCAATCAGCTTCTGGATGTGTTCCAATGGGTCTTGCAAGTGTAGAATATGCATCTAAGA
GCTCAGGCCT

Fig. 5**HA0 from H1 (SEQ ID NO:28)**

AGATCTTCGCTGACACAATATGTATAGGCTACCATGCCAACAACTCAACCGACACTGTTGACA
CAGTACTTGAGAAGAATGTGACAGTGACACACTCTGTCAACCTACTTGAGGACAGTCACAATG
GAAAACTATGTCTACTAAAAGGAATAGCCCCACTACAATTGGGTAATTGCAGCGTTGCCGGAT
GGATCTTAGGAAACCCAGAATGCGAATTACTGATTTCCAAGGAATCATGGTCCTACATTGTAG
AAACACCAAATCCTGAGAATGGAACATGTTACCCAGGGTATTTGCCGACTATGAGGAACTGA
GGGAGCAATTGAGTTCAGTATCTTCATTTGAGAGATTGCGAAATATCCCCAAAGAAAGCTCAT
GGCCCAACCCACACCGTAACCGGAGTATCAGCATCATGCTCCCATAATGGGAAAAGCAGTTTTT
ACAGAAATTTGCTATGGCTGACGGGAAGAATGGTTTGTACCCAAACCTGAGCAAGTCCTATG
TAAACAACAAAGAGAAAAGAAGTCCTTGTACTATGGGGTGTTTCATCACCCGCCTAACATAGGGA
ACCAAAGGGCACTCTATCATACAGAAAATGCTTATGTCTCTGTAGTGTCTTCACATTATAGCAG
AAGATTCACCCCGAAAAAGCCAAAAGACCCAAAAGTAAGAGATCAGGAAGGAAGAATCAACTA
CTACTGGACTCTGCTGGAACCTGGGGATACAATAATATTTGAGGCAAATGGAAATCTAATAGC
GCCATGGTATGCTTTTGCCTGAGTAGAGGCTTTGGATCAGGAATCATCACCTCAAATGCACC
AATGGATGAATGTGATGCGAAGTGCAAAACACCTCAGGGAGCTATAAACAGCAGTCTTCCTTT
CCAGAATGTACCCCAAGTACAATAGGAGAGTGTCCAAAGTATGTCAGGAGTGCAAAATTAAG
GATGGTTACAGGACTAAGGAACATCCCATCCATTCAATCCAGAGGTTTGTGGAGCCATTGC
CGGTTTCATTGAAGGGGGGTGGACTGGAATGGTAGATGGGTGGTATGGTTATCATCATCAGA
ATGAGCAAGGATCTGGCTATGCTGCAGATCAAAAAAGTACACAAAATGCCATTAACGGGATTA
CAAACAAGGTCAATTCTGTAATTGAGAAAATGAACACTCAATTCACAGCTGTGGGCAAAGAGT
TCAACAAATTGGAAAAGAAGGATGGAAAACCTAAATAAAAAAGTTGATGATGGGTTTCTAGACAT
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TCCAATGTGAAGAATCTGTATGAGAAAAGTAAAAAGCCAATTAAGAATAATGCCAAAGAAATAG
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GTACCTATGACTATCCAAAATATTCGAAGAATCAAAGTTAAACAGGGAGAAAATTGATGGAG
TGAAATTGGAATCAATGGGAGTATACCAGATTCTGGCGATCTACTCAACTGTCGCCAGTTCCC
TGGTTCTTTTGGTCTCCCTGGGGGCAATCAGCTTCTGGATGTGTTCCAATGGGTCTTTGCAGT
GTAGAATATGCATCTAAGAGCTCAGGCCT

Fig. 6

SEQ ID NO. 3

AAGCTTATGGAGAAAATAGTGCTTCTTCTTGCAATAGTCAGTCTTGTTAAAAGTGATCAGATTTGCATTGG
TTACCATGCAAACAATTCAACAGAGCAGGTTGACACAATCATGGAAAAGAACGTTACTGTTACACATGCC
CAAGACATACTGGAAAAGACACACAACGGGAAGCTCTGCGATCTAGATGGAGTGAAGCCTCTAATTTTA
AGAGATTGTAGTGTAGCTGGATGGCTCCTCGGGAACCCAATGTGTGACGAATTCATCAATGTACCGGAA
TGGTCTTACATAGTGGAGAAGGCCAATCCAACCAATGACCTCTGTTACCCAGGGAGTTTCAACGACTAT
GAAGAAGTGAACACCTATTGAGCAGAATAAACCAATTTTGAGAAAATTCAAATCATCCCCAAAAGTTCTTG
GTCCGATCATGAAGCCTCATCAGGAGTTAGCTCAGCATGTCCATACCTGGGAAGTCCCCTCTTTTTTAGA
AATGTGGTATGGCTTATCAAAAAGAACAGTACATACCCAACAATAAAGAAAAGCTACAATAATACCAACCA
AGAGGATCTTTTGGTACTGTGGGGAATTCACCATCCTAATGATGCGGCAGAGCAGACAAGGCTATATCA
AAACCCAACCACTATATTTCCATTGGGACATCAACACTAAACCAGAGATTGGTACCAAAAATAGCTACT
AGATCCAAAGTAAACGGGCAAAGTGGAAGGATGGAGTTCTTCTGGACAATTTTAAACCTAATGATGCAA
TCAACTTCGAGAGTAATGGAAATTTTCATTGCTCCAGAATATGCATACAAAATTGTCAAGAAAGGGGACTC
AGCAATTATGAAAAGTGAATTGGAATATGGTAACTGCAACACCAAGTGTCAAACTCCAATGGGGGCGATA
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ACAGATTAGTCCTTGCAACAGGGCTCAGAAATAGCCCTCAAAGAGAGAGCAGAAGAAAAAAGAGAGGAC
TATTTGGAGCTATAGCAGGTTTTATAGAGGGAGGATGGCAGGGAATGGTAGATGGTTGGTATGGGTACC
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GTCACCAATAAGGTCAACTCAATCATTGACAAAATGAACACTCAGTTTGAGGCCGTTGGAAGGGAATTTA
ATAACTTAGAAAGGAGAATAGAGAATTTAAACAAGAAGATGGAAGACGGGTTTCTAGATGTCTGGACTTA
TAATGCCGAACCTTCTGGTTCTCATGGAAAATGAGAGAATCTAGACTTTTCATGACTCAAATGTTAAGAAC
CTCTACGACAAGGTCCGACTACAGCTTAGGGATAATGCAAAGGAGCTGGGTAACGGTTGTTTCGAGTTC
TATCACAAATGTGATAATGAATGTATGGAAAGTATAAGAAACGGAACGTACAACATCCGCAGTATTCAG
AAGAAGCAAGATTAAGGAGAGGAAATAAGTGGGGTAAATTTGGAATCAATAGGAACCTTACCAAACTACT
GTCAATTTATTCAACAGTGGCGAGTTCCTAGCACTGGCAATCATGATGGCTGGTCTATCTTTATGGATG
TGCTCCAATGGATCGTTACAATGCAGAATTTGCATTTAAGAGCTC

Fig. 7A

SEQ ID NO. 4

5'-GTATTAGTAATTAGAATTTGGTGTC-3'

Fig. 7B

SEQ ID NO. 5

5'-GCAAGAAGAAGCACTATTTTCTCCATTTTTCTCTCAAGATGATTA-3'**Fig. 7C**

SEQ ID NO. 6

5'-TTAATCATCTTGAGAGAAAATGGAGAAAATAGTGCTTCTTCTTGC-3'**Fig. 7D**

SEQ ID NO. 7

5'-ACTTT**GAGCTC**TTAAATGCAAATTCTGCATTGTAACGA-3'

Fig. 8A

HA1 peptide sequence (SEQ ID NO:9)

MKAKLLVLLCTFTATYADTICIGYHANNSTDVDTVLEKNVTVTHSVNLLED SHNGKLCLLKGIAPLQ
LGNCSVAGWILGNPECELLISKESWSYIVETPNPENGTCYPGYFADYEELREQLSSVSSFERFEIFPK
 ESSWPNHTVTGVSASCSHNGKSSFYRNLLWLTGKNGLYPNLSKSYVNNKEKEVLVLWGVHHPNI
 GNQRALYHTENAYVSVVSSHYSRRFTPEIAKRPKVRDQEGRINYYWTLEPGDTIIFEANGNLIAPWY
 AFALSRGFGSGIITSNAPMDECDAKCQTPQGAINSSLPFQNVHPVTIGECPKYVRS AKLRMTGLRNI
 PSIQSRGLFGAIAGFIEGGWTGMVDGWYGYHHQNEQGSYAADQKSTQNAINGITNKVNSVIEKMN
 TQFTAVGKEFNKLERRMENLNKKVDDGFLDIWTYNAELLVLENER TLDHFHDSNVKNLYEKVKSQK
 NNAKEIGNGC FEFYHKCNNECMESVKNGTYDYPKYSEESKLNREKIDGVKLESMGVYQILAIYSTVA
 SSLVLLVSLGAISFWMCSNGSLQCRICI*

Fig. 8B

HA5 peptide sequence (SEQ ID No: 10)

MEKIVLLLAIVSLVKSDQICIGYHANNSTEQVDTIMEKNVTVTHAQDILEKTHNGKLCDL DGVKPLILR
 DCSVAGWLLGNPMCDEFINVPEWSYIVEKANPTNDLCYPGSFNDYEELKHLLSRINHFEKIQIIPKSS
 WSDHEASSGVSSACPYLGSPSFFRNVVWLKKNSTYPTIKKSYNNTNQEDLLVLWGIHHPNDAAEQ
 TRLYQNPTTYISIGTSTLNQRLVPKIATR SKVNGQSGRMEFFWTILKPNDAINFESNGNFIAPEYAYKI
 VKKGDSAIMKSELEYGNCNTKCQTPMGAINSSMPFHNIHPLTIGECPKYVKS NRLVLATGLRNSPQR
 ESRRKKRGLFGAIAGFIEGGWQGMVDGWYGYHHSNEQGSYAADKESTQKAIDGVTNKVNSIIDK
 MNTQFEAVGREFNNLERRIENLNKKMEDGFLDWWTYNAELLVLMENERTLDHFHDSNVKNLYDKVRL
 QLRDNAKELGNGCFEFYHKCDNECMESIRNGTYNYPQYSEEARLKREEISGVKLESIGTYQILSIYST
 VASSLALAIMMAGLSLWMCSNGSLQCRICI*

Fig. 9**Subtype H7 (SEQ ID NO:11)**

>BHB940420|gb:AF071776|Symbol:HA|Name:hemagglutinin
precursor|Organism:Influenza A Virus A/chicken/New
York/1995|Chromosome:4|Subtype:H7|Host:Avian

GACAAAATATGTCTTGGGCACCATGCTGTGGCAAATGGAACAAAAGTGAACACATTAACAGAGAGGGGGGA
TTGAAGTAGTGAACGCCACAGAGACGGTGGAACTGCGAATATCAAGAAAATATGTATTCAAGGGAAAAG
GCCAACAGATCTGGGACAATGTGGACTTCTAGGAACCCTAATAGGACCTCCCCAATGTGATCAATTCCTG
GAGTTTTACTCTGATTTTGATAATTGAGCGAAGAGAAGGAACCGATGTGTGCTATCCCGGTAAATTCACAA
ATGAAGAATCACTGAGGCAGATCCTTCGAGGGTCAGGAGGAATTGATAAGGAGTCAATGGGTTTCACCTA
TAGTGGAAATAAGAACCAATGGAGCGACAAGTGCCTGCAAAAGATCAGGTTCTTCTTTCTATGCAGAGATG
AAGTGGTTGCTGTGCAATTCAGACAATGCGGCATTCCCTCAAATGACAAAGTCGTATAGAAATCCCAGAA
ACAAACCAGCTCTGATAATTTGGGGAGTTCATCACTCTGGATCGGTTAGCGAGCAGACCAAACTCTATGG
AAGTGGAAACAAGTTGATAACAGTAGGAAGCTCAAAATACCAGCAATCATTCACCCCAAGTCCGGGAGCA
CGGCCACAAGTGAATGGACAATCAGGGAGAATCGATTTTCACTGGCTACTCCTTGATCCCAATGACACAG
TGACCTTCACTTTCAATGGGGCATTCTAGCCCCTGACAGGGCAAGTTTCTTTAGAGGAGAATCACTAGG
AGTCCAGAGTGATGTTCTCTGGATTCTAGTTGTGGAGGGGATTGCTTTTACAGTGGGGGTACGATAGTC
AGTTCCCTGCCATTCCAAAACATCAACCCTAGAAGTGTGGGGAGATGCCCTCGGTATGTCAAACAGACAA
GCCTCCTTTTGGCTACAGGAATGAGAAATGTTCCAGAGAATCCAAAGCCCAGAGGCCTTTTGGAGCAAT
TGCTGGATTCTAGAGAATGGATGGGAGGGTCTCATCGATGGATGGTATGGTTTCAGACATCAAAATGCA
CAAGGGGAAGGAAGTGCAGCTGACTACAAAAGCACCCAATCTGCAATAGATCAGATCACAGGCAAAATTGA
ATCGTCTGATTGACAAAACAAATCAGCAGTTTGTAGCTGATAGACAATGAGTTCAATGAGATAGAACAACA
AATAGGAAATGTCATTAATTGGACACGAGACGCAATGACTGAGGTATGGTCGTATAATGCTGAGCTGTTG
GTGGCAATGGAAAATCAGCATACAATAGATCTTGCGGACTCAGAAATGAACAACTTTATGAGCGTGTC
GAAAACAACCTAAGGGAGAATGCTGAAGAAGATGGAAGTGGATGTTTTGAGATATTCCATAAGTGTGATGA
TCAGTGCATGGAGAGCATAAGGAACAACACTTATGACCATACTCAATACAGAACAGAGTCATTGCAGAAT
AGAATACAGATAGACCCAGTGAAATTGAGTAGTGGATACAAAGACATAATCTTATGGTTTGTAGCTTCGGGG
CATCATGTTTTCTTCTTAGCCGTTGTAATGGGATTGGTTTTTCATTTGCATAAAGAATGGAAACATGCG
GTGCACCATTTGTATATAA

Fig. 10A

Subtype H2 (SEQ ID NO:12)

>gi|408516|gb|L11132.1|FLADE88HA Influenza A virus (A/herring gull/DE/677/88 (H2N8)) hemagglutinin (HA) gene, complete cds

```
AGCAAAAGCAGGGGTTATACCATAGACAACCAAAGGCAAGACAATGGCCATCATTTATCTAATTCTTCTG
TTCACAGCAGTGAGAGGGGACCAAATATGCATTGGATACCATTTCCAACAATTCCACAGAAAAGGTTGACA
CAATCCTAGAGAGAAATGTCACTGTGACTCACGCTGAGGACATTCTTGAGAAGACTCACAAATGGGAAGTT
ATGCAAACTAAATGGAATCCCTCCACTTGAATTAAGGGATTGCAGCATTGCCGGATGGCTCCTTGGAAT
CCAGAATGTGATATACTTCTAACTGTGCCAGAATGGTCATACATAATAGAAAAAGAAAATCCAAGGAACG
GCTTGTGCTACCCAGGCAGTTTCAATGATTATGAAGAATTGAAGCATCTTATCAGCAGCGTGACACATTT
TGAGAAAGTAAAGATTCTGCCCAGAAATGAATGGACACAGCATAACAACACTGGAGGTTACAGGCTTGC
GCAGACTATGGTGGTCCGTCATTCTTCCGGAACATGGTCTGGTTGACAAAGAAAGGTCGAATTATCCAA
TTGCCAAAAGATCTTACAACAATACAAGTGGGGAACAAATGCTGATCATTTGGGGGATACATCACCCCAA
TGATGAAAGTGAACAAAGAGCATTGTATCAGAATGTGGGGACCTATGTGTCAGTAGGAACATCAACACTG
AACAAAAGATCATCCCCAGAAATAGCAACAAGACCTAAAGTGAATGGACAAGGAGGCAGAATGGAATTCT
CGTGGACTATCTTAGATATATGGGACACAATAAATTTTGAGAGTACTGGCAATCTAATTGCACCAGAATA
TGGTTTCAAAATATCCAAACGAGGTAGTTCAGGGATCATGAAAACAGAAGGAAAACCTGAAAACCTGCGAG
ACCAAGTGCCAAACTCCTTTGGGAGCAATAAATACAACATTACCCTTTCACAATATCCACCCACTGACCA
TTGGTGAGTGCCCCAAATATGTAAATCGGAAAGATTAGTCTTAGCAACAGGACTAAGAAACGTCCCTCA
GATTGAGTCAAGGGGATTGTTTGGGGCAATAGCTGGTTTATAGAGGGTGGATGGCAAGGAATGGTTGAT
GGTTGGTATGGGTATCATCACAGCAATGACCAGGGATCTGGGTATGCAGCAGACAAAGAATCCACTCAA
AGGCAATTGATGGAATCACCAACAAGGTAAATTCGTGATCGAAAAGATGAACACCCAATTCGGAGCTGT
TGGAAAAGAATTCAGTAACTTGGAGAGAAGACTGGAGAACTTGAATAAAAAGATGGAGGACGGATTTCTA
GATGTGTGGACATACAATGCCGAGCTCCTAGTTCATGGAATGAGAGGACACTTGACTTTCATGATT
CTAATGTCAAGAATCTATATGATAAAGTCAGAATGCAACTGAGAGACAATGCAAAAGAACTAGGGAATGG
ATGTTTTGAATTTTATCACAAATGTGATGATGAATGCATGAACAGTGTGAAGAATGGGACATATGATTAT
TCCAAGTATGAAGAGGAGTCTAAACTAAACAGGACTGAAATCAAAGGGGTAAATTTAGCAATATGGGGG
TTTATCAAATCCTTGCCATCTATGCTACAGTAGCAGGTTCCCTGTCAGTGGCAATCATGATAGCTGGGAT
TTCTATATGGATGTGCTCCAACGGGTCTCTGCAATGCAGAATCTGCATATGATCATCAGTCATTTTGTA
TTAAAAACACCCCTTGTCTACT
```

Fig. 10B**Subtype H3 (SEQ ID NO:13)**

>BHB2107299|gb:EF473574|Symbol:HA|Name:hemagglutinin|Organism:Influenza A
Virus A/Texas/32/2003|Segment:4|Subtype:H3|Host:Human

CAAAACTTCCCGGAAATGACAACAGCACGGCAACGCTGTGCCTTGGGCACCATGCAGTACCAAACGGAA
CGATAGTGAAAACAATCACGAATGACCAAATTGAAGTTACTAATGCTACTGAGCTGGTACAGAGTTCCTC
AACAGGTGGAATATGCGACAGTCCTCATCAGATCCTTGATGGAGAAAACGCACACTAATAGATGCTCTA
TTGGGAGACCCTCAGTGTGATGGCTTCCAAAATAAGAAATGGGACCTTTTTGTTGAACGCAGCAAAGCCT
ACAGCAACTGTTACCCTTATGATGTGCCGATTATGCCTCCCTTAGGTCACTAGTTGCCTCATCCGGCAC
ACTGGAGTTTAACAATGAAAGCTTCGATTGGACTGGAGTCACTCAGAATGGAACAAGCTCTGCTTGCAAA
AGGAGATCTAATAAAAGTTTCTTTAGTAGATTGAATTGGTTGACCCACTTAAAATACAAATACCCAGCAT
TGAACGTGACTATGCCAAACAATGAAAAATTTGACAAATTGTACATTTGGGGGGTTTACCACCCGGGTAC
GGACAGTGACCAAATCAGCCTATATGCTCAAGCATCAGGAAGAATCACAGTCTCTACCAAAAGAAGCCAA
CAAAGTGTAAATCCCGAATATCGGATCTAGACCCAGGGTAAGGGATGTCTCCAGCCGAATAAGCATCTATT
GGACAATAGTAAAACCGGGAGACATACTTTTGATTAACAGCACAGGGAATCTAATTGCTCCTCGGGGTTA
CTTCAAATACGAAGTGGGAAAAGCTCAATAATGAGATCAGATGCACCCATTGGCAAATGCAATTCCGAA
TGCATCACTCCAAATGGAAGCATTCCCAATGACAAACCATTTCAAATGTAAACAGGATCACATATGGGG
CCTGTCCCAGATATGTTAAGCAAAACACTCTGAAATTGGCAACAGGGATGCGAAATGTACCAGAGAAACA
AACTAGAGGCATATTTGGCGCAATCGCGGGTTTCATAGAAAATGGTTGGGAGGGAATGGTGGACGGTTGG
TACGGTTTCAGGCATCAAATTTCTGAGGGCACAGGA

Fig. 10C**Subtype H4 (SEQ ID NO:14)**

>BHB1050162|gb:DQ021859|Symbol:HA|Name:hemagglutinin|Organism:Influenza
A Virus A/mallard/MN/33/00|Segment:4|Subtype:H4|Host:Avian

ATGCTATCAATCACGATTCTGTTTCTGCTCATAGCAGAGGGTTCCTCTCAGAATTACACAGGGAATCCCG
TGATATGCCTGGGACATCATGCCGTATCCAATGGGACAATGGTGAAAACCTGACTGATGACCAAGTAGA
AGTTGTCACTGCCAAGAATTAGTGGAATCGCAACATCTACCGGAGTTGTGTCCTAGCCCTTTAAGATTA
GTAGATGGACAACTTGTGACATCGTCAATGGTGCCTTGGGGAGTCCAGGCTGTGATCACTTGAATGGTG
CAGAATGGGATGTCTTCATAGAACGACCCACTGCTGTGGACACTTGTATCCATTTGATGTGCCGGATTA
CCAGAGCCTACGGAGTATCCTAGCAAACAATGGGAAATTTGAGTTCATTGCTGAGGAATTCCAATGGAAC
ACAGTCAAACAAAATGGGAAATCCGGAGCATGCAAAAGAGCAAATGTGAATGACTTTTTCAACAGATTGA
ACTGGCTGACCAAATCTGATGGGAATGCATACCCACTTCAAAACCTGACAAAGGTTAACAACGGGGACTA
TGCAAGACTTTACATATGGGGAGTTCATCATCCTTCAACTGACACAGAACAACCAACTTGTATAAGAAC
AACCCTGGGAGAGTAACTGTTTCCACCAAAACCAGTCAAACAAGTGTGGTACCAAACATTGGCAGTAGAC
CATGGGTAAGAGGCCAAAGCGGCAGGATTAGCTTCTATTGGACAATTGTGGAGCCAGGAGACCTCATAGT
CTTCAACACCATAGGGAATTTAATTGCTCCGAGAGGTCATTACAAGCTTAACAGTCAAAGAAGAGCACA
ATTCTGAATACTGCAATTCCCATAGGATCTTGTGTTAGTAAATGTCACACAGATAGGGGTTCAATCTCTA
CAACCAAACCTTTCAGAACATCTCAAGAATATCAATTGGGGACTGTCCCAAGTATGTCAAACAGGGATC
CTTGAAACTAGCTACAGGAATGAGGAATATCCCTGAGAAAGCAACCAGAGGCCTGTTTGGTGCAATTG

Fig. 10D**Subtype H5 (SEQ ID NO:15)**

>BHB950029|gb:AF501235|Symbol:HA|Name:hemagglutinin|Organism:Influenza A Virus
A/duck/Shanghai/1/2000|Segment:4|Subtype:H5|Host:Avian

ATGGAGAAAATAGTGCTTCTTCTTGCATAGTCAGTCTTGTTAAAAGTGATCAGATTTGCATTGGTTACC
ATGCAAACTCGACAGAGCAGGTTGACACAATAATGGAAAAGAACGTTACTGTTACACATGCCCCAAGA
CATACTGGAAAAGACACACAACGGGAACTCTGCGATCTAGATGGAGTGAAGCCTCTAATTTTGAGAGAT
TGTAAGTGTAGCTGGATGGCTCCTCGGAAACCCTATGTGTGACGAATTCATCAATGTGCCGAATGGTCTT
ACATAGTGGAGAAGGCCAGTCCAGCCAATGACCTCTGTTACCCAGGGGATTTCAACGACTATGAAGAACT
GAAACACCTATTGAGCAGAATAAACCACTTTGAGAAAATTGAGATCATCCCCAAAAGTTCTTGGTCCAAT
CATGAAGCCTCATCAGGGGTGAGCGCAGCATGTCCATACCATGGGAAGCCCTCCTTTTTCAGAAATGTGG
TATGGCTTATCAAAAAGAACAGTGCATACCCAACAATAAAGAGGAGCTACAATAATACCAACCAAGAAGA
TCTTTTGGTACTGTGGGGGATTACCATCCTAATGATGCGGCAGAGCAGACAAAGCTCTATCAAAACCCA
ACCACCTATATTTCCGTTGGAACATCAACACTAAACCAGAGATTGGTCCCAAAAATAGCTACTAGATCCA
AAGTAAACGGGCAAAGTGAAGAATGGAGTTCTTCTGGACAATTTTAAAGCCGAATGATGCCATAAATTT
CGAGAGTAATGGAAATTTTCATTGCTCCAGAATATGCATACAAAATTGTCAAGAAAGGGGACTCAGCAATT
ATGAAAAGTGAATTGGAATATGGTAAGTGAACACCAAGTGTCAAACCTCAATGGGGGCGATAAACTCTA
GTATGCCATTCCACAACATACACCCTCTCACAATCGGGGAATGCCCCAAATATGTGAAATCAAACAGATT
AGTCCTTGCGACTGGACTCAGAAATACCCCTCAAAGAGATAGAAGAAGAAAAAGAGAGGACTATTTGGA
GCTATAGCAGGTTTATAGAGGGAGGATGGCAAGGAATGGTAGATGGTTGGTATGGGTACCACCATAGCA
ATGAGCAGGGGAGTGGATACGCTGCAGACAAAGAATCCACTCAAAGGCAATAGATGGAGTCACCAATAA
GGTCAACTCGATCATTTGACAAAATGAACACTCAGTTTGAAGCCGTTGGAAGGGAATTTAATAACTTAGAA
AGGAGGATAGAAAATTTAAACAAGAAGATGGAAGACGGATTCTTAGATGTCTGGACTTATAATGCTGAAC
TTCTGGTTCTCATGGAAAATGAGAGAACTCTAGACTTTCATGATTCAAATGTCAAGAACCTTTACAACAA
GGTCCGACTACAGCTTAGGGATAATGCAAAGGAGCTGGGTAATGGTTGTTTCGAGTTCTATCACAATGT
GATAATGAATGTATGGAAAGTGTAAAAACGGGACGTATGACTACCCGAGTATTCAGAAGAAGCAAGAC
TAAACAGAGAGGAAATAAGTGGAGTAAATTTGGAATCAATGGGAACCTACCAAATCTGTCAATTTATTC
AACAGTGGCGAGTTCCCTAGCACTGGCAATCATGGTAGCTGGTCTATCTTTATGGATGTGCTCCAATGGG
TCGTTACAATGCAGAATTTGCATTTAA

Fig. 10E**Subtype H6 (SEQ ID NO:16)**

>BHB1049778|gb:DQ021667|Symbol:HA|Name:hemagglutinin|Organism:Influenza
A Virus A/northern pintail/TX/828189/02|Segment:4|Subtype:H6|Host:Avian

ATGATTGCAATCATTGTAATAGCGATACTGGCAGCAGCCGAAAGTCAGACAAGATCTGCATTGGGTATC
ATGCCAACAAATCAACAACACAGGTGGATACGATACTTGAGAAGAATGTAACCGTCACACACTCAGTTGA
ATTGCTGGAGAATCAGAAGGAAGAAAGATTCTGCAAGATCTTGAACAAGGCCCTCTCGACCTAAAGGGA
TGCACCATAGAGGGTTGGATCTTGGGGAATCCCCAATGCGATCTGTTGCTTGGTGACCAAAGCTGGTCAT
ATATAGTGAAAAGACCTACTGCCCAAATGGGATATGCTACCCAGGAGCTTTGAATGAGGTAGAAGAACT
GAAAGCATTTATCGGATCAGGAGAAAGGGTAGAGAGATTTGAGATGTTTCCCAAAGCACATGGGCAGGG
GTAGACACCAGCAGTGGGGTAACAAAAGCTTGTCTTATAATAGTGGTTCATCTTTCTACAGAAACCTCC
TATGGATAATAAAGACCAAGTCAGCAGCGTATCCAGTAATTAAGGGAACCTACAGCAACACTGGAAACCA
GCCAATCCTCTATTTCTGGGGTGTGCACCATCCTCCTGACACCAATGAGCAAAATACTCTGTATGGCTCT
GGCGATCGGTATGTTAGGATGGGAACTGAGAGCATGAATTTTGCCAAGAGCCCAGAAATTGCGGCAAGAC
CCGCTGTGAATGGCCAAAGAGGTCGAATTGATTATTACTGGTCTGTTTTAAACCAGGAGAAACCTTGAA
TGTGGAATCTAATGGAAATCTAATCGCTCCTTGGTATGCATACAAATTTGTCAACACAAATAATAAGGGA
GCCGTCTTCAAGTCAAATTTACCAATCGAGAATTGCGATGCCACATGCCAGACTATTGCAGGAGTCCTAA
GGACCAATAAAACATTTTCAAGATGTGAGCCCTCTGTGGATAGGAGAATGCCCCAAGTATGTGAAAAGTGA
AAGTCTAAGGCTTGCTACTGGACTAAGAAATGTTCCACAGATTGAAACCAGAGGGCTTTTCGGAGCTATC

Fig. 10F**Subtype H8 (SEQ ID NO:17)**

>gi|221317|dbj|D90304.1|FLAH8N4 Influenza A virus
(A/Turkey/Ontario/6118/68(H8N4)) gene for hemagglutinin precursor, complete
cds

ATGGAAAAATTCATCGCAATAGCAACCTTGGCGAGCACAAATGCATACGATAGGATATGCATTGGGTACC
AATCAAACAACTCCACAGACACAGTGAACACTCTCATAGAACAGAATGTACCAGTCACCCAAACAATGGA
GCTCGTGGAAACAGAGAAACATCCCGCTTATTGTAACACTGATTTAGGTGCCCCATTGGAAGTGCAGAGAC
TGCAAGATTGAGGCAGTAATCTATGGGAACCCCAAGTGTGACATCCATCTGAAGGATCAAGGTTGGTCAT
ACATAGTGGAGAGGCCAGCGCACCAGAAGGATGTGTTACCCTGGATCTGTGGAAAATCTAGAAGAACT
GAGGTTTGTCTTCTCCAGTGTGCATCTTACAAGAGAATAAGACTATTTGACTATTCCAGGTGGAATGTG
ACTAGATCTGGAACGAGTAAAGCATGCAATGCATCAACAGGTGGCCAATCCTTCTATAGGAGCATCAATT
GGTTGACCAAAAAGGAACCAGACACTTATGACTTCAATGAAGGAGCTTATGTTAATAATGAAGATGGAGA
CATCATTTTCTTATGGGGGATCCATCATCCGCCGACACAAAAGAGCAGACAACTATATAAAAAATGCA
AACACTTTGAGTAGTGTACTACTAACAATAAACAAGAGCTTTCAACCAAATATTGGTCCCAGACCAT
TAGTAAGAGGACAGCAAGGGAGGATGGATTACTATTGGGGCATTCTGAAAAGAGGGGAGACTCTGAAGAT
CAGGACCAACGGAAATTTAATCGCACCTGAATTTGGCTATCTGCTCAAAGGTGAAAGCTACGGCAGAATA
ATTCAAAATGAGGATATACCCATCGGGAAGTGAACACAAAATGTCAAACATATGCGGGAGCAATCAATA
GCAGCAAACCCCTTTCAGAATGCAAGTAGGCATTACATGGGAGAATGTCCCAAATATGTGAAGAAGGCAAG
CTTGCGACTTGCAGTTGGGCTTAGGAATACGCCTTCTGTTGAACCCAGAGGACTGTTTGGAGCCATTGCT
GGTTTCATTGAAGGAGGATGGTCTGGAATGATTGATGGGTGGTATGGATTCATCACAGCAATTCAGAGG
GAACAGGAATGGCAGCTGACCAGAAATCAACACAAGAAGCCATCGATAAGATCACCAATAAAGTCAACAA
TATAGTTGACAAGATGAACAGGGAGTTTGAAGTTGTGAATCATGAGTTCTCTGAAGTTGAAAAAGAATA
AACATGATAAACGATAAAATAGATGACCAAATTGAAGATCTTTGGGCTTACAATGCAGAGCTCCTTGTGC
TCTTAGAGAACCAGAAAACGCTAGACGAACATGATTCCAATGTCAAAAACCTTTTTGATGAAGTGAAGG
GAGACTGTCAGCCAATGCAATAGATGCTGGGAACGGTTGCTTTGACATACTTCACAAATGCGACAATGAG
TGTATGGAACTATAAAGAACGGAAGTACGATCATAAGGAATATGAAGAGGAGGCTAACTAGAAAGGA
GCAAGATAAATGGAGTAAACTAGAAGAGAACCACTTACAAAATCTTAGCATTTACAGTACAGTGGC
GGCCAGTCTTTGCTTGGCAATCCTGATTGCTGGAGGTTTAATCCTGGGCATGCAAAATGGATCTTGTAGA
TGCATGTTCTGTATTTGA

Fig. 10G**Subtype H9 (SEQ ID NO:18)**

>BHB954830|gb:AM087218|Symbol:HA|Name:hemagglutinin|Organism:Influenza A Virus
A/shoveler/Iran/G54/03|Segment:4|Subtype:H9|Host:Avian

ATGGAAACAGTATCACTAATGACTATACTACTAGTAGCAACAGCAAGCAATGCAGACAAATCTGCATCG
GCCACCAGTCAACAACTCCACAGAACTGTGGACACGCTAACAGAAACCAATGTTCTGTGACACATGC
CAAAGAATTGCTCCACACAGAGCACAATGGAATGCTGTGTGCAACAAATCTGGGACATCCCCTAATCTTA
GACACGTGCACTATTGAAGGACTGATCTATGGTAACCTTCTTGTGACTTGCTGTTGGGAGGAAGAGAAT
GGTCTACATCGTCGAAAGGTCACTAGCTGTAAATGGAACGTGTTACCCTGGGAATGTAGAGAACCTAGA
GGAACCTCAGGACACTTTTTAGTTCGCTAGTTCCTACCGAAGAATCCAAATCTTCCCAGACACAATCTGG
AATGTGACTTACACTGGAACAAGCAAAGCATGTTTCAAGATTCTTCTACAGGAGTATGAGATGGCTGACTC
AAAAAAGCGGGTCTTACCCTGTTCAAGACGCTCAATACACAAATAATATGGGAAAGAGCATTTCTTTTCGT
GTGGGGCATACATCACCCACCCACTGAAGCTGCACAGACAAATTTGTACACAAGAACCGACACAACAACA
AGCGTGACAACAGAAGACTTAAATAGGATCTTCAAACCGATGGTAGGGCCAAGGCCCTTGTCAATGGTC
TGCAGGGAAGAATTAATTATTATTGGTCTGCTACTAAAACCAGGCCAGACACTGCGAGTAAGATCCAATGG
GAATCTAATTGCTCCATGGTATGGACACATTCTTTCGGGAGGGAGCCATGGAAGAATCCTGAAGACTGAT
TTAAAAAGTAGTAATTGCGTAGTGCAATGTCAGACTGAAAAAGCGGCTTAAACAGTACATTGCCGTTCC
ACAAATATCAGTAAATATGCATTTGGAACTGTCCCAAATATGTTAGAGTTAAAGTCTCAAACCTGGCAGT
AGGGTTGAGGAACGTGCCTGCTAGATCAAGTAGAGGACTATTCGGAGCCATAGCTGGATTATAGAAAGGA
GGTTGGCCAGGACTAGTCGCTGGTTGGTATGGTTTCCAGCATTCAAATGATCAAGGGGTTGGTATTGCGG
CAGATAGGGATTCAACTCAAAGGCAATTGATAGAATAACAACCAAGGTGAATAATATAGTCGACAAAAT
GAACAAACAATATGAAATAATTGATCATGAATTCAGTGAGGTTGAACTAGGCTCAACATGATCAATAAT
AAGATTGATGACCAAATACAAGACATATGGGCATATAATGCAGAGTTGCTAGTACTACTTGAAAACCAGA
AAACACTCGATGAGCATGACGCAAATGTGAAGA

Fig. 10H**Subtype H10 (SEQ ID NO:19)**

>gi|324365|gb|M21647.1|FLAMS84HA Influenza A virus
(A/chicken/Germany/N/1949(H10N7)) hemagglutinin precursor,
gene, complete cds

AGCAAAAGCAGGGGTCACAATGTACAAAGTAGTAGTAATAATTGCGCTCCTTGGAGCAGTGAAAGGTCTT
GACAGAATCTGCCTAGGACACCATGCGGTTGCCAATGGAACCATTTGTGAAGACCCTTACAAATGAACAAG
AGGAAGTGACCAATGCTACTGAGACGGTAGAGAGCACAAATTTGAATAAATTGTGTATGAAAGGAAGAAG
CTACAAGGACTTGGGCAATTGTCACCCGGTAGGAATGTTGATAGGAACACCTGTTTGTGATCCGCACTTG
ACCGGGACCTGGGACACTCTCATTGAGCGAGAGAATGCCATTGCCCACTGTTATCCAGGGGCAACCATAA
ATGAAGAAGCATTGAGGCAGAAAATAATGGAAGTGGAGGAATCAGCAAGATGAGCACTGGCTTCACTTA
TGGGTCTTCCATCACCTCAGCTGGGACCACTAAGGCATGCATGAGAAATGGAGGAGATAGTTTCTATGCA
GAGCTCAAATGGCTAGTGTCAAAGACAAAGGGACAAAATTTCCCTCAGACAACAAACACCTATCGGAATA
CGGACACAGCAGAACATCTCATAATATGGGGAATTCATCACCCCTTCCAGCACACAGGAAAAGAATGACTT
ATACGGAACCTCAGTCACTATCTATATCAGTTGAGAGTTCTACATATCAGAACAACCTTTGTTCCAGTTGTT
GGGGCAAGACCTCAGGTCAATGGACAAAGTGGGCGAATTGACTTTCCTGAGCACTAGTACAGCCGGGTG
ACAACATAACCTTCTCAGACAATGGAGGTCTAATAGCACCAAGTCGAGTTAGCAAATTAAGTGAAGGGA
TTTGGGAATCCAATCAGAAGCGTTGATAGACAACAGTTGTGAATCCAAATGCTTTTGGAGAGGGGGTTCT
ATAAATACAAAGCTCCCTTTTCAAATCTGTCACCCAGAACAGTAGGTCAATGCCCCAAATACGTAAATC
AGAGGAGTTTACTGCTTGCAACAGGGATGAGGAATGTGCCAGAAGTGGTGCAGGGAAGGGGTCTGTTTGG
TGCAATAGCAGGGTTCATAGAAAACGGATGGGAAGGAATGGTAGACGGCTGGTATGGTTTTCAGACACCAA
AATGCCCAGGGGCACAGGCCAAGCTGCTGATTACAAGAGTACTCAAGCAGCTATTGACCAAATCACAGGGA
AACTGAACAGGTTGATTGAGAAGACCAACACTGAGTTTGAGTCAATAGAATCTGAATTCAGTGAGACTGA
GCATCAAATTGGTAACGTCATTAATTGGACCAAAGATTCAATAACCGACATTTGGACTTACAACGCAGAG
CTATTAGTGGCAATGGAGAATCAGCACACAATTGACATGGCTGATTCAGAGATGCTAAATCTGTATGAAA
GGGTAAGAAAGCAACTCAGACAGAATGCAGAAGAAGACGGAAGGGATGTTTTGAGATATATCATACTTG
TGATGATTTCGTGCATGGAGAGTATAAGGAACAATACTTATGACCATTACAAATACAGAGAGGAGGCTCTT
CTGAATAGACTGAACATCAACCCAGTGAACTTTCTTCGGGGTACAAAGACATCATACCTTTGGTTTAGCT
TCGGGGAATCATGCTTTGTTCTTCTAGCCGTTGTTATGGGTCTTGTTTTCTTCTGCCTGAAAAATGGAAA
CATGCGATGCACAATCTGTATTTAGTTAAAAACACCTTGTTTCTACT

Fig. 10I**Subtype H11 (SEQ ID NO:20)**

>gi|221307|dbj|D90306.1|FLAHAH11N Influenza A virus (A/duck/England/56(H11N6)) gene for hemagglutinin precursor, complete cds

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ATGGAGAAAACACTGCTATTTGCAGCTATTTTCCTTTGTGTGAAAGCAGATGAGATCTGTATCGGGTATT
TAAGCAACAACCTCGACAGACAAAGTTGACACAATAATTGAGAACAATGTCACGGTCACTAGCTCAGTGGA
ACTGGTTGAGACAGAACACACTGGATCATTCTGTTCAATCAATGGAAAACAACCAATAAGCCTTGGAGAT
TGTTCAATTTGCTGGATGGATATTAGGAAACCCTATGTGTGATGAACTAATTGGAAAGACTTCATGGTCTT
ACATTGTGGAAAAACCAATCCAACAAATGGAATCTGTTACCCAGGAACCTTAGAGAGTGAAGAAGAACT
AAGACTGAAATTCAGTGGAGTTTTAGAATTTAACAAATTCGAAGTATTCACATCAAATGGATGGGGTGCT
GTAAATTCAGGAGTAGGAGTAACCGCTGCATGCAAATTCGGGGGTTCTAATTTCTTTCTTCGAAACATGG
TATGGCTGATACACCAATCAGGAACATATCCTGTAATAAAGAGAACCTTTAACAAACACCAAAGGGAGAGA
TGTAATGATTGTTTGGGGAATTCATCATCTGCTACACTGACAGAACATCAAGATCTGTATAAAAAGGAC
AGCTCCTATGTAGCAGTGGGTTTCAGAGACCTACAACAGAAGATTCAGTCCAGAAATCAACACTAGGCCCA
GAGTCAATGGACAGGCCGGACGGATGACATTCTACTGGAAGATAGTCAAACCAGGAGAATCAATAACATT
CGAATCTAATGGGGCGTTCCCTAGCTCCTAGATATGCTTTTGAGATTGTCTCTGTTGGAAATGGGAACTG
TTCAGGAGCGAACTGAACATTGAATCATGCTCTACCAAATGTCAAACAGAAATAGGAGGAATTAATACGA
ACAAAAGCTTCCACAATGTTTACAGAAACACTATCGGGGATTGCCCCAAGTATGTGAATGTCAAATCCTT
AAAGCTTGCAACAGGACCTAGAAATGTCCCAGCAATAGCATCGAGAGGCTTGTTTGGAGCAATAGCTGGA
TTCATAGAAGGGGGATGGCCTGGACTGATCAATGGATGGTATGGGTTCCAACACAGGGACGAAGAAGGAA
CAGGCATTGCAGCAGACAAGGAGTCAACTCAAAGGCAATAGACCAGATAACATCCAAGGTAAATAACAT
CGTTGACAGGATGAATACAACTTTGAGTCTGTGCAACACGAATTCAGTGAAATAGAGGAAAGAATAAAT
CAATTATCAAAACACGTAGATGATTCTGTGGTTGACATCTGGTCATATAATGCACAGCTTCTCGTTTTAC
TTGAAAATGAGAAGACACTGGACCTCCATGACTCAAATGTCAGGAACCTCCATGAGAAAGTCAGAAGAAT
GCTAAAGGACAATGCCAAAGATGAGGGGAACGGATGCTTCACCTTTTACCATAAGTGTGACAATAAATGC
ATTGAACGAGTTAGAAACGGAACATATGATCATAAAGAATTCGAGGAGGAATCAAAAATCAATCGCCAGG
AGATTGAAGGGGTGAACTAGATTCTAGTGGGAATGTGTATAAAATACTGTCAATTTACAGCTGCATTGC
AAGCAGTCTTGATTGGCAGCACTCATCATGGGGTTCATGTTTTGGGCATGCAGTAATGGATCATGTAGA
TGTACCATTTGCATTTAG
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Fig. 10J**Subtype H12 (SEQ ID NO:21)**

>gi|221309|dbj|D90307.1|FLAHAH12N Influenza A virus (A/duck/Alberta/60/76(H12N5)) gene for hemagglutinin precursor, complete cds

ATGGAAAAATTCATCATTTTTGAGTACTGTCTTGGCAGCAAGCTTTGCATATGACAAAATTTGCATTGGAT
ACCAAACAACAACACTCGACTGAAACGGTAAACACACTAAGTGAACAAAACGTTCCGGTGACGCAGGTGGA
AGAACTTGTACATCGTGGGATTGATCCGATCCTGTGTGGAACGGAAGTAGGATCACCCTAGTGCTTGAT
GACTGTTTATTAGAGGGTCTAATCCTAGGCAATCCCAAATGTGATCTTTATTTGAATGGCAGGGAATGGT
CATACATAGTAGAGAGGCCCAAAGAGATGGAAGGAGTTTGCTATCCAGGGTCAATTGAAAACCAGGAAGA
GCTAAGATCTCTGTTTTCTTCCATCAAAAAATATGAAAGAGTGAAGATGTTTGATTTCACCAAATGGAAT
GTCACATACACTGGGACCAGCAAGGCCTGCAATAATACATCAAACCAAGGCTCATTCTATAGGAGCATGA
GATGGTTGACCTTAAATCAGGACAATTTCCAGTCCAAACAGATGAGTACAAGAACCAGAGATTCAGA
CATTGTATTACCTGGGCCATTACCCACCCACCAACATCTGATGAACAAGTAAATTTATACAAAAATCCT
GATACTCTCTCTTCAGTCACCACCGTAGAAATCAATAGGAGCTTCAAGCCTAATATAGGGCCAAGACCAC
TCGTGAGAGGACAACAAGGGAGAATGGATTACTACTGGGCTGTTCTTAAACCTGGACAAACAGTCAAAAT
ACAAACCAATGGTAATCTTATTGCACCTGAATATGGTCACTTAATCACAGGGAAATCACATGGCAGGATA
CTCAAGAATAATTTGCCCATGGGACAGTGTGTGACTGAATGTCAATTGAACGAGGGTGTAAATGAACACAA
GCAAACCTTTCCAGAACACTAGTAAGCACTATATTGGGAAATGCCCCAAATACATACCATCAGGGAGTTT
AAAATTGGCAATAGGGCTCAGGAATGTCCCAACAAGTTCAAGATCGGGGGCTCTTTGGAGCAATTGCAGGT
TTCATAGAAGGCGGATGGCCAGGGCTAGTGGCTGGTTGGTACGGATTTTACGATCAAAATGCGGAGGGGA
CAGGCATAGCTGCAGACAGAGACAGCACCCAAAGGGCAATAGACAATATGCAAAACAAACTCAACAATGT
CATCGACAAAATGAATAACAATTTGAAGTGGTGAATCATGAGTTTTTCAAGAGTGGAAAGCAGAATAAAC
ATGATTAATTCCAAAATTGATGATCAGATAACTGACATATGGGCATACAATGCTGAATTGCTTGTCCTAT
TGGAATTCAGAAGACATTAGATGAGCATGACGCTAATGTAAGGAATCTACATGATCGGGTCAGAAGAGT
CCTGAGGGAAAATGCAATTGACACAGGAGACGGCTGCTTTGAGATTTTACATAAATGTGACAACAATTGT
ATGGACACGATTAGAAACGGGACATACAATCACAAAGAGTATGAGGAAGAAAGCAAAATCGAACGACAGA
AAGTCAATGGTGTGAACTTGAGGAGAATTCTACATATAAAATTTCTGAGCATCTACAGCAGTGTTCCTC
AAGCTTAGTTCTACTGCTCATGATTATTGGGGGTTTCATTTTCGGGTGTCAAAATGGAAATGTTTCGTGT
ACTTTCTGTATTTAA

Fig. 10K**Subtype H13 (SEQ ID NO:22)**

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>gi|221311|dbj|D90308.1|FLAHAH13N Influenza A virus  
(A/Gull/Maryland/704/77(H13N6)) gene for hemagglutinin precursor, complete cds  
ATGGCTCTAAATGTCATTGCAACTTTGACACTTATAAGTGTATGTGTACATGCAGACAGAATATGCGTGG  
GGTATCTGAGCACCAATTCATCAGAAAGGGTCGACACGCTCCTTGAAAATGGGGTCCCAGTCACCAGCTC  
CATTGATCTGATTGAGACAAACCACACAGGAACATACTGTTCTCTAAATGGAGTCAGTCCAGTGCATTTG  
GGAGATTGCAGCTTTGAAGGATGGATTGTAGGAAACCCAGCCTGCACCAGCAACTTTGGGATCAGAGAGT  
GGTCATACCTGATTGAGGACCCCGCGGCCCTCATGGGCTTTGCTACCCCTGGAGAATTAAACAACAATGG  
TGAACCTCAGACACTTGTTTCAGTGGAAATCAGGTCATTTCAGTAGAACGGAATTGATCCCACCTACCTCCTGG  
GGGGAAGTACTTGACGGTACAACATCTGCTTGAGAGATAACACGGGAACCAACAGCTTCTATCGAAATT  
TAGTTTGGTTTATAAAGAAGAATACTAGATATCCAGTTATCAGTAAGACCTACAACAATACAACGGGAAG  
GGATGTTTTAGTTTTATGGGGAATACATCACCCAGTGTCTGTGGATGAGACAAAGACTCTGTATGTCAAT  
AGTGATCCATACACACTGGTTTCCACCAAGTCTTGAGCGAGAAATATAAACTAGAAACGGGAGTCCGAC  
CTGGCTATAATGGACAGAGGAGCTGGATGAAAATTTATTGGTCTTTGATACATCCAGGGGAGATGATTAC  
TTTCGAGAGTAATGGTGGATTTTTAGCCCCAAGATATGGGTACATAATTGAAGAATATGGAAAAGGAAGG  
ATTTTCCAGAGTCGCATCAGAATGTCTAGGTGCAACACCAAGTGCCAGACTTCGGTTGGAGGGATAAACA  
CAAACAGAACGTTCCAAAACATCGATAAGAATGCTCTTGGTGACTGTCCCAAATACATAAAGTCTGGCCA  
ACTCAAGCTAGCCACTGGACTCAGAAATGTGCCAGCTATATCGAATAGAGGATTGTTTCGGAGCAATTGCA  
GGGTTTCATAGAAGGAGGCTGGCCAGGTTTAATCAATGGTTGGTACGGTTTTTCAGCATCAAAATGAACAGG  
GAACAGGAATAGCTGCAGACAAAGAATCAACACAGAAAGCTATAGACCAGATAACAACCAAAATAAATAA  
CATTATTGATAAAATGAATGGGAACTATGATTCAATTAGGGGTGAATTCAATCAAGTTGAGAAGCGTATA  
AACATGCTTGACAGACAGAATAGATGATGCCGTGACGGACATTTGGTCATACAATGCCAAACTTCTTGAT  
TGCTGGAAAATGATAAACTTTAGATATGCATGATGCTAATGTAAAGAATTTACATGAGCAAGTACGAAG  
AGAATTGAAGGACAATGCAATTGACGAAGGAAATGGCTGTTTTGAACTCCTTCATAAATGCAATGACTCC  
TGCATGGAACTATAAGAAATGGAACGTATGACCACACTGAGTATGCAGAGGAGTCAAAGTTAAAGAGGC  
AAGAAATCGATGGGATCAAACCTCAAATCAGAAGACAACGTTTACAAAGCATTATCAATATACAGTTGCAT  
TGCAAGTAGTGTGTACTAGTAGGACTCATACTCTCTTCATCATGTGGGCCTGTAGTAGTGGGAATTGC  
CGATTCAATGTTTGTATATAA
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Fig. 10L**Subtype H14 (SEQ ID NO:23)**

>gi|324045|gb|M35997.1|FLAH1424 Influenza A/Mallard/Gurjev/263/82
hemagglutinin subtype H14 gene

AGCAAAAGCAGGGGAAAATGATTGCACTCATATTGGTTGCACTGGCTCTGAGCCACACTGCTTATTCTCA
GATCACAAATGGGACAACAGGAAACCCCATTTATATGCTTGGGGCATCATGCAGTGGAAAACGGCACATCT
GTTAAACACTAACAGACAATCACGTAGAAGTTGTGTCAGCTAAAGAATTAGTTGAGACGAACCACACTG
ATGAACTGTGCCCCAAGCCCCCTTGAAGCTTGTGACGGGCAAGACTGCCACCTCATCAATGGTGCATTGGG
GAGTCCAGGCTGTGACCGTTTGCAGGACACCACTTGGGATGTCTTCATTGAAAGGCCCACTGCAGTAGAC
ACATGTTATCCATTTCGACGTCCAGATTACCAGAGTCTCAGAAGCATCCTAGCAAGCAGTGGGAGTTTGG
AGTTCATCGCCGAACAATTCACCTGGAATGGTGTCAAAGTTGACGGATCAAGCAGTGCTTGTTTGAGGGG
CGGTCGCAACAGCTTCTTCTCCCGACTAACTGGCTAACCAAAGCAACAATGGAACTATGGACCTATT
AACGTCATAAAGAAAATACGGGCTCTTATGTCAGGCTCTATCTCTGGGGAGTGCATCACCCATCAAGCG
ATAATGAGCAAACGGATCTCTACAAGGTGGCAACAGGGAGAGTAACAGTATCTACCCGCTCGGACCAAAT
CAGTATTGTTCCCAATATAGGAAGTAGACCGAGGGTAAGGAATCAGAGCGGCAGGATAAGCATCTACTGG
ACCCTAGTAAACCCAGGGGACTCCATCATTTTCAACAGTATTGGGAATTTGATTGCACCAAGAGGCCACT
ACAAAATAAGCAAATCTACTAAGAGCACAGTGCTTAAAAGTGACAAAAGGATTGGGTCATGCACAAGCCC
TTGCTTAACTGATAAAGGTTTCGATCCAAAGTGACAAACCTTTTCAGAATGTATCAAGGATTGCTATAGGA
AACTGCCCCGAAATATGTAAAGCAAGGGTCCCTGATGTTAGCAACTGGAATGCGCAACATCCCTGGCAAAC
AGGCAAAGGGCTTATTTGGGGCAATTGCTGGATTCAATTGAAAATGGTTGGCAAGGCCTGATTGATGGGTG
GTATGGATTTCAGGCACCAAATGCTGAAGGAACAGGAAGTCTGCAGACCTGAAGTCAACTCAGGCAGCC
ATTGATCAGATAAATGGCAAGCTGAACAGATTGATAGAGAAGACAAATGAAAAATATACCAAATAGAAA
AGGAATTCGAACAGGTGGAAGGAAGAATACAAGACCTTGAGAAGTACGTTGAGGACACTAAGATTGATTT
GTGGTCATACAATGCTGAATTGCTAGTAGCACTAGAGAATCAGCACACAATAGATGTCACAGACTCCGAA
ATGAACAAGCTTTTTGAAAGAGTAAGAAGGCAATTAAGAGAGAATGCAGAAGATCAAGGCAACGGTTGTT
TCGAGATATTCCATCAGTGTGACAACAATTGTATAGAAAGCATTAGAAACGGAACCTTATGACCACAACAT
CTACAGGGATGAAGCCATCAACAATCGAATCAAATAAATCCTGTCACTTTGACGATGGGGTACAAGGAC
ATAATCCTGTGGATTTCTTTCTCCATGTCATGCTTTGTCTTCGTGGCACTGATTCTGGGATTTGTTCTAT
GGGCTTGTCAAAACGGGAATATCCGATGCCAAATCTGTATATAAAGAAAAAACACCCTTGTTTCTACTC

Fig. 10M**Subtype H15 (SEQ ID NO:24)**

>gi|1226068|gb|L43916.1|FLAHEMAC Influenza A/duck/Australia/341/83 (H15N8) hemagglutinin mRNA, complete cds

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AGCAAAAGCAGGGGATACAAAATGAACACTCAAATCATCGTCATTCTAGTCCTCGGACTGTCGATGGTGA
GATCTGACAAGATTTGTCTCGGGCACCATGCCGTAGCAAATGGGACAAAAGTCAACACACTAACTGAGAA
AGGAGTGGAAGTGGTCAATGCCACGGAGACAGTGGAGATTACAGGAATAAATAAAGTGTGCACAAAAGGG
AAGAAAGCGGTGGACTTGGGATCTTGTGGAATACTGGGAATATCATTGGGCCTCCACAATGTGACTCTC
ATCTTAAATTCAAAGCTGATCTGATAATAGAAAAGAAGAAATCAAGTGACATCTGTTACCCAGGGAAATT
CACTAATGAGGAAGCACTGAGACAAATAATCAGAGAATCTGGTGGAATTGACAAAGAGCCAAATGGGATTT
AGATATTCAGGAATAAAAACAGACGGGGCAACCAGTGCGTGTAAGAGAACAGTGTCTCTTTCTACTCAG
AAATGAAATGGCTTTTATCCAGCAAGGCTAACCAGGTGTTCCCACTGAATCAGACATACAGGAACAA
CAGAAAAGAACCAGCCCTAATTGTTTGGGGAGTACATCATTCAAGTTCCTTGGATGAGCAAAATAAGCTA
TATGGAGCTGGGAACAAGCTGATAACAGTAGGAAGCTCAAAATACCAACAATCGTTTTACCAAGTCCAG
GGGACAGGCCCAAAGTGAATGGTCAGGCCGGGAGGATCGACTTTCATTGGATGCTATTGGACCCAGGGGA
TACAGTCACTTTTACCTTCAATGGTGCATTATAGCCCCAGATAGAGCCACCTTTCTCCGCTCTAATGCC
CCATCGGGAGTTGAGTACAATGGGAAGTCACTGGGAATACAGAGTGATGCACAAATTGATGAATCATGTG
AAGGGGAATGCTTCTACAGTGGAGGGACAATAAACAGCCCTTTGCCATTTCAAACATCGATAGTTGGGC
TGTCGGAAGGTGCCCCAGATATGTAAAGCAATCAAGCCTGCCGCTGGCCTTAGGAATGAAAAATGTACCA
GAGAAAATACATACTAGGGGACTGTTGGTGCAATTGCAGGATTCATCGAGAATGGATGGGAAGGACTCA
TTGATGGATGGTATGGATTTAGGCATCAAATGCACAGGGGCAGGGAACAGCTGCTGACTACAAGAGTAC
TCAGGCTGCAATTGACCAGATAACAGGGAACTTAATAGATTAATTGAAAAACCAACACACAGTTTGAA
CTCATAGACAATGAGTTCCTGAAGTGGAGCAGCAGATAGGCAATGTAATAAACTGGACAAGGGACTCCT
TGACTGAGATCTGGTCATACAATGCTGAACCTTCTAGTAGCAATGGAATCAGCATACAATTGACCTTGC
AGATTCTGAAATGAACAACTCTATGAGAGAGTGAGAAGACAGCTAAGGGAGAATGCCGAGGAGGATGGA
ACTGGATGTTTTGAGATTTTCCACCGATGTGACGATCAATGTATGGAGAGCATACGAAATAATACTTACA
ATCACACTGAATATCGACAGGAAGCCTTACAGAATAGGATAATGATCAATCCGGTAAAGCTTAGTGGTGG
GTACAAAGATGTGATACTATGGTTTAGCTTCGGGGCATCATGTGTAATGCTTCTAGCCATTGCTATGGGT
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CTTGTTTCTACT
```

Fig. 10N**Subtype H16 (SEQ ID NO:25)**

>gi|56425020|gb|AY684891.1| Influenza A virus (A/black-headed gull/Sweden/5/99(H16N3)) hemagglutinin (HA) gene, complete cds

AGCAAAAGCAGGGGATATTGTCAAAACAACAGAATGGTGATCAAAGTGCTCTACTTTCTCATCGTATTGT
TAAGTAGGTATTTCGAAAGCAGACAAAATATGCATAGGATATCTAAGCAACAACGCCACAGACACAGTAGA
CACACTGACAGAGAACGGAGTTCAGTGACCAGCTCAGTTGATCTCGTTGAAACAAACCACACAGGAACA
TACTGCTCACTGAATGGAATCAGCCCAATTCATCTTGGTGACTGCAGCTTTGAGGGATGGATCGTAGGAA
ACCCCTTCCTGTGCCACCAACATCAACATCAGAGAGTGGTCGTATCTAATTGAGGACCCCAATGCCCCAA
CAAACCTCTGCTTCCCAGGAGAGTTAGATAATAATGGAGAATTACGACATCTCTTCAGCGGAGTGAACCTCT
TTTAGCAGAACAGAAATTAATAAGTCCCAACAAATGGGGAGACATTCTGGATGGAGTCAACGCTTCTTGCC
GCGATAATGGGGCAAGCAGTTTTTACAGAAATTTGGTCTGGATAGTGAAGAATAAAATGGAAAATACCC
TGTCATAAAGGGGGATTACAATAACACAACAGGCAGAGATGTTCTAGTACTCTGGGGCATTACCATCCG
GATACAGAAACAACAGCCATAAACTTGTACGCAAGCAAAAACCCCTACACATTAGTATCAACAAAGGAAT
GGAGCAAAAGATATGAACTAGAAAATTGGCACCAGAATAGGTGATGGACAGAGAAGTTGGATGAACTATA
TTGGCACCTCATGCGCCCTGGAGAGAGGATAATGTTTGAAAGCAACGGGGGCCTTATAGCGCCAGATAC
GGATACATCATTGAGAAGTACGGTACAGGACGAATTTTCCAAAGTGGAGTGAGAATGGCCAAATGCAACA
CAAAGTGTCAAACATCATTAGGTGGGATAAACACCAACAAAACCTTCCAAAACATAGAGAGAAATGCTCT
TGGAGATTGCCCAAAGTACATAAAGTCTGGACAGCTGAAGCTTGCAACTGGGCTGAGAAATGTCCCATCC
GTTGGTGAAAGAGTTTGTGGTGCAATTGCAGGCTTCATAGAAGGAGGGTGGCCTGGGCTAATTAATG
GATGGTATGGTTTCCAGCATCAGAATGAACAGGGGACTGGCATTGCTGCAGACAAAGCCTCCACTCAGAA
AGCGATAGATGAAATAACAACAAAAATTAACAATATAATAGAGAAGATGAACGGAACTATGATTCAATA
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AAATGTCAGGAACTTACACGATCAGGTCAAGAGAATATTGAAAAGTAATGCTATTGATGAAGGAGATGGT
TGCTTCAATCTTCTTCACAAATGTAATGACTCATGCATGGAACTATTAGAAATGGGACCTACAATCATG
AAGATTACAGGGAAGAATCACAACGAAAAGGCAGGAAATTGAGGGAATAAAATGAAGTCTGAAGACAA
TGTGTATAAAGTACTGTCGATTTATAGCTGCATTGCAAGCAGTATTGTGCTGGTAGGTCTCATACTTGCG
TTCATAATGTGGGCATGCAGCAATGGAAATTGCCGGTTTAATGTTTGTATATAGTCGGAAAAAATACCCCT
TGTTTCTACT

Fig. 100

Influenza B (SEQ ID NO:26)

>gi|325175|gb|K00423.1|FLBHAZO Influenza B/Lee/40, hemagglutinin (seg 4), complete segment

AGCAGAAGCGTTGCATTTTCTAATATCCACAAAATGAAGGCAATAATTGTACTACTCATGGTAGTAACAT
CCAATGCAGATCGAATCTGCACTGGGATAACATCGTCAAACCTCACCTCATGTGGTTAAACCTGCCACTCA
AGGGGAAGTCAATGTGACTGGTGTGATACCACTAACAACAACACCTACCAAATCTCATTTTGCAAATCTC
AAAGGAACACAGACCAGAGGAAAATATGCCCAAACCTGTTTTAACTGCACAGATCTGGACGTGGCCCTAG
GCAGACCAAATGCATGGGGAACACACCCTCCGCAAAAGTCTCAATACTCCATGAAGTCAAACCTGCTAC
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GAAAACATCAGGTTATCAACCAGTAATGTTATCAATACAGAGACGGCACCAGGAGGACCCTACAAGGTGG
GGACCTCAGGATCTTGCCCTAACGTTGCTAATGGGAACGGCTTCTTCAACACAATGGCTTGGGTTATCCC
AAAAGACAACAACAAGACAGCAATAAATCCAGTAACAGTAGAAGTACCATACATTTGTTTCAAGGGGAA
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AAATCAAACAGAAGACGAAGGGCTAAAACAAGCGGCAGAATTGTTGTTGATTACATGGTACAAAAACCT
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TCTCCAGAGACAATGTTTCTTGTTCATCTGTCTGTGAGGGAGATTAAGCCCTGTGTTTTCTTTTACTGT
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Fig. 10P**Influenza C (SEQ ID NO:27)**

```
>gi|325317|gb|M17868.1|FLCHAJO Influenza C/Johannesburg/66
hemagglutinin esterase RNA (seg 4), complete cds
AGCAGAAGCAGGGGGTTAATAATGTTTTCTCATTACTCTTGGTGTTGGGCCTCACAGAGGCTGAAAAAA
TAAAGATATGCCTTCAAAGCAAGTGAACAGTAGCTTCAGCCTACACAATGGCTTCGGAGGAAATTTGTA
TGCCACAGAAGAAAAAGAATGTTTGAGCTTGTTAAGCCCAAAGCTGGAGCCTCTGTCTTGAATCAAAGT
ACATGGATTGGCTTTGGAGATTCAAGGACTGACAAAAGCAATTCAGCTTTTCTAGGTCTGCTGATGTTT
CAGCAAAAACCTGCTGATAAGTTTCGTTTTTGTCTGGTGGATCCTTAATGTTGAGTATGTTTGGCCCACC
TGGGAAGGTAGACTACCTTTACCAAGGATGTGGAAAACATAAAGTTTTTTATGAAGGAGTTAACTGGAGT
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AAGCCTTCAGAAAACAAATGTGGGAAAGAAAATCTTGCTTTCTTCACACTTCCAACCAATTTGGAACCT
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AGGATGTGACAACCTACTTTCAAGTGATCTATGATTCAATTTGGAAAAGTCGTTGGAGGACTAGATAACAGG
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ATCAGGGTGGGTGAATGAAACAGTCCTTTTACGGAGAAATACCTCCTTCCCTCCCAAATTTGGAAGATGC
CCTTTGGCTGCAAAGGAAGAATCCATTCCAAAAATCCCAGATGGCCTTCTAATTCACCAAGTGGAAACCG
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TGCAATCGTTGAAACAGGAATTGGAGGCTATCTGCTTGGAAAGTAGAAAAGAATCAGGAGGAGGTGTGACA
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TCGCAATAGAAAAACTAAATGACAGAATTTCTCATGATGAGCAAGCCATCAGAGATCTAACTTTAGAAAT
TGAAAATGCAAGATCTGAAGCTTTATTGGGAGAATTGGGAATAATAAGAGCCTTATTGGTAGGAAATATA
AGCATAGGATTACAGGAATCTTTATGGGAACTAGCTTCAGAAATAACAAATAGAGCAGGAGATCTAGCAG
TTGAAGTCTCCCCAGGTTGCTGGATAATTGACAATAACATTTGTGATCAAAGCTGTCAAAATTTTATTTT
CAAGTTCAACGAAACTGCACCTGTTCCAACCATTCCTTCTTGACACAAAAATTGATCTGCAATCAGAT
CCTTTTTTACTGGGGAAGCAGCTTGGGCTTAGCAATAACTGCTACTATTTTATTGGCAGCTTTGGTGATCT
CTGGGATCGCCATCTGCAGAACTAAATGATTGAGACAATTTTGAAAAATGGATAATGTGTTGGTCAATAT
TTTGTACAGTTTTATAAAAAACAAAAATCCCCTTGCTACTGCT
```

Fig. 10Q

SEQ ID NO: 29

5'-AGTTCCCCGGGCTGGTATATTTATATGTTGTC-3'**Fig. 10 R**

SEQ ID NO: 30

5'-AATAGGAGCTCCATTTTCTCTCAAGATGATTAATTAATTAATTAGTC-3**Fig. 10S**

SEQ ID NO: 31

5'-AATAGGAGCTCGTAAATGCTTCTTCGTCTCCTATTTATAATATGG-3'**Fig. 10T**

SEQ ID NO: 32

5'-
TTACGAATTCTCCTTCCTAATTGGTGTACTATCATTTATCAAAGGGGA-3'

Fig. 11

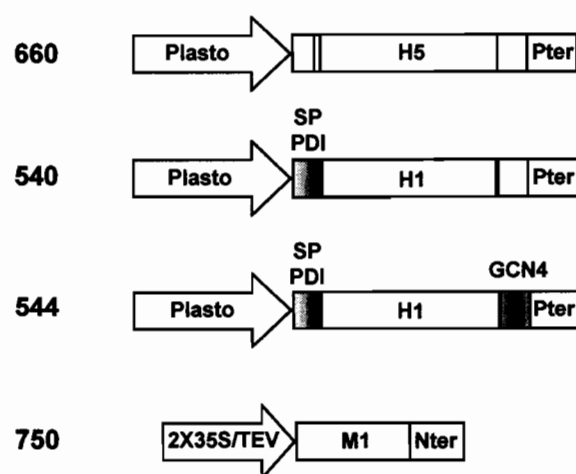
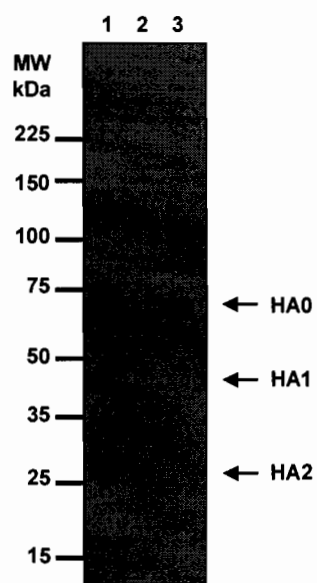


Fig. 12

1- Commercial H5 (A/Vietnam/1203/2004) (750 ng)

2- Leaf protein extract from mock (37.5 μ g)

3- Leaf protein extract from R660-infiltrated plant (37.5 μ g)

Fig. 13A

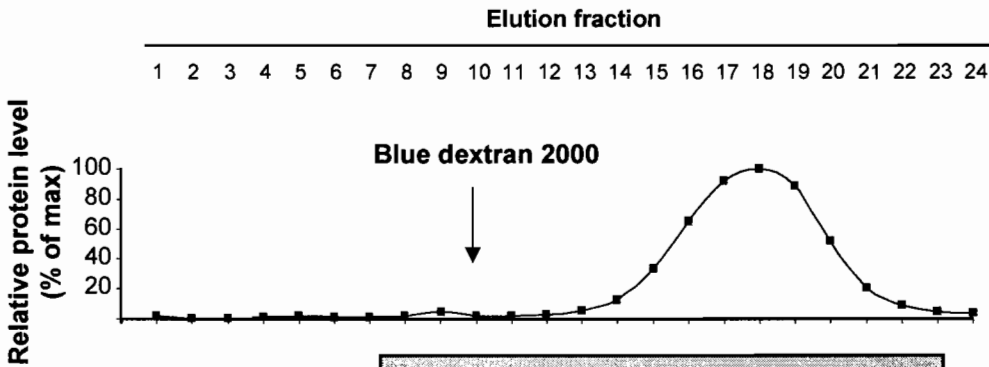


Fig. 13B

H5

Fig. 13C

H1

Fig. 13D

soluble H1

Fig. 13E

H1 rosette

Fig. 13F

H1+M1

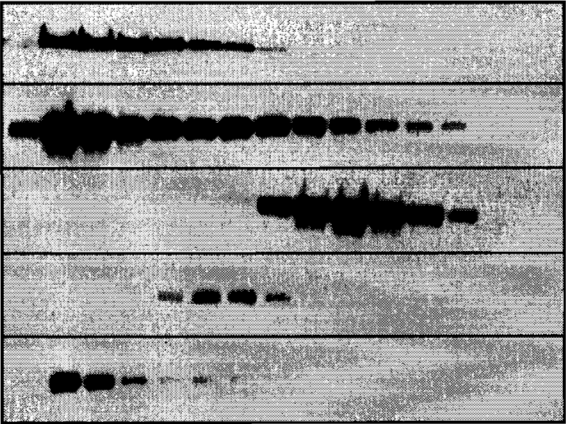


Fig.14A

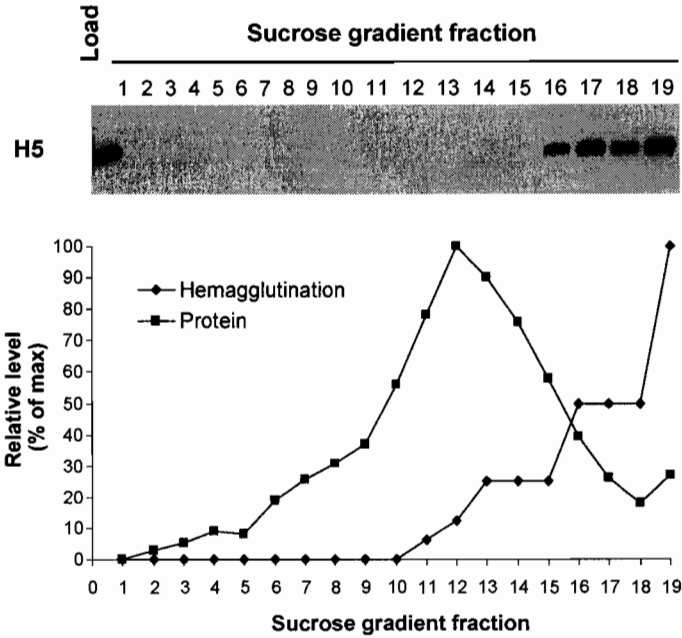


Fig. 14B

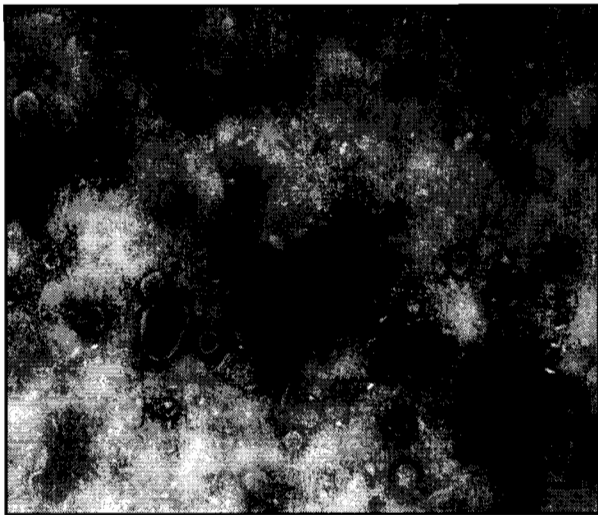


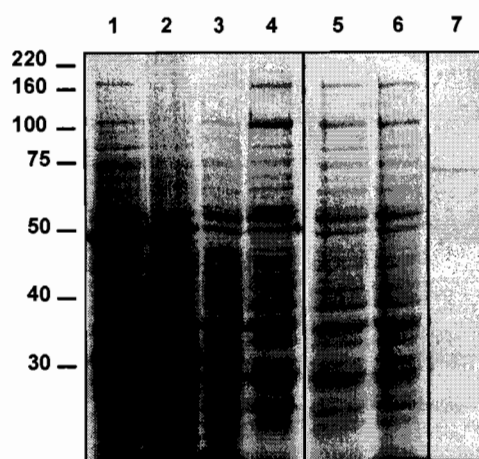
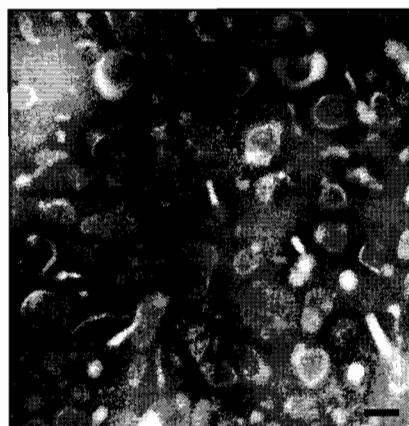
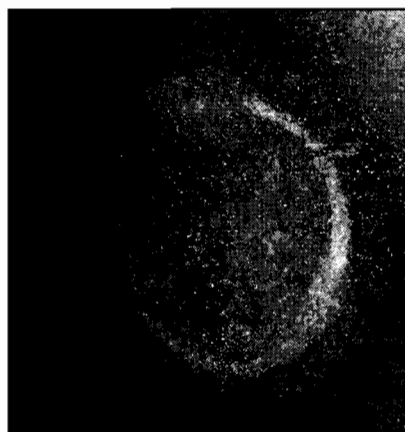
Fig. 15A**Fig. 15B****Fig. 15C**

Fig. 15D

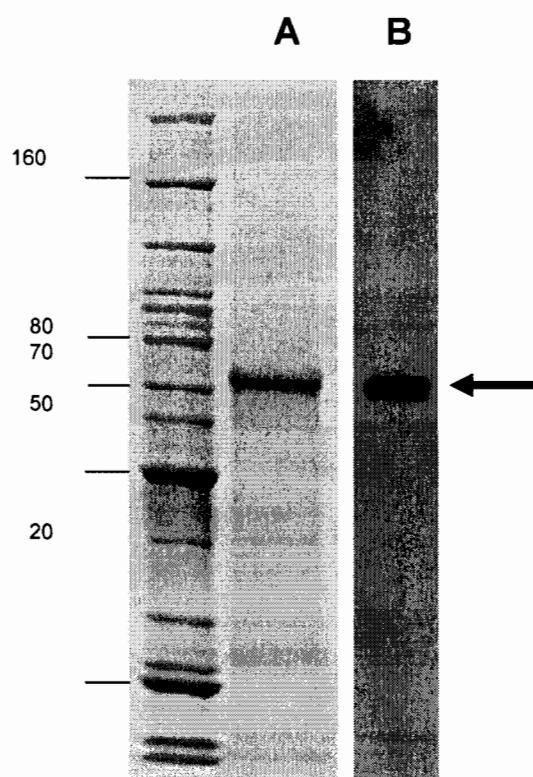


Fig. 16

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CACAATGGAAAACCTATGTCTACTAAAAGGAATAGCCCCACTACAATTGGGTAA
TTGCAGCGTTGCCGGATGGATCTTAGGAAACCCAGAATGCGAATTACTGATTT
CCAAGGAATCATGGTCCTACATTGTAGAAACACCAAATCCTGAGAATGGAACA
TGTTACCCAGGGTATTTTCGCCGACTATGAGGAACTGAGGGAGCAATTGAGTTC
AGTATCTTCATTTGAGAGATTCGAAATATTCCCCAAAGAAAGCTCATGGCCCA
ACCACACCGTAACCGGAGTATCAGCATCATGCTCCCATAATGGGAAAAGCAGT
TTTTACAGAAATTTGCTATGGCTGACGGGGAAGAATGGTTTGTACCCAAACCT
GAGCAAGTCCTATGTAAACAACAAAGAGAAAGAAGTCCTTGTACTATGGGGTG
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AGCCAAAAGACCCAAAGTAAGAGATCAGGAAGGAAGAATCAACTACTACTGGA
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CTCAAATGCACCAATGGATGAATGTGATGCGAAGTGTCAAACACCTCAGGGAG
CTATAAACAGCAGTCTTCCTTTCCAGAATGTACACCCAGTCACAATAGGAGAG
TGTCCAAAGTATGTCAGGAGTGCAAAATTAAGGATGGTTACAGGACTAAGGAA
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GCGATCTACTCAACTGTCGCCAGTTCCTGGTTCTTTTGGTCTCCCTGGGGGC
AATCAGCTTCTGGATGTGTTCCAATGGGTCTTTGCAGTGTAGAATATGCATCT
GAGACCAGAATTTCA

Fig. 17

SEQ ID NO: 34

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TTCGGTTTATTGTTTTCTCTTCTTCTGTTGGTTCCTTCT**CAGATCT**TCGCTG
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TTTCCATGACACTGTTAAGAAGCACGATTTTCATCGTCGTTGAATTCTACGCA
CCTTGGTGTGGACACTGTAAGAAGCTAGCCCCAGAGTATGAGAAGGCTGCTT
CTATCTTGAGCACTCACGAGCCACCAGTTGTTTTGGCTAAAGTTGATGCCAA
TGAGGAGCACAACAAAGACCTCGCATCGGAAAATGATGTTAAGGGATTCCCA
ACCATTAAGATTTTTAGGAATGGTGGAAAGAACATTCAAGAATACAAAGGTC
CCCGTGAAGCTGAAGGTATTGTTGAGTATTTGAAAAACAAAGTGGCCCTGC
ATCCACAGAAATTAAATCTGCTGATGATGCGACCGCTTTTGTGGTGACAAC
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TTTGAATGCCAAACACCTTCCAAAGGGAGACTCATCAGTGTCTGGGCCTGTG
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CTTTACAACCTCTTTTGTATCTCAGAATCAGAAGTTAGGAAATCTTAGTGCCA
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ACTGAATAATGTGAGTTTTGGCGGAGTTTAGTACTGGAACCTTTTGTCTGT
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Fig. 18

SEQ ID NO: 35

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AAGATGTCTTTGCAGGGAAGAACACCGATCTTGAGGTTCTCATGGAATGGCTAAA
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CTCACCGTGCCAGTGAGCGAGGACTGCAGCGTAGACGCTTTGTCCAAAATGCCC
TTAATGGGAACGGGGATCCAAATAACATGGACAAAGCAGTTAAACTGTATAGGAA
GCTCAAGAGGGAGATAACATTCCATGGGGCCAAAGAAATCTCACTCAGTTATTCT
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CCACTGAAGTGGCATTGTCCTGGTATGTGCAACCTGTGAACAGATTGCTGACTC
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Fig. 19

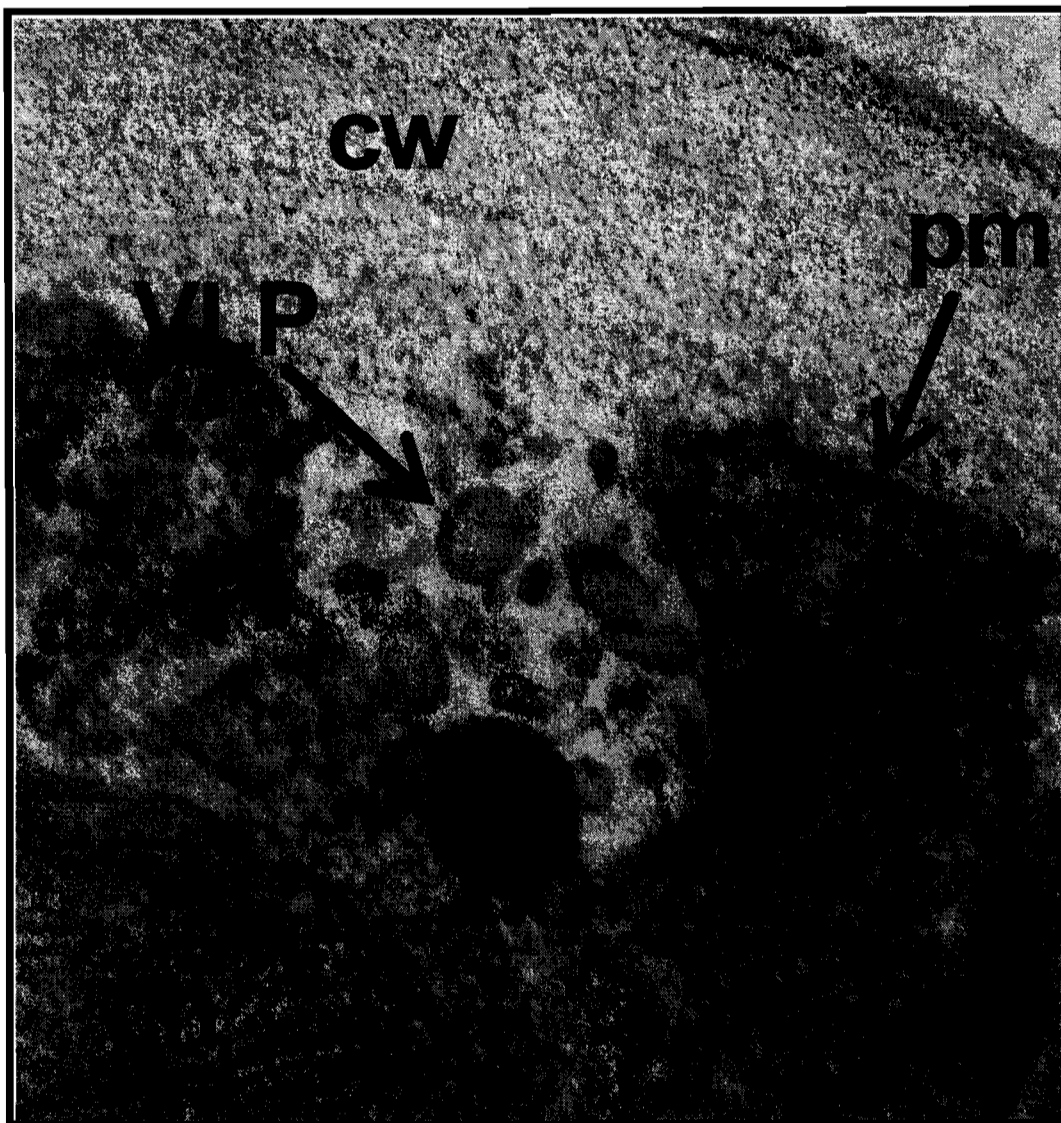


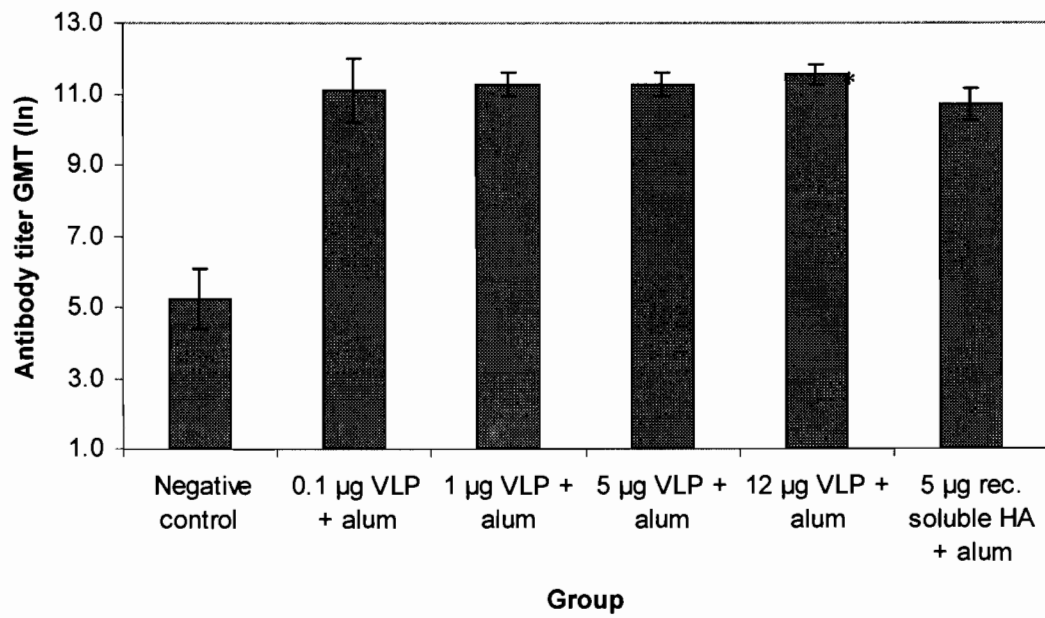
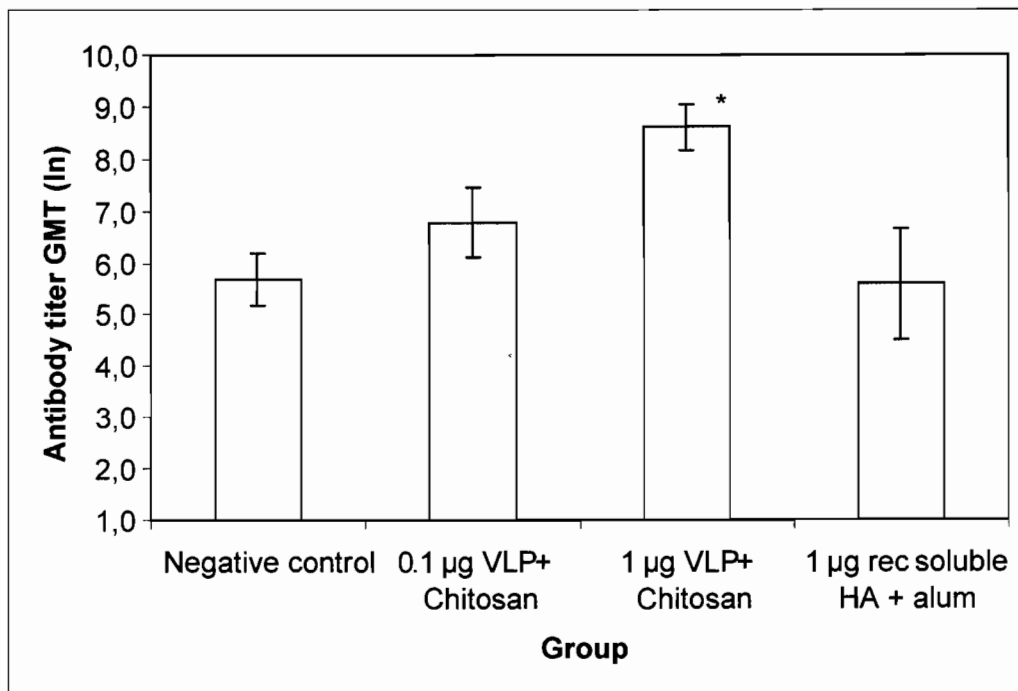
Fig. 20A**Fig. 20B**

Fig. 21A

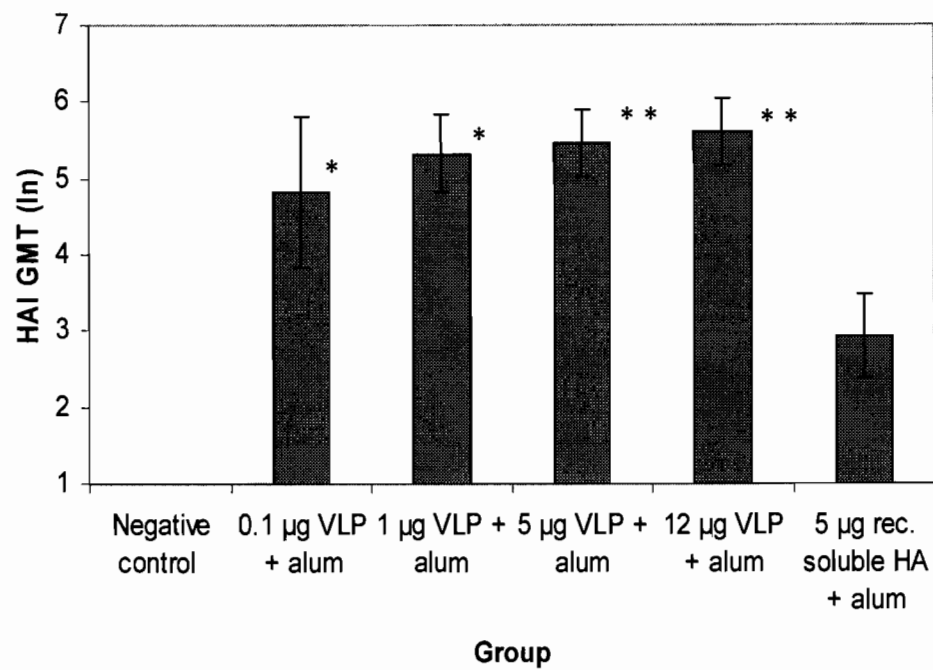


Fig. 21B

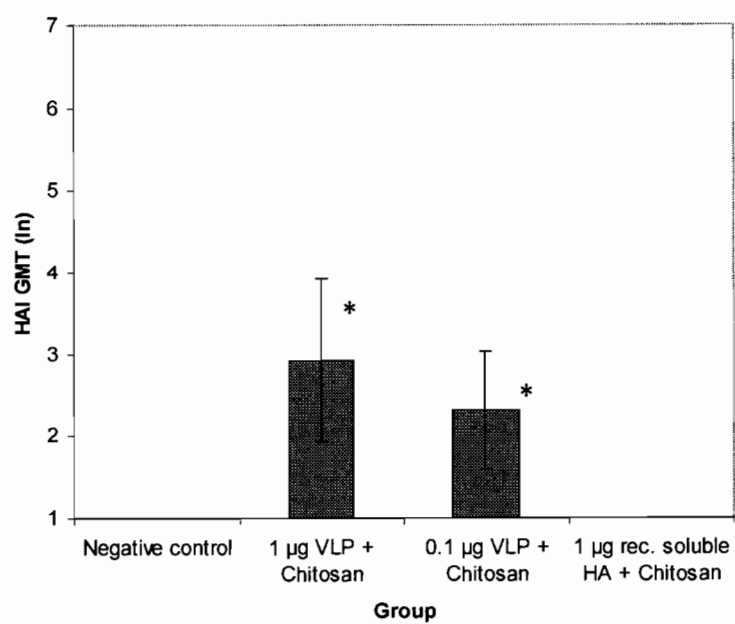


Fig. 22A

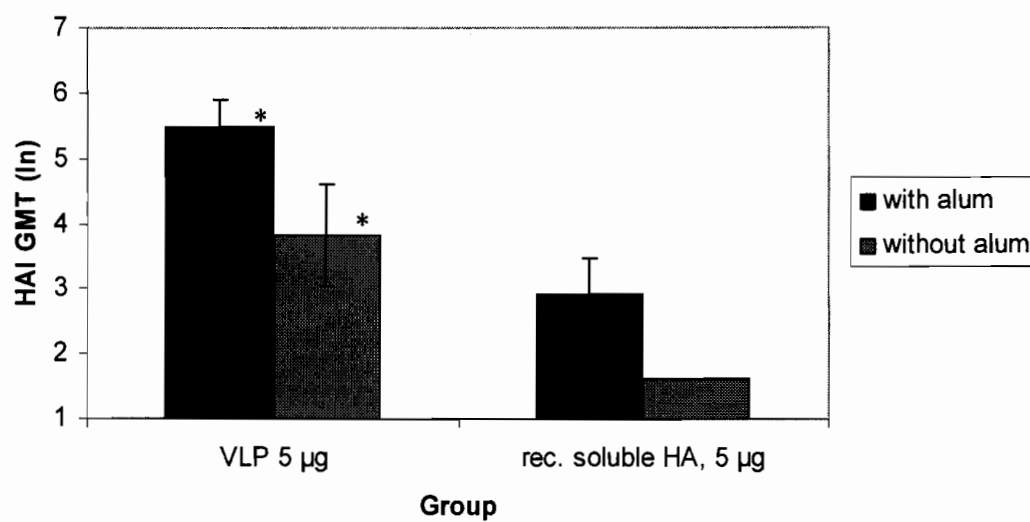


Fig. 22B

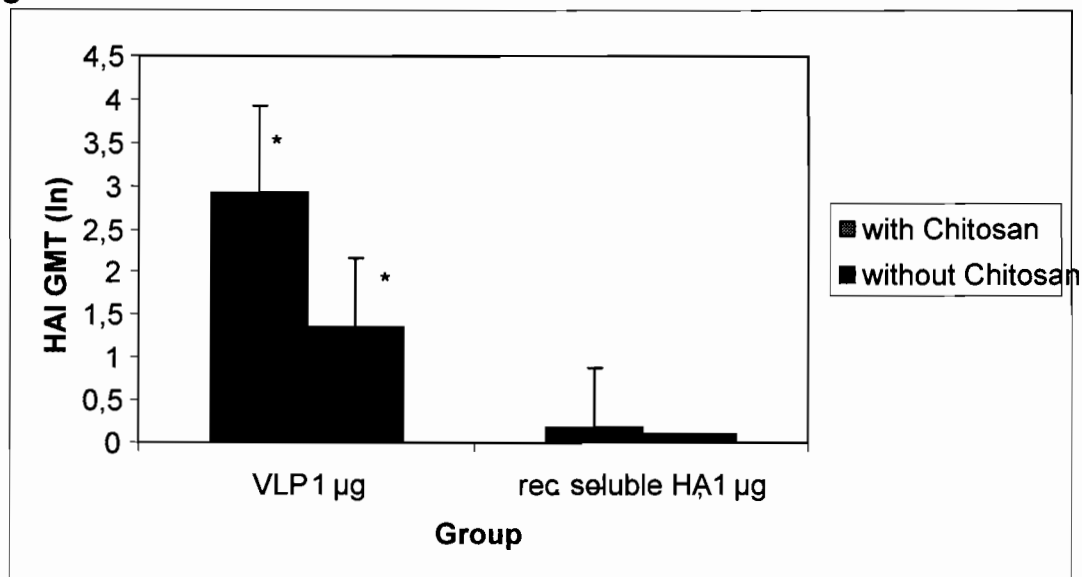


Fig. 23A

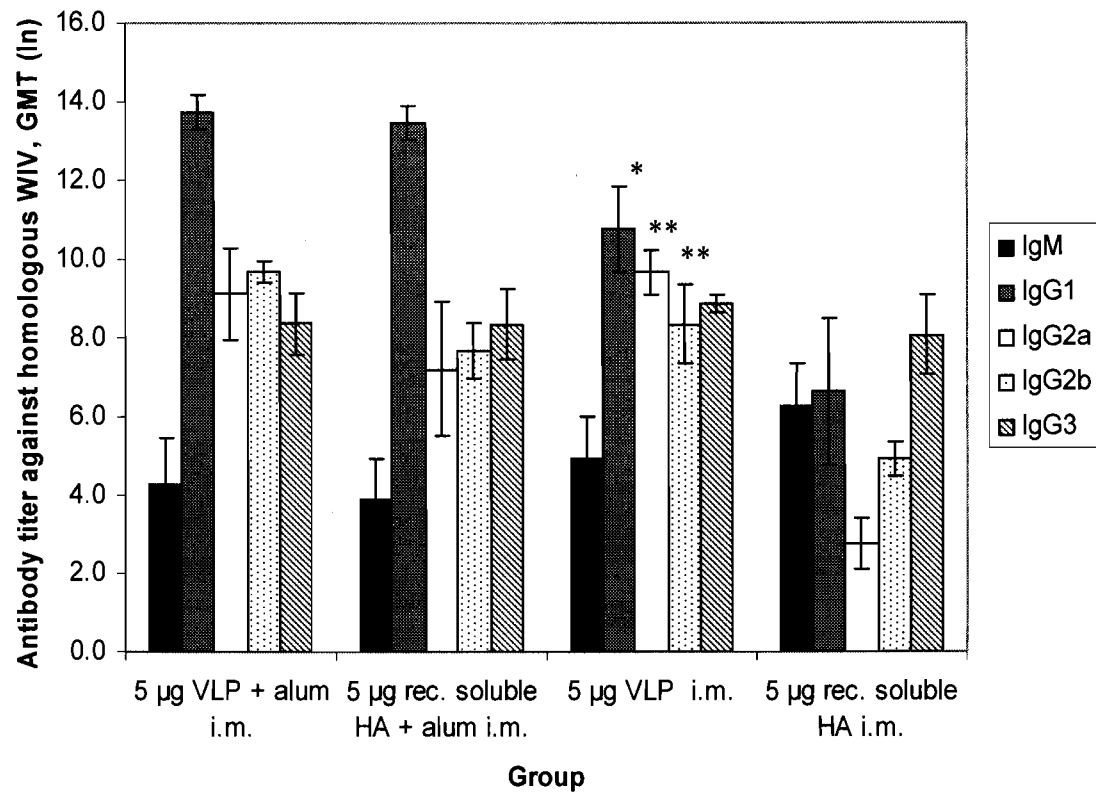


Fig. 23B

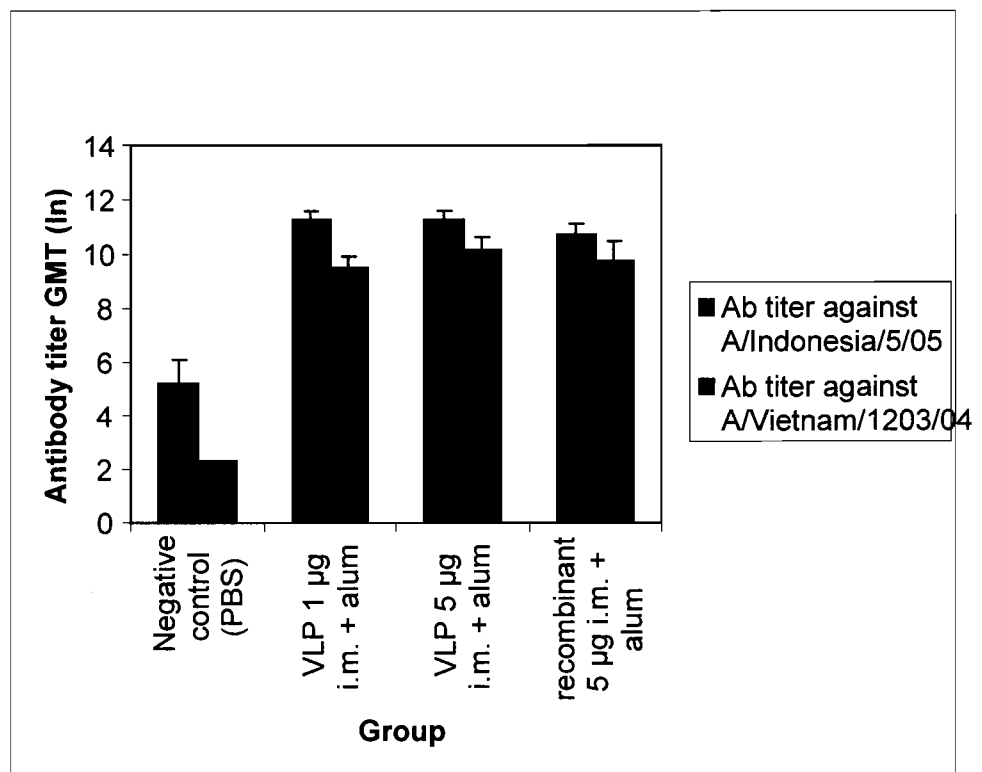
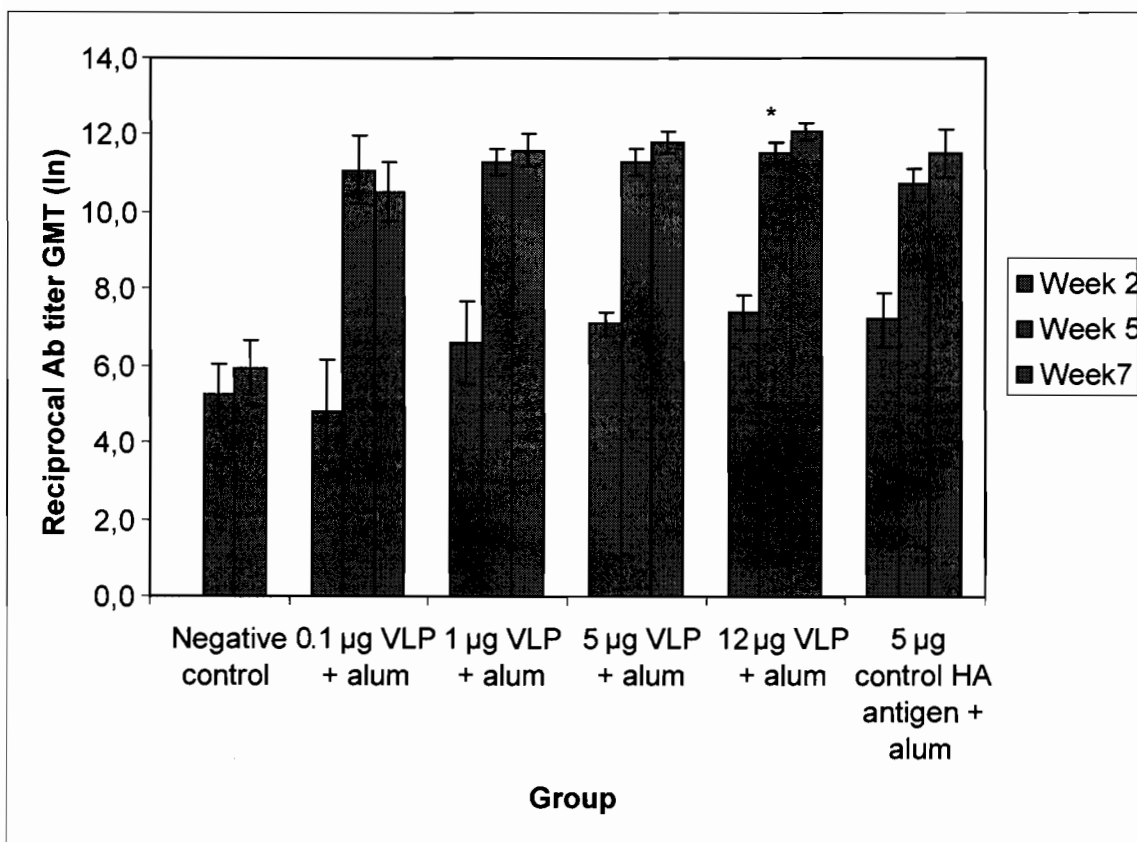


Fig. 24



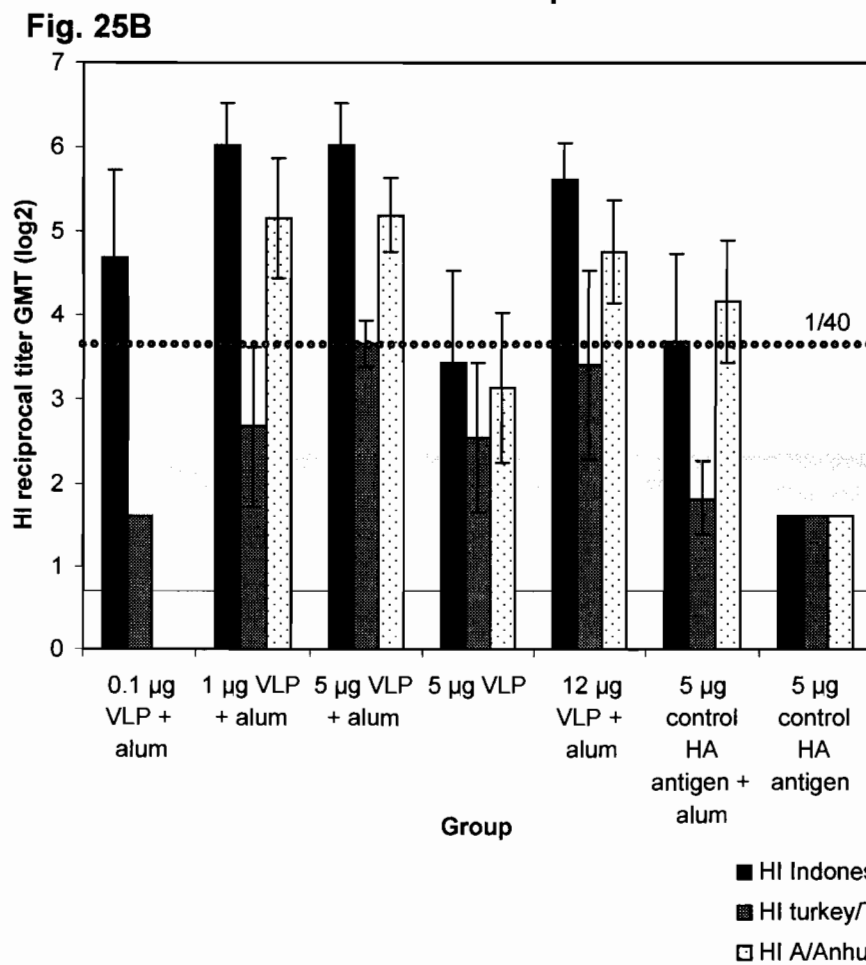
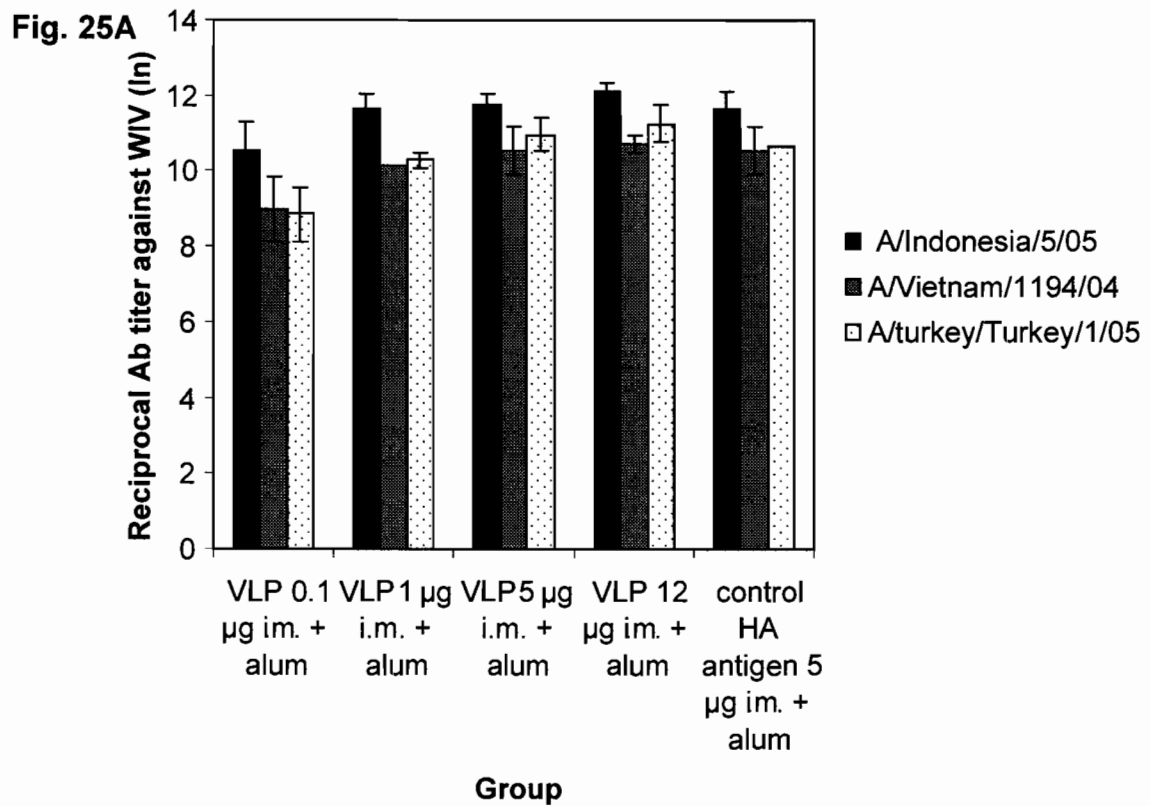


Fig. 26A

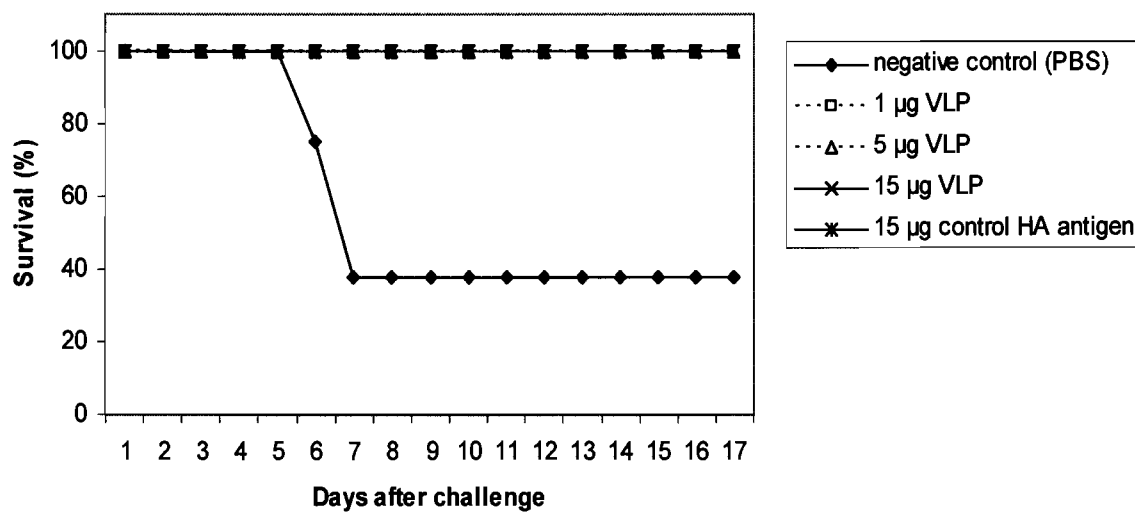


Fig. 26B

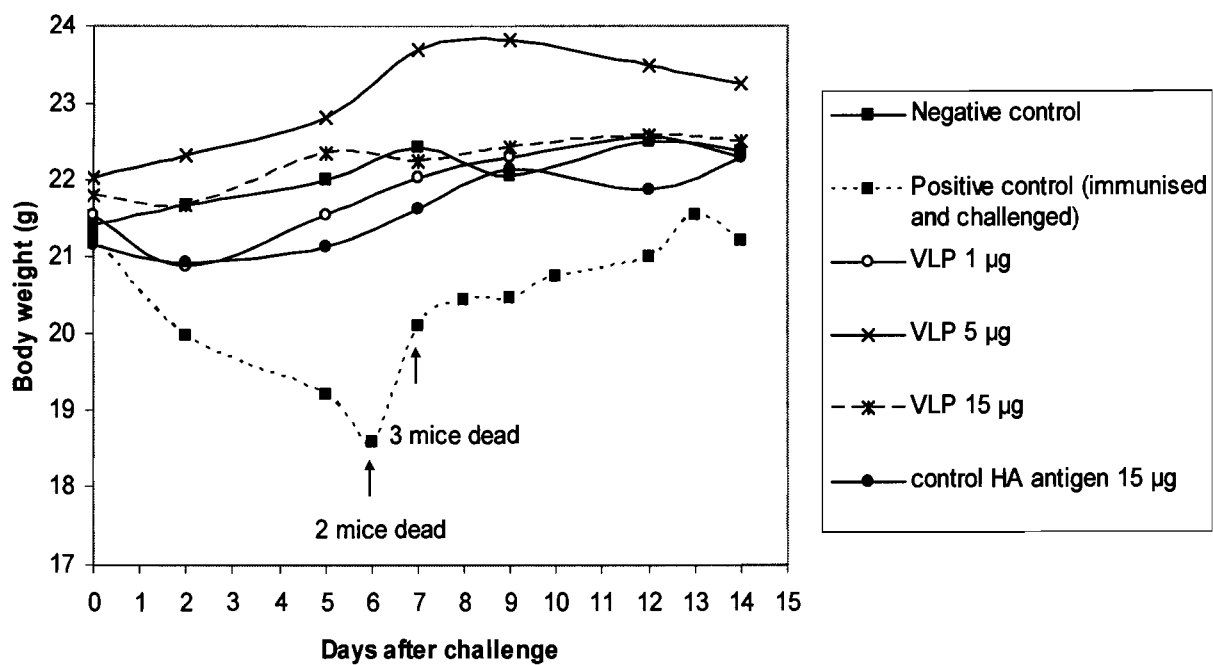


Fig. 27A

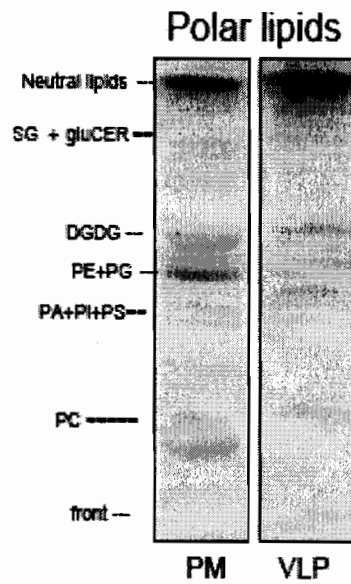


Fig. 27B

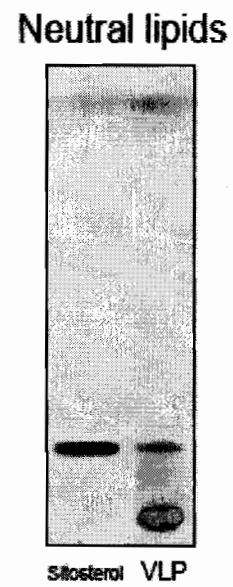


Fig. 27C

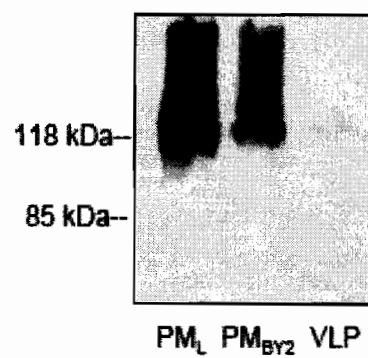


Fig. 28

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CTAATTAATTAATTAATCATCTTGAGAGAAAATGAAAGTAAACTACTGGTCC
TGTTATGCACATTTACAGCTACATATGCAGACACAATATGTATAGGCTACCAT
GCTAACAACTCGACCGACACTGTTGACACAGTACTTGAAAAGAATGTGACAG
TGACACACTCTGTCAACCTGCTTGAGAACAGTCACAATGGAAAACATATGTCT
ATTA AAAAGGAATAGCCCCACTACAATTGGGTAATTGCAGCGTTGCCGGGTG
GATCTTAGGAAACCCAGAATGCGAATTACTGATTTCCAAGGAGTCATGGTCC
TACATTGTAGAAAAACCAATCCTGAGAATGGAACATGTTACCCAGGGGCATT
TCGCTGACTATGAGGAACTGAGGGAGCAATTGAGTTCAGTATCTTCATTTGA
GAGGTTGCAAATATTCCCCAAAGAAAGCTCATGGCCCAACACACCGTAACC
GGAGTGTCAGCATCATGCTCCCATATGGGGAAAGCAGTTTTTACAGAAATT
TGCTATGGCTGACGGGGAAGAATGGTTTGTACCCAAACCTGAGCAAGTCCT
ATGCAAACAACAAAGAAAAAGAAGTCCTTGTACTATGGGGTGTTTCATCACCC
GCCAAACATAGGTGACCAAAAGGCCCTCTATCATACAGAAAATGCTTATGTC
TCTGTAGTGTCTTCACATTATAGCAGAAAATTACCCCCAGAAATAGCCAAAAG
ACCCAAAGTAAGAGATCAAGAAGGAAGAATCAATTACTACTGGACTCTGCTT
GAACCCGGGGATACAATAATTTGAGGCAAATGGAAATCTAATAGCGCCAA
GATATGCTTTCGCACTGAGTAGAGGCTTTGGATCAGGAATCATCAACTCAA
TGCACCAATGGATAAATGTGATGCGAAGTGCCAAACACCTCAGGGAGCTATA
AACAGCAGTCTTCCTTTCCAGAACGTACACCCAGTCACAATAGGAGAGTGTC
CAAAGTATGTCAGGAGTGCAAAATTAAGGATGGTTACAGGACTAAGGAACAT
CCCATCCATTCAATCCAGAGGTTTGTGGAGCCATTGCCGGTTTCATTGAA
GGGGGGTGGACTGGAATGGTAGATGGTTGGTATGGTTATCATCATCAGAAT
GAGCAAGGATCTGGCTATGCTGCAGATCAAAAAAGCACACAAAATGCCATTA
ATGGGATTACAAACAAGGTCAATTCTGTAATTGAGAAAATGAACACTCAATTC
ACAGCAGTGGGCAAAGAGTTCAACAAATTGGAAAGAAGGATGGAAAACCTTG
AATAAAAAAGTTGATGATGGGTTTATAGACATTTGGACATATAATGCAGAACT
GTTGGTTCTACTGGAAAATGAAAGGACTTTGGATTTCCATGACTCCAATGTG
AAGAATCTGTATGAGAAAGTAAAAAGCCAGTTAAAGAATAATGCTAAAGAAAT
AGGAAATGGGTGTTTTGAGTTCTATCACAAGTGTAACGATGAATGCATGGAG
AGTGTAAGAATGGAACCTTATGACTATCCAAAATATTCCGAAGAATCAAAGTT
AACAGGGAGAAAATTGATGGAGTGAAATTGGAATCAATGGGAGTCTATCAG
ATTCTGGCGATCTACTCAACAGTCGCCAGTTCTCTGGTTCTTTTGGTCTCCC
TGGGGGCAATCAGCTTCTGGATGTGTTCCAATGGGTCTTTACAGTGTAGAAT
ATGCATCTAAGAGCTC

Fig. 29

SEQ ID NO: 37

CACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGAGAAGAGACT
AATTAATTAATTAATCATCTTGAGAGAAAATGAAAGTAAACTACTGGTCCTGTTA
TGCACATTTACAGCTACATATGCAGACACAATATGTATAGGCTACCATGCCAACA
ACTCAACCGACACTGTTGACACAGTACTTGAGAAGAATGTGACAGTGACACACT
CTGTCAACCTGCTTGAGGACAGTCACAATGGAAAATTATGTCTATTA AAAAGGAAT
AGCCCCACTACAATTGGGTAATTGCAGCGTTGCCGGATGGATCTTAGGAAACCC
AGAATGCGAATTACTGATTTCCAGGGAATCATGGTCCTACATTGTAGAAAAACCA
AATCCTGAGAATGGAACATGTTACCCAGGGCATTTCGCCGACTATGAGGAACTG
AGGGAGCAATTGAGTTCAGTATCTTCATTTGAGAGATTGCAAATATTCCCCAAAG
AAAGCTCATGGCCCAACCACACCACAACCGGAGTATCAGCATCATGCTCCCAT
ATGGGGAAAGCAGTTTTTACAAAAATTTGCTATGGCTGACGGGGGAAGAATGGTTT
GTACCCAAACCTGAGCAAGTCCTATGCAAACAACAAAGAGAAAGAAGTCCTTGTA
CTATGGGGTGTTTCATCACCCGCCTAACATAGGTGACCAAAGGGCTCTCTATCAT
AAAGAAAATGCTTATGTCTCTGTAGTGTCTTCACATTATAGCAGAAAATTCACCCC
AGAAATAGCCAAAAGACCCAAAGTAAGAGATCAAGAAGGAAGAATCAACTACTAC
TGGACTCTACTTGAACCCGGGGATACAATAATTTGAGGCAAATGGAAATCTAA
TAGCGCCAAGATATGCTTTGCACTGAGTAGAGGCTTTGGATCAGGAATCATCA
ACTCAAATGCACCAATGGATGAATGTGATGCGAAGTGCCAAACACCTCAGGGAG
CTATAAACAGCAGTCTTCCTTTCCAGAATGTACACCCTGTCACAATAGGAGAGTG
TCCAAAGTATGTCAGGAGTGCAAAATTAAGGATGGTTACAGGACTAAGGAACAT
CCCATCCATTCAATCCAGAGGTTTGTGGAGCCATTGCCGGTTTCATTGAAGG
GGGGTGGACTGGAATGGTAGATGGTTGGTATGGTTATCATCATCAGAATGAGCA
AGGATCTGGCTATGCTGCAGATCAAAAAAGCACACAAAATGCCATTAATGGGATT
ACAAACAAGGTCAATTCTGTAATTGAGAAAATGAACACTCAATTCACAGCTGTGG
GCAAAGAGTTCAACAAATTGGAAAGAAGGATGGAAAACCTTAAATAAAAAAGTTGA
TGATGGGTTTATAGACATTTGGACATATAATGCAGAATTGTTGGTTCTACTGGAA
AATGAAAGGACTTTGGATTTCCATGACTCCAATGTGAAGAATCTGTATGAGAAAG
TAAAAAGCCAATTAAGAATAATGCCAAAGAAATAGGAAATGGGTGTTTTGAGTT
CTATCATAAGTGTAACGATGAATGCATGGAGAGTGTA AAAAATGGAACCTTATGAC
TATCCAAAATATTCCGAAGAATCAAAGTTAAACAGGGAGAAAATTGATGGAGTGA
AATTGGAATCAATGGGAGTCTATCAGATTCTGGCGATCTACTCAACAGTCGCCAG
TTCTCTGGTTCTTTTGGTCTCCCTGGGGGCAATCAGCTTCTGGATGTGTTCCAAT
GGGTCTTTGCAGTGTAGAATATGCATCTGAGAGCTC

Fig. 30

SEQ ID NO: 38

CACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGAGAAGAGA
CTAATTAATTAATTAATCATCTTGAGAGAAAATGAAGACTATCATTGCTTTGAG
CTACATTCTATGTCTGGTTTTCACTCAAAAACTTCCCGGAAATGACAACAGCA
CGGCAACGCTGTGCCTTGGGCACCATGCAGTACCAAACGGAACGATAGTGA
AAACAATCACGAATGACCAAATTGAAGTTACTAATGCTACTGAGCTGGTTCAG
AGTTCCTCAACAGGTGAAATATGCGACAGTCCTCATCAGATCCTTGATGGAG
AAAACTGCACACTAATAGATGCTCTATTGGGAGACCCTCAGTGTGATGGCTT
CCAAAATAAGAAATGGGACCTTTTTGTTGAACGCAGCAAAGCCTACAGCAACT
GTTACCCTTATGATGTGCCGGATTATGCCTCCCTTAGGTCACTAGTTGCCTCA
TCCGGCACACTGGAGTTTAACAATGAAAGTTTCAATTGGACTGGAGTCACTCA
AAACGGAACAAGCTCTGCTTGCATAAGGAGATCTAATAACAGTTTCTTTAGTA
GATTGAATTGGTTGACCCACTTAAAATTCAAATACCCAGCATTGAACGTGACT
ATGCCAAACAATGAAAAATTTGACAAATTGTACATTTGGGGGGTTTACCACCC
GGGTACGGACAATGACCAAATCTTCCTGTATGCTCAAGCATCAGGAAGAATC
ACAGTCTCTACCAAAGAAGCCAACAACTGTAATCCCGAATATCGGATCTAG
ACCCAGAGTAAGGAATATCCCCAGCAGAATAAGCATCTATTGGACAATAGTAA
AACCGGGAGACATACTTTTGATTAACAGCACAGGGAATCTAATTGCTCCTAG
GGGTTACTTCAAATACGAAGTGGGAAAAGCTCAATAATGAGATCAGATGCA
CCCATTGGCAAATGCAATTCTGAATGCATCACTCCAAACGGAAGCATTCCCAA
TGACAAACCATTCCAAATGTAAACAGGATCACATACGGGGCCTGTCCCAGA
TATGTTAAGCAAAACACTCTGAAATTGGCAACAGGGATGCGAAATGTACCAG
AGAAACAACTAGAGGCATATTTGGCGCAATCGCGGGTTTCATAGAAAATGG
TTGGGAGGGGAATGGTGGATGGTTGGTATGGTTTCAGGCATCAAAATTCTGAG
GGAATAGGACAAGCAGCAGATCTCAAAGCACTCAAGCAGCAATCGATCAAA
TCAATGGGAAGCTGAATAGGTTGATCGGGAAAACCAACGAGAAATTCATCA
GATTGAAAAAGAGTTCTCAGAAGTCGAAGGGAGAATCCAGGACCTTGAGAAA
TATGTTGAGGACACCAAAATAGATCTCTGGTCATACAACGCGGAGCTTCTTGT
TGCCCTGGAGAACCAACATACAATTGATCTAACTGACTCAGAAATGAACAAAC
TGTTTGAAAAAACAAAGAAGCAACTGAGGGAAAATGCTGAGGATATGGGCAA
TGTTTGTTTCAAATATACCACAAATGTGACAATGCCTGCATAGGATCAATCA
GAAATGGAACTTATGACCACGATGTATACAGAGATGAAGCATTAACAACCG
GTTCCAGATCAAGGGCGTTGAGCTGAAGTCAGGATACAAAGATTGGATACTA
TGGAATTCCTTTGCCATATCATGTTTTTGTCTTGTGTTGCTTTGTTGGGGTTC
ATCATGTGGGCCTGCCAAAAGGCAACATTAGGTGCAACATTTGCATTTGAG
AGCTC

Fig. 31

SEQ ID NO: 39

CACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGAGAAGAG
ACTAATTAATTAATTAATCATCTTGAGAGAAAATGAAGACTATCATTGCTTTG
AGCTACATTCTATGTCTGGTTTTCACTCAAAAACCTTCCCGGAAATGACAACA
GCACGGCAACGCTGTGCCTTGGGCACCATGCAGTACCAAACGGAACGATA
GTGAAAACAATCACGAATGACCAAATTGAAGTTACTAATGCTACTGAGCTG
GTTCAGAGTTCCCTCAACAGGTGGAATATGCGACAGTCCTCATCAGATCCTT
GATGGAGAAAACCTGCACACTAATAGATGCTCTATTGGGAGACCCTCAGTGT
GATGGCTTCCAAAATAAGAAATGGGACCTTTTTGTTGAACGCAGCAAAGCC
TACAGCAACTGTTACCCTTATGATGTGCCGGATTATGCCTCCCTTAGGTCA
CTAGTTGCCTCATCCGGCACACTGGAGTTTAACGATGAAAGTTTCAATTGG
ACTGGAGTCACTCAAAATGGAACAAGCTCTGCTTGCAAAGGAGATCTAAT
AACAGTTTCTTTAGTAGATTGAATTGGTTGACCCACTTAAAATTCAAATACC
CAGCATTGAACGTGACTATGCCAAACAATGAAAAATTTGACAAATTGTACAT
TTGGGGGGTTTACCACCCGGGTACGGACAATGACCAAATCTTCCTGCATG
CTCAAGCATCAGGAAGAATCACAGTCTCTACCAAAGAAGCCAACAACTG
TAATCCCGAATATCGGATCTAGACCCAGAATAAGGAATATCCCCAGCAGAA
TAAGCATCTATTGGACAATAGTAAAACCGGGAGACATACTTTTGATTAACAG
CACAGGGAATCTAATTGCTCCTAGGGGTTACTTCAAATACGAAGTGGGAA
AAGCTCAATAATGAGATCAGATGCACCCATTGGCAAATGCAATTCTGAATG
CATCACTCCAAATGGAAGCATTCCCAATGACAAACCATTTCAAATGTAAAC
AGGATCACATATGGGGCCTGTCCCAGATATGTTAAGCAAACACTCTGAAA
TTGGCAACAGGGATGCGAAATGTACCAGAGAAACAACTAGAGGCATATTT
GGCGCAATCGCGGGTTTCATAGAAAATGGTTGGGAGGGAATGGTGGATGG
TTGGTACGGTTTCAGGCATCAAATTCTGAGGGAATAGGACAAGCAGCAGA
TCTCAAAGCACTCAAGCAGCAATCAATCAATCAATGGGAAGCTGAATAG
GTTGATCGGGAAAACCAACGAGAAATTCCATCAGATTGAAAAAGAGTTCTC
AGAAGTAGAAGGGAGAATCCAGGACCTCGAGAAATATGTTGAGGACACTAA
AATAGATCTCTGGTCATACAACGCGGAGCTTCTTGTTGCCCTGGAGAACCA
ACATACAATTGATCTAACTGACTCAGAAATGAACAACTGTTTGAAAGAACA
AAGAAGCAACTGAGGGAAAATGCTGAGGATATGGGCAATGGTTGTTTCAA
ATATACCACAAATGTGACAATGCCTGCATAGGATCAATCAGAAATGGAACCT
ATGACCATGATGTATACAGAGATGAAGCATTAAACAACCGGTTCCAGATCA
AAGGCGTTGAGCTGAAGTCAGGATACAAAGATTGGATACTATGGATTTCCT
TTGCCATATCATGTTTTTGTCTTGTGTTGCTTTGTTGGGGTTTCATCATGTG
GGCTGCCAAAAGGCAACATTAGGTGCAACATTTGCATTTGAGAGCTC

Fig. 32

SEQ ID NO: 40

CACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGAGAAGA
GACTAATTAATTAATTAATCATCTTGAGAGAAAATGAAGGCAATAATTGTAC
TACTCATGGTAGTAACATCCAATGCAGATCGAATCTGCACTGGGATAACAT
CGTCAAACCTCACCATGTTGTCAAACTGCTACTCAAGGGGAGGTCAAT
GTGACTGGTGTAAATACCACTGACAACAACACCCACCAAATCTCATTTTGCA
AATCTCAAAGGAACAGAAACCAGAGGGGAACTATGCCCAAATGCCTCAA
CTGCACAGATCTGGACGTGGCCTTGGGCAGACCAAATGCACGGGGGAAC
ATACCCTCGGCAAGAGTTTCAATACTCCATGAAGTCAGACCTGTTACATCT
GGGTGCTTTCCTATAATGCACGACAGAACAATAATTAGACAGCTGCCTAAA
CTTCTCAGAGGATACGAACATATCAGGTTATCAACTCATAACGTTATCAAT
GCAGAAAATGCACCAGGAGGACCCTACAAAATTGGAACCTCAGGGTCTTG
CCCTAACGTTACCAATGGAAACGGATTTTTCGCAACAATGGCTTGGGCCG
TCCCAAAAAACGACAACAACAAAACAGCAACAATTCATTAACAATAGAAG
TACCATACATTTGTACAGAAGGAGAAGACCAAATTACCGTTTGGGGGTTT
CACTCTGATAACGAAACCCAAATGGCAAAGCTCTATGGGGACTCAAAGCC
CCAGAAGTTCACCTCATCTGCCAACGGAGTGACCACACATTACGTTTCAC
AGATTGGTGGCTTCCCAAATCAAACAGAAGACGGAGGACTACCACAAAGC
GGTAGAATTGTTGTTGATTACATGGTGCAAAAATCTGGGAAAACAGGAAC
AATTACCTATCAAAGAGGTATTTTATTGCCTCAAAAAGTGTGGTGCGCAAG
TGGCAGGAGCAAGGTAATAAAAGGATCGTTGCCTTTAATTGGAGAAGCAG
ATTGCCTCCACGAAAAATACGGTGGATTAAACAAAAGCAAGCCTTACTACA
CAGGGGAACATGCAAAGGCCATAGGAAATTGCCCAATATGGGTGAAAACA
CCCTTGAAGCTGGCCAATGGAACCAAATATAGACCTCCTGCAAACTATTA
AAGGAAAGGGGTTTCTTCGGAGCTATTGCTGGTTTCTTAGAAGGAGGATG
GGAAGGAATGATTGCAGGTTGGCACGGATACACATCCCATGGGGCACAT
GGAGTAGCGGTGGCAGCAGACCTTAAGAGCACTCAAGAGGCCATAAACA
AGATAACAAAAAATCTCAACTCTTTGAGTGAGCTGGAAGTAAAGAATCTTC
AAAGACTAAGCGGTGCCATGGATGAACTCCACAACGAAATACTAGAACTA
GACGAGAAAGTGGATGATCTCAGAGCTGATACAATAAGCTCACAAATAGA
ACTCGCAGTCCTGCTTTCATGAAGGAATAATAAACAGTGAAGATGAGC
ATCTCTTGGCGCTTGAAAGAAAGCTGAAGAAAATGCTGGGCCCCCTCTGCT
GTAGAGATAGGGAATGGATGCTTTGAAACCAAACACAAGTGCAACCAGAC
CTGTCTCGACAGAATAGCTGCTGGTACCTTTGATGCAGGAGAATTTTCTCT
CCCCACTTTTGATTCACTGAATATTACTGCTGCATCTTTAAATGACGATGG
ATTGGATAATCATACTATACTGCTTTACTACTCAACTGCTGCCTCCAGTTT
GGCTGTAACATTGATGATAGCTATCTTTGTTGTTTATATGGTCTCCAGAGA
CAATGTTTCTTGCTCCATCTGTCTATAAGAGCTC

Fig. 33

SEQ ID NO: 41

CACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGAGAA
GAGACTAATTAATTAATTAATCATCTTGAGAGAAAATGAAGGCAATAATT
GTACTACTCATGGTAGTAACATCCAATGCAGATCGAATCTGCACTGGAA
TAACATCTTCAAACCTCACCTCATGTGGTCAAACAGCCACTCAAGGGGA
GGTCAATGTGACTGGTGTGATACCACTAACAACAACACCAACAAAATCT
TATTTTGCAAATCTCAAAGGAACAAGGACCAGAGGGGAACTATGCCCA
GACTGTCTCAACTGCACAGATCTGGATGTGGCTTTGGGCAGACCAATG
TGTGTGGGGACCACACCTTCGGCGAAGGCTTCAATACTCCACGAAGTC
AAACCTGTTACATCCGGGTGCTTTCCTATAATGCACGACAGAACAAAA
TCAGGCAACTACCCAATCTTCTCAGAGGATATGAAAATATCAGGCTATC
AACCCAAAACGTCATCGATGCGGAAAAGGCACCAGGAGGACCCTACA
GACTTGGAACCTCAGGATCTTGCCCTAACGCTACCAGTAAGAGCGGAT
TTTTCGCAACAATGGCTTGGGCTGTCCCAAAGGACAACAACAAAATG
CAACGAACCCACTAACAGTAGAAGTACCATACATTTGTACAGAAGGGG
AAGACCAAATCACTGTTTGGGGGTTCCATTGAGATAACAAAACCCAAAT
GAAGAACCTCTATGGAGACTCAAATCCTCAAAAGTTCACCTCATCTGCT
AATGGAGTAACCACACACTATGTTTCTCAGATTGGCAGCTTCCCAGATC
AAACAGAAGACGGAGGACTACCACAAAGCGGCAGGATTGTTGTTGATT
ACATGATGCAAAAACCTGGGAAAACAGGAACAATTGTCTACCAAAGAG
GTGTTTTGTTGCCTCAAAAGGTGTGGTGC GCGAGTGGCAGGAGCAAA
GTAATAAAAGGGTCCTTGCCTTTAATTGGTGAAGCAGATTGCCTTCATG
AAAAATACGGTGGATTAAACAAAAGCAAGCCTTACTACACAGGAGAACA
TGCAAAAGCCATAGGAAATTGCCCAATATGGGTGAAAACACCTTTGAA
GCTCGCCAATGGAACCAATATAGACCTCCTGCAAACTATTAAGGAA
AGGGGTTTCTTCGGAGCTATTGCTGGTTTCTAGAAGGAGGATGGGAA
GGAATGATTGCAGGCTGGCACGGATACACATCTCACGGAGCACATGG
AGTGGCAGTGGCGGCGGACCTTAAGAGTACGCAAGAAGCTATAAACAA
GATAACAAAAAATCTCAATTCTTTGAGTGAGCTAGAAGTAAAGAATCTT
CAAAGACTAAGTGGTGCCATGGATGAACTCCACAACGAAATACTCGAG
CTGGATGAGAAAGTGGATGATCTCAGAGCTGACACTATAAGCTCGCAA
ATAGAACTTGCAGTCTTGCTTTCCAACGAAGGAATAATAACAGTGAAG
ATGAGCATCTATTGGCACTTGAGAGAAAACCTAAAGAAAATGCTGGGTC
CCTCTGCTGTAGAGATAGGAAATGGATGCTTCGAAACCAACACAAGT
GCAACCAGACCTGCTTAGACAGGATAGCTGCTGGCACCTTTAATGCAG
GAGAATTTTCTCTCCCCACTTTTGATTCACTGAACATTACTGCTGCATCT
TAAATGATGATGGATTGGATAACCATACTATACTGCTCTATTACTCAAC
TGCTGCTTCTAGTTTGGCTGTAACATTGATGCTAGCTATTTTTATTGTTT
ATATGGTCTCCAGAGACAACGTTTCATGCTCCATCTGTCTATAAGAGCT
C

Fig. 34

SEQ ID NO: 42

CACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGAGAA
GAGACTAATTAATTAATTAATCATCTTGAGAGAAAATGGCCATCATTTA
TCTAATTCTCCTGTTACAGCAGTGAGAGGGGACCAAATATGCATTGG
ATACCATGCCAATAATTCCACAGAGAAGGTCGACACAATTCTAGAGCG
GAACGTCACTGTGACTCATGCCAAGGACATTCTTGAGAAGACCCATAA
CGGAAAGTTATGCAAACATAACGGAATCCCTCCACTTGAAGTAGGGGA
CTGTAGCATTGCCGGATGGCTCCTTGGAATCCAGAATGTGATAGGCT
TCTAAGTGTGCCAGAATGGTCTATATAATGGAGAAAGAAAACCCGAG
AGACGGTTTGTGTTATCCAGGCAGCTTCAATGATTATGAAGAATTGAAA
CATCTCCTCAGCAGCGTGAAACATTTTCGAGAAAGTAAAGATTCTGCC
AAAGATAGATGGACACAGCATAACAACACTGGAGGTTACACGGGCCTG
CGCGGTGTCTGGTAATCCATCATTCTTCAGGAACATGGTCTGGCTGAC
AAAGAAAGAATCAAATTATCCGGTTGCCAAAGGATCGTACAACAATAC
AAGCGGAGAACAAATGCTAATAATTTGGGGGGTGCACCATCCCAATGA
TGAGACAGAACAAAGAACATTGTACCAGAATGTGGGAACCTATGTTTC
CGTAGGCACATCAACATTGAACAAAAGGTCAACCCCAGACATAGCAAC
AAGGCCTAAAGTGAATGGACTAGGAAGTAGAATGGAGTTCTCTTGGAC
CCTATTGGATATGTGGGACACCATAAATTTTGAGAGTACTGGTAATCTA
ATTGCACCAGAGTATGGATTCAAAATATCGAAAAGAGGTAGTTCAGGG
ATCATGAAAACAGAAGGAACACTTGAGAACTGTGAGACCAAATGCCAA
ACTCCTTTGGGAGCAATAAATAACAACATTGCCTTTTCACAATGTCCACC
CACTGACAATAGGTGAGTGCCCCAAATATGTAAAATCGGAGAAGTTGG
TCTTAGCAACAGGACTAAGGAATGTTCCCCAGATTGAATCAAGAGGAT
TGTTTGGGGCAATAGCTGGTTTTATAGAAGGAGGATGGCAAGGAATG
GTTGATGGTTGGTATGGATACCATCACAGCAATGACCAGGGATCAGG
GTATGCAGCAGACAAAGAATCCACTCAAAGGCATTTGATGGAATCAC
CAACAAGGTAAATTCTGTGATTGAAAAGATGAACACCCAATTTGAAGCT
GTTGGGAAAGAGTTCAGTAACTTAGAGAGAAGACTGGAGAACTTGAAC
AAAAAGATGGAAGACGGGTTTCTAGATGTGTGGACATACAATGCTGAG
CTTCTAGTTCTGATGGAAAATGAGAGGACACTTGACTTTCATGATTCTA
ATGTCAAGAATCTGTATGATAAAGTCAGAATGCAGCTGAGAGACAACG
TCAAAGAAGTGGAAATGGATGTTTTGAATTTTATCACAAATGTGATGA
TGAATGCATGAATAGTGTGAAAAACGGGACGTATGATTATCCCAAGTA
TGAAGAAGAGTCTAAACTAAATAGAAATGAAATCAAAGGGGTAAAATTG
AGCAGCATGGGGGTTTATCAAATCCTTGCCATTTATGCTACAGTAGCA
GGTTCTCTGTCACTGGCAATCATGATGGCTGGGATCTCTTCTGGATG
TGCTCCAACGGGTCTCTGCAGTGCAGGATCTGCATATGAGAGCTC

Fig. 35

SEQ ID NO: 43

CACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGAGAAG
AGACTAATTAATTAATTAATCATCTTGAGAGAAAATGGAGAAAATAGTGCT
TCTTCTTGCAATAGTCAGCCTTGTTAAAAGTGATCAGATTTGCATTGGTTA
CCATGCAAACAACCTCGACAGAGCAGGTTGACACAATAATGGAAAAGAAC
GTTACTGTTACACATGCCCAAGACATACTGGAAAAGACACACAACGGGA
AGCTCTGCGATCTAGATGGAGTGAAGCCTCTGATTTTAAGAGATTGTAGT
GTAGCTGGATGGCTCCTCGGAAACCCAATGTGTGACGAGTTCATCAATG
TGCCGGAATGGTCTTACATAGTGGAGAAGGCCAACCCAGCCAATGACCT
CTGTTACCCAGGGAATTTCAACGACTATGAAGAACTGAAACACCTATTGA
GCAGAATAAACCATTTTTGAGAAAATTCAGATCATCCCCAAAAGTTCTTGG
TCCGATCATGAAGCCTCATCAGGGGTCAGCTCAGCATGTCCATACCAGG
GAACGCCCTCCTTTTTTCAGAAATGTGGTATGGCTTATCAAAAAGAACAAT
ACATACCCAACAATAAAGAGAAGCTACAATAATACCAACCAGGAAGATCT
TTTGATACTGTGGGGGATTCATCATTCTAATGATGCGGCAGAGCAGACAA
AGCTCTATCAAAACCCAACCACCTATATTTCCGTTGGGACATCAACACTA
AACCAGAGATTGGTACCAAAAATAGCTACTAGATCCAAAGTAAACGGGCA
AAGTGGAAGGATGGATTTCTTCTGGACAATTTTAAACCGAATGATGCAA
TCAACTTCGAGAGTAATGGAAATTTCAATTGCTCCAGAATATGCATACAAA
ATTGTCAAGAAAGGGGACTCAGCAATTGTTAAAAGTGAAGTGGAATATGG
TAACTGCAATACAAAGTGTCAAACCTCCAATAGGGGCGATAAACTCTAGTA
TGCCATTCCACAACATACACCCTCTCACCATCGGGGAATGCCCCAAATAT
GTGAAATCAAACAAATTAGTCCTTGCGACTGGGCTCAGAAATAGTCCTCT
AAGAGAAAGAAGAAGAAAAAGAGGACTATTTGGAGCTATAGCAGGGTTT
ATAGAGGGAGGATGGCAGGGAATGGTAGATGGTTGGTATGGGTACCAC
CATAGCAATGAGCAGGGGAGTGGGTACGCTGCAGACAAAGAATCCACTC
AAAAGGCAATAGATGGAGTCACCAATAAGGTCAACTCGATCATTGACAAA
ATGAACACTCAGTTTGAGGCCGTTGGAAGGGAATTTAATAACTTAGAAAG
GAGAATAGAGAATTTAAACAAGAAAATGGAAGACGGATTCCTAGATGTCT
GGACTTATAATGCTGAACTTCTGGTTCTCATGGAAAATGAGAGAACTCTA
GACTTCCATGATTCAAATGTCAAGAACCTTTACGACAAGGTCCGACTACA
GCTTAGGGATAATGCAAAGGAGCTGGGTAACGGTTGTTTCGAGTTCTAT
CACAAATGTGATAATGAATGTATGGAAAGTGTAAGAAACGGAACGTATGA
CTACCCGCAGTATTCAGAAGAAGCAAGATTAAGAGAGAGGAAATAAGT
GGAGTAAATTGGAATCAATAGGAACTTACCAAATACTGTCAATTTATTCA
ACAGTTGCGAGTTCTCTAGCACTGGCAATCATGGTGGCTGGTCTATCTTT
GTGGATGTGCTCCAATGGGTCGTTACAATGCAGAATTTGCATTTAAGAGC
TC

Fig. 36

SEQ ID NO: 44

CACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGAGAAGA
GACTAATTAATTAATTAATCATCTTGAGAGAAAATGGAGAAAATAGTGCTTC
TTTTTGCAATAGTCAGTCTTGTTAAAAGTGATCAGATTTGCATTGGTTACCA
TGCAAACAACCTCGACAGAGCAGGTTGACACAATAATGGAAAAGAACGTTA
CTGTTACACATGCCCAAGACATACTGGAAAAGACACACAATGGGAAGCTC
TGCGATCTAGATGGAGTGAAGCCTCTAATTTTGAGAGATTGTAGTGTAGCT
GGATGGCTCCTCGGAAACCCAATGTGTGACGAGTTCATCAATGTGCCGGA
ATGGTCTTACATAGTGGAGAAGGCCAATCCAGTCAATGACCTCTGTTACC
CAGGGGATTTCAATGACTATGAAGAATTGAAACACCTATTGAGCAGAATAA
ACCATTTTGAGAAAATTCAGATCATCCCCAAAAGTTCTTGGTCCAGTCATG
AAGCCTCATTGGGGGTCAGCTCAGCATGTCCATACCAGGGAAAGTCCTCC
TTTTTCAGAAATGTGGTATGGCTTATCAAAAAGAACAGTACATACCCAACA
ATAAAGAGGAGCTACAATAATACCAACCAAGAAGATCTTTTGGTACTGTGG
GGGATTCACCATCCTAATGATGCGGCAGAGCAGACAAAGCTCTATCAAAA
CCCAACCACCTATATTTCCGTTGGGACATCTACACTAAACCAGAGATTGGT
ACCAAGAATAGCTACTAGATCCAAAGTAAACGGGCAAAGTGGAAGGATGG
AGTTCTTCTGGACAATTTTAAAACCGAATGATGCAATCAACTTCGAGAGTA
ATGGAAATTTCAATTGCTCCAGAATATGCATACAAAATTGTCAAGAAAGGGG
ACTCAACAATTATGAAAAGTGAATTGGAATATGGTAACTGCAATACCAAGT
GTCAAACCTCCAATGGGGGCGATAAACTCTAGCATGCCATTCCACAATATAC
ACCTCTCACCATCGGGGAATGCCCCAAATATGTGAAATCAAACAGATTA
GTCCTTGCGACTGGGCTCAGAAATAGCCCTCAAAGAGAGAGAAGAAGAAA
AAAGAGAGGATTATTTGGAGCTATAGCAGGTTTTATAGAGGGAGGATGGC
AGGGAATGGTAGATGGTTGGTATGGGTACCACCATAGCAACGAGCAGGG
GAGTGGGTACGCTGCAGACAAAGAATCCACTCAAAGGCAATAGATGGAG
TCACCAATAAGGTCAACTCGATTATTGACAAAATGAACACTCAGTTTGAGG
CCGTTGGAAGGGAATTTAACAACCTTAGAAAGGAGAATAGAGAATTTAAACA
AGAAGATGGAAGACGGGTTCTTAGATGTCTGGACTTATAATGCTGAACTT
CTAGTTCTCATGGAAAACGAGAGAACTCTAGACTTTTCATGACTCAAATGTC
AAGAACCTTTACGACAAGGTCCGACTACAGCTTAGGGATAATGCAAAGGA
GCTGGGTAAACGGTTGTTTCGAGTTCTATCATAAATGTGATAATGAATGTAT
GGAAAGTGTAAGAAACGGAACGTATGACTACCCGCAGTATTCAGAAGAAG
CAAGACTAAAAAGAGAGGAAATAAGTGGAGTAAAATTGGAATCAATAGGA
ATTTACCAAATATTGTCAATTTATTCTACAGTGGCCAGCTCCCTAGCACTG
GCAATCATGGTAGCTGGTCTATCCTTATGGATGTGCTCCAATGGGTTCGTT
ACAATGCAGAATTTGCATTTAAGAGCTC

Fig. 37

SEQ ID NO: 45

CACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGAGAAGA
GACTAATTAATTAATTAATCATCTTGAGAGAAAATGATTGCAATCATTGTAA
TAGCAATACTGGCAGCAGCCGAAAGTCAGACAAGATCTGCATTGGGTAT
CATGCCAACAAATTCAACAACACAGGTAGATACGATACTTGAGAAGAATGT
GACTGTCACACACTCAATTGAATTGCTGGAAAATCAGAAGGAAGAAAGAT
TCTGCAAGATATTGAACAAGGCCCTCTCGACTTAAGGGAATGTACCATA
GAGGGTTGGATCTTGGGGAATCCCCAATGCGACCTATTGCTTGGTGATCA
AAGCTGGTCATACATTGTGGAAAGACCTACTGCTCAAACGGGATCTGCT
ACCCAGGAACCTTAAATGAGGTAGAAGAACTGAGGGCACTTATTGGATCA
GGAGAAAGGGTAGAGAGATTTGAGATGTTTCCCCAAAGCACCTGGCAAG
GAGTTGACACCAACAGTGGAACAACAAGATCCTGCCCTTATTCTACTGGT
GCGTCTTTCTACAGAAACCTCCTATGGATAATAAAAACCAAGACAGCAGA
ATATCCAGTAATTAAGGGAATTTACAACAACACTGGAACCCAGCCAATCCT
CTATTTCTGGGGTGTGCATCATCCTCCTAACACCGACGAGCAAGATACTC
TGTATGGCTCTGGTGATCGATACGTTAGAATGGGAACTGAAAGCATGAAT
TTTGCCAAGAGTCCGGAAATTGCGGCAAGGCCTGCTGTGAATGGACAAA
GAGGCAGAATTGATTATTATTGGTCGGTTTTAAACCAGGGGAAACCTTG
AATGTGGAATCTAATGGAAATCTAATCGCCCCTTGGTATGCATACAAATTT
GTCAACACAAATAGTAAAGGAGCCGTCTTCAGGTCAGATTTACCAATCGA
GAACTGCGATGCCACATGCCAGACTATTGCAGGGGTTCTAAGGACCAATA
AAACATTTCAGAATGTGAGTCCCCTGTGGATAGGAGAATGTCCCAAATAC
GTGAAAAGTGAAAGTCTGAGGCTTGCAACTGGACTAAGAAATGTTCCACA
GATTGAACTAGAGGACTCTTCGGAGCTATTGCAGGGTTTATTGAAGGAG
GATGGACTGGGATGATAGATGGGTGGTATGGCTATCACCATGAAAATTCT
CAAGGGTCAGGATATGCAGCAGACAGAGAAAGCACTCAAAGGCTGTAA
ACAGAATTACAAATAAGGTCAATTCCATCATCAACAAAATGAACACACAAT
TTGAAGCTGTGATCACGAATTTTCAAATCTGGAGAGGAGAATTGACAAT
CTGAACAAAAGAATGCAAGATGGATTTCTGGATGTTTGGACATACAATGC
TGAAGTGTGGTTCTTCTTGAAAACGAAAGAACTAGACATGCATGACG
CAAATGTGAAGAACCTACATGAAAAGGTCAAATCACAACTAAGGGACAAT
GCTACGATCTTAGGGAATGGTTGCTTTGAATTTTGGCATAAGTGTGACAAT
GAATGCATAGAGTCTGTCAAAAATGGTACATATGACTATCCCAAATACCAG
ACTGAAAGCAAATTAACAGGCTAAAAATAGAATCAGTAAAGCTAGAGAAC
CTTGGTGTGTATCAAATCTTGCCATTTATAGTACGGTATCGAGCAGCCTA
GTGTTGGTAGGGCTGATCATGGCAATGGGTCTTTGGATGTGTTCAAATGG
TTCAATGCAGTGCAGGATATGTATATAAGAGCTC

Fig. 38

SEQ ID NO: 46

CACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGAGAAGA
GACTAATTAATTAATTAATCATCTTGAGAGAAAATGAAACTCAAATTCTAA
TATTAGCCACTTCGGCATTCTTCTATGTACGTGCAGATAAAATCTGCCTAG
GACATCATGCTGTGTCTAATGGAACCAAAGTAGACACCCTTACTGAAAAA
GGAATAGAAGTTGTCAATGCAACAGAAACAGTTGAACAAACAAACATCCC
TAAGATCTGCTCAAAAGGAAAACAGACTGTTGACCTTGGTCAATGTGGAT
TACTAGGGACCGTTATTGGTCCTCCCCAATGTGACCAATTTCTTGAGTTCT
CTGCTAATTTAATAGTTGAAAGAAGGGAAGGTAATGACATTTGTTATCCAG
GCAAATTTGACAATGAAGAAACATTGAGAAAAATACTCAGAAAATCCGGA
GGAATTA AAAAGGAGAATATGGGATTCACATATACCGGAGTGAGAACCAA
TGGAGAGACTAGCGCATGTAGAAGGTCAAGATCTTCCTTTTATGCAGAGA
TGAAATGGCTTCTATCCAGCACAGACAATGGGACATTTCCACAAATGACA
AAGTCCTACAAGAACAATAAGAAGGTACCAGCTCTGATAATCTGGGGAAT
CCACCACTCAGGATCAACTACTGAACAGACTAGATTATATGGAAGTGGGA
ATAAATTGATAACAGTTTGGAGTTCCAAATACCAACAATCTTTTGTCCCAA
ATCCTGGACCAAGACCGCAAATGAATGGTCAATCAGGAAGAATTGACTTT
CACTGGCTGATGCTAGATCCCAATGATACTGTCACTTTCAGTTTTAATGGG
GCCTTTATAGCACCTGACCGCGCCAGTTTTCTAAGAGGTAAATCTCTAGG
AATCCAAAGTGATGCACAACCTTGACAATAATTGTGAAGGTGAATGCTATCA
TATTGGAGGTACTATAATTAGCAACTTGCCCTTTCAAAACATTAATAGTAG
GGCAATCGGAAAATGCCCCAGATACGTGAAGCAGAAGAGCTTAATGCTA
GCAACAGGAATGAAAAATGTTCTGAAGCTCCTGCACATAAACAACTAAC
TCATCACATGCGCAAAAAAAGAGGTTTTATTTGGTGCAATAGCAGGATTCAT
TGAAAATGGGTGGGAAGGATTAATAGACGGATGGTATGGATATAAGCATC
AGAATGCACAAGGAGAAGGGACTGCTGCAGACTACAAAAGTACACAATCT
GCTATCAACCAAATAACCGGAAAATTGAACAGACTAATAGAAAAAACCAAC
CAGCAATTCGAACTAATAGATAATGAGTTCAATGAAATAGAAAAACAAATT
GGCAATGTTATTA ACTGGACTAGAGATTCTATCATCGAAGTATGGTCATAT
AATGCAGAGTTCCTCGTAGCAGTGGAGAATCAACACACTATTGATTTAACT
GACTCAGAAATGAACAACTATATGAAAAGGTAAGAAGACAACCTGAGAGA
AAATGCTGAGGAAGATGGTAATGGCTGTTTTGAAATATTCCACCAATGTG
ACAATGATTGCATGGCCAGCATTAGAAACAACACATATGACCATAAAAAAT
ACAGAAAAGAGGCAATACAAAACAGAAATCCAGATTGACGCAGTAAAGTTG
AGCAGTGGTTACAAAGATATAATACTTTGGTTTAGCTTCGGGGGCATCATG
TTTCTTATTTCTTGCCATTGCAATGGGTCTTGTTTTCATATGTATAAAAAAT
GGAAACATGCGGTGCACTATTTGTATATAAGAGCTC

Fig. 39

SEQ ID NO: 47

CACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGAGAAGA
GACTAATTAATTAATTAATCATCTTGAGAGAAAATGGAAACAATATCACTAA
TAACTATACTACTAGTAGTAACAGCAAGCAATGCAGATAAAATCTGCATCG
GCCACCAGTCAACAACTCCACAGAACTGTGGACACGCTAACAGAAACC
AATGTTCTGTGACACATGCCAAAGAATTGCTCCACACAGAGCATAATGGA
ATGCTGTGTGCAACAAGCCTGGGACATCCCCTCATTCTAGACACATGCAC
TATTGAAGGACTAGTCTATGGCAACCCTTCTTGTGACCTGCTGTTGGGAG
GAAGAGAATGGTCCTACATCGTCGAAAGATCATCAGCTGTAAATGGAACG
TGTTACCCTGGGAATGTAGAAAACCTAGAGGAACTCAGGACACTTTTTAGT
TCGCTAGTTCTTACCAAAGAATCCAAATCTTCCCAGACACAACCTGGAAT
GTGACTTACACTGGAACAAGCAGAGCATGTTTCAGGTTTATTCTACAGGAG
TATGAGATGGCTGACTCAAAAGAGCGGTTTTTACCCTGTTCAAGACGCC
AATACACAAATAACAGGGGAAAGAGCATTCTTTTCGTGTGGGGCATA
CACCACCCACCTATACCGAGCAAACAATTTGTACATAAGAAACGACACA
ACAACAAGCGTGACAACAGAAGATTTGAATAGGACCTTCAAACAGTGATA
GGGCCAAGGCCCTTGTCAATGGTCTGCAGGGAAGAATTGATTATTATTG
GTCGGTACTAAAACAGGCCAAACATTGCGAGTACGATCCAATGGGAATC
TAATTGCTCCATGGTATGGACACGTTCTTTCAGGAGGGAGCCATGGAAGA
ATCCTGAAGACTGATTTAAAGGTGGTAATTGTGTAGTGCAATGTCAGACT
GAAAAAGGTGGCTTAAACAGTACATTGCCATTCCACAATATCAGTAAATAT
GCATTTGGAACCTGCCCCAAATATGTAAGAGTTAATAGTCTCAAACCTGGCA
GTCGGTCTGAGGAACGTGCCTGCTAGATCAAGTAGAGGACTATTTGGAGC
CATAGCTGGATTCATAGAAGGAGGTTGGCCAGGACTAGTCGCTGGCTGG
TATGGTTTCCAGCATTCAAATGATCAAGGGGTTGGTATGGCTGCAGATAG
GGATTCAACTCAAAGGCAATTGATAAAATAACATCCAAGGTGAATAATAT
AGTCGACAAGATGAACAAGCAATATGAAATAATTGATCATGAATTTAGTGA
GGTTGAAACTAGACTCAATATGATCAATAATAAGATTGATGACCAAATACA
AGACGTATGGGCATATAATGCAGAATTGCTAGTACTACTTGAAAATCAAAA
AACACTCGATGAGCATGATGCGAACGTGAACAATCTATATAACAAGGTGA
AGAGGGCACTGGGCTCCAATGCTATGGAAGATGGGAAAGGCTGTTTCGA
GCTATACCATAAATGTGATGATCAGTGCATGGAAACAATTCGGAACGGGA
CCTATAATAGGAGAAAGTATAGAGAGGAATCAAGACTAGAAAGGCAGAAA
ATAGAGGGGGTTAAGCTGGAATCTGAGGGAACTTACAAAATCCTCACCAT
TTATTCGACTGTCGCCTCATCTCTTGTGCTTGCAATGGGGTTTGCTGCCTT
CCTGTTCTGGGCCATGTCCAATGGATCTTGCAGATGCAACATTTGTATATA
AGAGCTC

Fig. 40A

SEQ ID NO: 48

MKVKLLVLLCTFTATYADTICIGYHANNSTDVDTVLEKNVTVTHSVNLLNSH
NGKLCLLKGIAPLQLGNCSVAGWILGNPECELLISKESWSYIVEKPNPENGTCY
PGHFADYEELREQLSSVSSFERFEIFPKESSWPNHVTGVSASCSHNGESSF
YRNLLWLTGKNGLYPNLSKSYANNKEKEVLVLWGVHPPNIGDQKALYHTEN
AYVSVSSHYSRKFTPEIAKRPKVRDQEGRINYWTLLPGDTIIFEANGNLIAP
RYAFALSRGFGSGIINSNAPMDKCDKACQTPQGAINSSLPFQNVHPVTIGEC
KYVRSACLRLMVTGLRNIPSIQSRGLFGAIAAGFIEGGWTGMVDGWYGYHHQNE
QSGGYAADQKSTQNAINGITNKVNSVIEKMNTQFTAVGKEFNKLERRMENLNK
KVDDGFIDIWTYNAELLVLLNERTLDFHDSNVKNLYEKVKSQKNNAKEIGNG
CFEFYHKCNDECMESVKNGTYDYPKYSEESKLNREKIDGVKLESMGVYQILAI
YSTVASSLVLLVSLGAISFWMCNGLSLQCRICI

Fig. 40B

SEQ ID NO: 49

MKVKLLVLLCTFTATYADTICIGYHANNSTDVDTVLEKNVTVTHSVNLLDSH
NGKLCLLKGIAPLQLGNCSVAGWILGNPECELLISRESWSYIVEKPNPENGTCY
PGHFADYEELREQLSSVSSFERFEIFPKESSWPNHHTTGVSASCSHNGESSFY
KNLLWLTGKNGLYPNLSKSYANNKEKEVLVLWGVHPPNIGDQQRALYHKENA
YVSVSSHYSRKFTPEIAKRPKVRDQEGRINYWTLLPGDTIIFEANGNLIAPR
YAFALSRGFGSGIINSNAPMDECDKACQTPQGAINSSLPFQNVHPVTIGEC
YVRSACLRLMVTGLRNIPSIQSRGLFGAIAAGFIEGGWTGMVDGWYGYHHQNEQ
GSGGYAADQKSTQNAINGITNKVNSVIEKMNTQFTAVGKEFNKLERRMENLNK
VDDGFIDIWTYNAELLVLLNERTLDFHDSNVKNLYEKVKSQKNNAKEIGNGC
FEFYHKCNDECMESVKNGTYDYPKYSEESKLNREKIDGVKLESMGVYQILAIY
STVASSLVLLVSLGAISFWMCNGLSLQCRICI

Fig. 41A

SEQ ID NO: 50

MKTIIALSYILCLVFTQKLPGNDNSTATLCLGHHAVPNGTIVKTITNDQIEVTN
ATELVQSSSTGEICDSPHQILDGENCTLIDALLGDPQCDGFQNKKWDLFVE
RSKAYSNCYPYDVPDYASLRSLVASSGTLEFNNEFSNWTGVTQNGTSSA
CIRRSNNSFFSRLNWLTHLKFKYPALNVTMPNNEKFDKLYIWGVHHPGTD
NDQIFLYAQASGRITVSTKRSQQTVIPNIGSRPRVRNIPSRISYWTIVKPGDI
LLINSTGNLIAPRGYFKIRSGKSSIMRSDAPIGKCNSECITPNGSIPNDKPFQ
NVNRITYGACPRYVKQNTLKLATGMRNVPEKQTRGIFGAIAGFIENGWEG
MVDGWYGFRRHQNSEGIGQAADLKSTQAAIDQINGKLNRLIGKTNEKFHQIE
KEFSEVEGRIQDLEKYVEDTKIDLWSYNAELLVALENQHTIDLTDSMNKLF
EKTKKQLRENAEDMGNGCFKIYHKCDNACIGSIRNGTYDHDVYRDEALNN
RFQIKGVELKSGYKDWILWISFAISCFLLCVALLGFIMWACQKGNIRCNICI

Fig. 41B

SEQ ID NO: 51

MKTIIALSYILCLVFTQKLPGNDNSTATLCLGHHAVPNGTIVKTITNDQIEVTN
ATELVQSSSTGGICDSPHQILDGENCTLIDALLGDPQCDGFQNKKWDLFVE
RSKAYSNCYPYDVPDYASLRSLVASSGTLEFNDEFSNWTGVTQNGTSSA
CKRRSNNSFFSRLNWLTHLKFKYPALNVTMPNNEKFDKLYIWGVHHPGTD
NDQIFLHAQASGRITVSTKRSQQTVIPNIGSRPRIRNIPSRISYWTIVKPGDI
LLINSTGNLIAPRGYFKIRSGKSSIMRSDAPIGKCNSECITPNGSIPNDKPFQ
NVNRITYGACPRYVKQNTLKLATGMRNVPEKQTRGIFGAIAGFIENGWEG
MVDGWYGFRRHQNSEGIGQAADLKSTQAAINQINGKLNRLIGKTNEKFHQIE
KEFSEVEGRIQDLEKYVEDTKIDLWSYNAELLVALENQHTIDLTDSMNKLF
ERTKKQLRENAEDMGNGCFKIYHKCDNACIGSIRNGTYDHDVYRDEALNN
RFQIKGVELKSGYKDWILWISFAISCFLLCVALLGFIMWACQKGNIRCNICI

Fig. 42A

SEQ ID NO: 52

MKAIIVLLMVVTSNADRICTGITSSNSPHVVKATQGEVNVTVIPLTTTPTKS
HFANLKGTETRGKLCPKCLNCTDLDVALGRPCKTGNIPSARVSILHEVRPVT
SGCFPIIMHDRTKIRQLPKLLRGYEHRLSTHNVINAENAPGGPYKIGTSGSCP
NVTNGNGFFATMAWAVPKNDNNKTATNSLTIEVPYICTEGEDQITVWGFHS
DNETQMAKLYGDSKPQKFTSSANGVTTHYVSQIGGFNPQTEDGGLPQSGRI
VVDYMVQKSGKTGTITYQRGILLPQKVWCASGRSKVIKGSPLIGEADCLHE
KYGGLNKSKPYTGEHAKAIGNCPIWVKTPKLANGTKYRPPAKLLKERGFF
GAIAGFLEGGWEGMIAGWHGYTSHGAHGVAVAADLKSTQEAINKITKNLNS
LSELEVKNLQRLSGAMDELHNEILELDEKVDDL RADTISSQIELAVLLSNEGIIN
SEDEHLLALERKLLKMLGPSAVEIGNGCFETKHKCNQTCLDRIAAGTFDAGE
FSLPTFDSL NITAASLNDDGLDNHTILLYSTAASSLAVTLMIAIFVVMVSRD
NVSCSICL

Fig. 42B

SEQ ID NO: 53

MKAIIVLLMVVTSNADRICTGITSSNSPHVVKATQGEVNVTVIPLTTTPTKS
YFANLKGTRTRGKLCPDCLNCTDLDVALGRPMC VGTTPSAKASILHEVKPVT
SGCFPIIMHDRTKIRQLPNLLRGYENIRLSTQNVIDAEKAPGGPYRLGTSGSC
PNATSKSGFFATMAWAVPKDNNKNATNPLTVEVPYICTEGEDQITVWGFHS
DNKTQMKNLYGDSNPQKFTSSANGVTTHYVSQIGSFPDQTEDGGLPQSGRI
VVDYMMQKPGKTGTIVYQRGVLLPQKVWCASGRSKVIKGSPLIGEADCLH
EKYGGLNKSKPYTGEHAKAIGNCPIWVKTPKLANGTKYRPPAKLLKERGF
FGAIAGFLEGGWEGMIAGWHGYTSHGAHGVAVAADLKSTQEAINKITKNLN
SLSELEVKNLQRLSGAMDELHNEILELDEKVDDL RADTISSQIELAVLLSNEGII
NSEDEHLLALERKLLKMLGPSAVEIGNGCFETKHKCNQTCLDRIAAGTFNAG
EFSLPTFDSL NITAASLNDDGLDNHTILLYSTAASSLAVTLMIAIFIVMVSRD
NVSCSICL

Fig. 43A

SEQ ID NO: 54

MAIYLILLFTAVRGDQICIGYHANNSTEKVDILERNVTVTTHAKDILEKTHNGKLC
KLNIGIPPELGDCSIAGWLLGNPECDRLLSVPEWSYIMEKENPRDGLCYPGSF
NDYEELKHLLSSVKHFVKILPKDRWTQHNTTGGSRACAVSGNPSFFRNMV
WLTKKESNYPVAKGSYNNTSGEQMLIIVGVHHPNDETEQRTLYQNVGTYVSV
GTSTLNKRSTPDIAIRPKVNLGSRMEFSWTLLDMWDTINFESTGNLIAPEYGF
KISKRGSSGIMKTEGTLENCETKCQTPLGAINTTLPFHNHPLTIGECPKYVKSE
KLVLATGLRNVPQIESRGLFGAIAGFIEGGWQGMVDGWYGYHHSNDQGSGYA
ADKESTQKAFDGITNKVNSVIEKMNTQFEAVGKEFSNLERRLENLNKKMEDGFL
DVWTYNAELLVLMENERTLDFHDSNVKNLYDKVRMQLRDNVKELGNGCFEFY
HKCDDECMNSVKNGTYDYPKYEEESKLNRNEIKGVKLSSMGVYQILAIYATVAG
SLSLAIMMAGISFWMCSNGSLQCRICI

Fig. 43B

SEQ ID NO: 55

MEKIVLLLAIVSLVKSDQICIGYHANNSTEQVDTIMEKNVTVTTHAQDILEKTHNGK
LCDLDGVKPLILRDCSVAGWLLGNPMCDEFINPEWSYIVEKANPANDLCYPG
NFNDYEELKHLLSRINHFEKIIPKSSWSDEASSGVSSACPYQGTPSFFRNVV
WLIKKNNTYPTIKRSYNNTNQEDLLILWGIHHSNDAAEQTKLYQNPTTYISVGTS
TLNQRLVPKIATRSKVNQSGRMDFFWTILKPNDAINFESNGNFIAPEYAYKIVK
KGDSAIVKSEVEYGNCNTKCQTPIGAINSSMPFHNIHPLTIGECPKYVKSNNKLVL
ATGLRNSPLRERRRRKRGLFGAIAGFIEGGWQGMVDGWYGYHHSNEQGSGYA
ADKESTQKAIDGVTNKVNSIIDKMNTQFEAVGREFNNLERRIENLNKKMEDGFL
DVWTYNAELLVLMENERTLDFHDSNVKNLYDKVRLQLRDNVAKELGNGCFEFYH
KCDNECMESVRNGTYDYPQYSEEARLKREEISGVKLESIGTYQILSIYSTVASSL
ALAIMVAGLSLWMCSNGSLQCRICI

Fig. 44A

SEQ ID NO: 56

MEKIVLLFAIVSLVKSDQICIGYHANNSTEQVDTIMEKNVTVTHAQDILEKTHNGKL
CDLDGVKPLILRDCSVAGWLLGNPMCDEFINVPEWSYIVEKANPVNDLCYPGDF
NDYEELKHLLSRINHFEEKIIPKSSWSSHEASLGVSACPYQGKSSFFRNVWLI
KKNSTYPTIKRSYNNTNQEDLLVLWGIHHPNDAAEQTKLYQNPTTYISVGTSTLN
QRLVPRIATRSKVNGQSGRMEFFWTILKPNDAINFESNGNFIAPEYAYKIVKKGD
STIMKSELEYGNCNTKCQTPMGAINSSMPFHNIHPLTIGECPKYVKSNRLVLATG
LRNSPQRERRRRKKRGLFGAIAGFIEGGWQGMVDGWYGYHHSNEQGSgyAAD
KESTQKAIDGVTNKVNSIIDKMNTQFEAVGREFNNLERRIENLNKKMEDGFLDV
WTYNAELLVLMENERTLDFHDSNVKNLYDKVRLQLRDNAKELGNGCFEFYHKC
DNECMESVRNGTYDYPQYSEEARLKREEISGVKLESIGIYQILSIYSTVASSLALAI
MVAGLSLWMCSNGSLQCRICI

Fig. 44B

SEQ ID NO: 57

MIAIIVAILAAAGKSDKICIGYHANNSTTQVDTILEKNVTVTHSIELLENQKEERFCK
ILNKAPLDLRECTIEGWILGNPQCDLLLDQSWSYIVERPTAQNGICYPGTLNEV
EELRALIGSGERVERFEMFPQSTWQGVDTNSTTRSCPYSTGASFYRNLLWIIK
TKTAEYPIVIGIYNNTGTQPILYFWGVHHPNTDEQDTLYGSGDRYVRMGTESM
NFAKSPEIAARPAVNGQRGRIDYYWSVLKPGETLNVESNGNLIAPWYAYKFVNT
NSKGAVFRSDLPIENC DATCQTIAGVLR TNKTFQNV SPLWIGEC PKYVKSESRLR
ATGLRNVPQIETRGLFGAIAGFIEGGWTGMIDGWYGYHHENSQGSgyAADRES
TQKAVNRITNKVNSIINKMNTQFEAVDHEFSNLERRIDNLNKRMQDGFLDVWTY
NAELLVLENER TLDMHDANVKNLHEKVKSQLRDNATILGNGCFEFWHKCDNEC
IESVKNGTYDYPKYQTESKLNRLKIESVKLENLGVYQILAIYSTVSSSLVLVGLIMA
MGLWMCSNGSMQCRICI

Fig. 45A

SEQ ID NO: 58

MNTQILILATSAFFYVRADKICLGHHAVSNGTKVDTLTEKGIEVFNATETVEQT
NIPKICSKGKQTVDLGQCGLLGTVIGPPQCDQFLEFSANLIVERREGNDICYPG
KFDNEETLRKILRKSGGIKKENMGFTYTGVRTNGETSACRRSRSSFYAEMKW
LLSSTDNGTFPQMTKSYKNTKKVPALIIWGIHHSGSTTEQTRLYGSGNKLITV
WSSKYQQSFVPNPGRPRQMNGQSGRIDFWLMLDPNDTVTFSFNGAFIAPD
RASFLRGKSLGIQSDAQLDNNCEGECYHIGGTIISNLPFQINNSRAIGKCPRYV
KQKSLMLATGMKNVPEAPAHKQLTHHMRKKRGLFGAAGFIENGWEGIDG
WYGYKHQNAQGEGTAADYKSTQSAINQITGKLNRLIEKTNQQFELIDNEFNEI
EKQIGNVINWTRDSIIEVWSYNAEFLVAVENQHTIDLTDSMNKLYEKVRRQL
RENAEEDGNGCFEIFHQCDNDCMASIRNNTYDHKKYRKEAIQNRIDAVKLS
SGYKDILWFSFGASCFLFLAIAMGLVFICIKNGNMRICTICI

Fig. 45B

SEQ ID NO: 59

METISLITILLVVTASNADKICIGHQSTNSTETVDTLTETNVPVTHAKELLHTEHN
GMLCATSLGHPLILDCTIEGLVYGNPSCDLLLGGREWSYIVERSSAVNGTCY
PGNVENLEELRTLFSASSYQRIQIFPDTTWNVTYTGTSRACSGSFYRSMRW
LTQKSGFYVPVQDAQYTNNRGKSILFWWGIHHPPTYTEQTNLYIRNDTTTSVTT
EDLNRTFKPVIGPRPLVNGLQGRIDYYWSVLKPGQTLRVRSNGNLIAPWYGH
VLSGGSHGRILKTDLKGGNCVVQCQTEKGGLNSTLPFHNISKYAFGTCPKYV
RVNSLKLAVGLRNVPARSSRGLFGAAGFIEGGWPGLVAGWYGFQHSNDQG
VGMAADRSTQKAIDKITSKVNNIVDKMNKQYEIIDHEFSEVETRLNMINNKID
DQIQDWAYNAELLVLENQKTLDEHDANVNNLYNKVKRALGSNAMEDGKG
CFELYHKCDDQCMETIRNGTYNRRKYREESRLERQKIEGVKLESEGTYKILTI
YSTVASSLVLAMGFAAFLFWAMSNGSCRCNICI

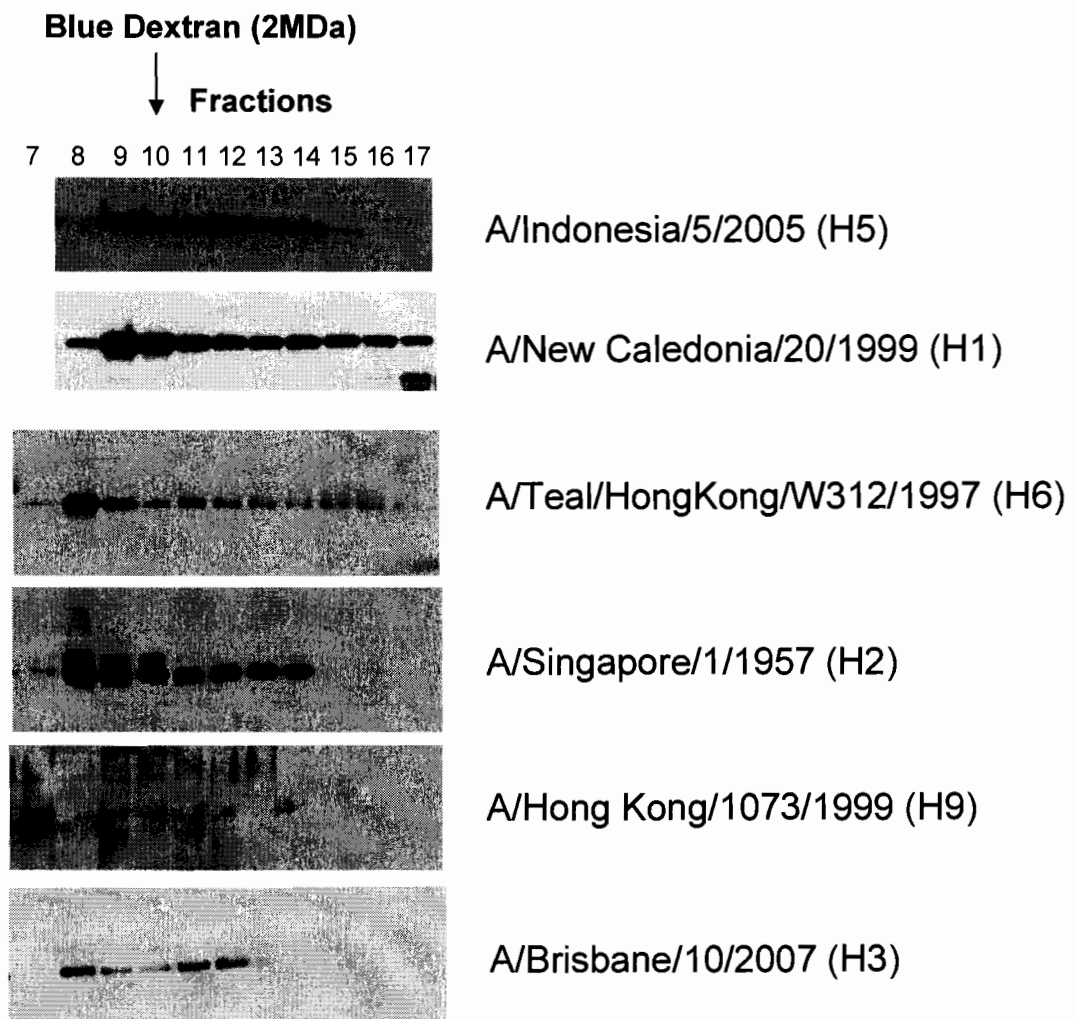
Fig.46

Fig. 47

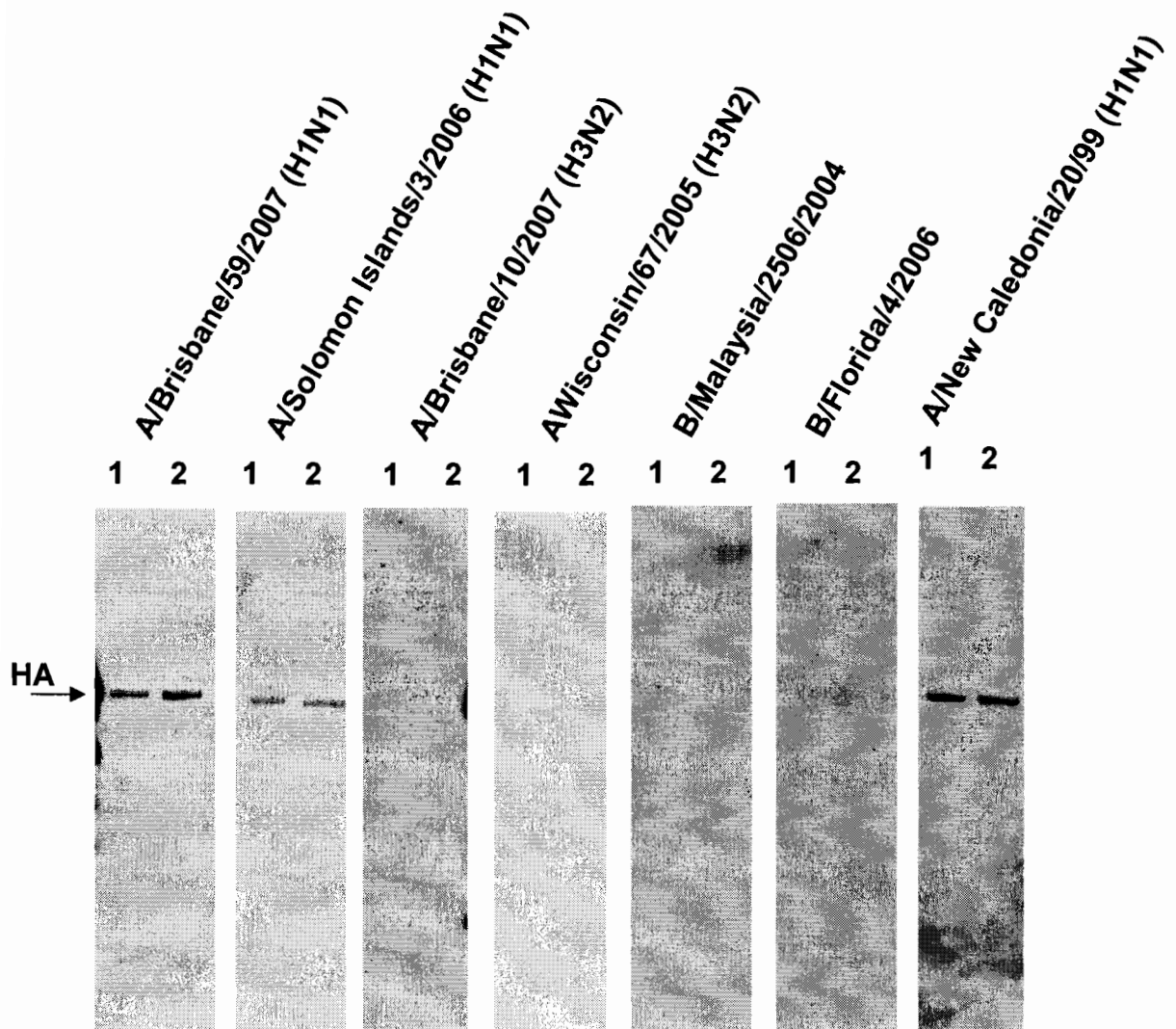


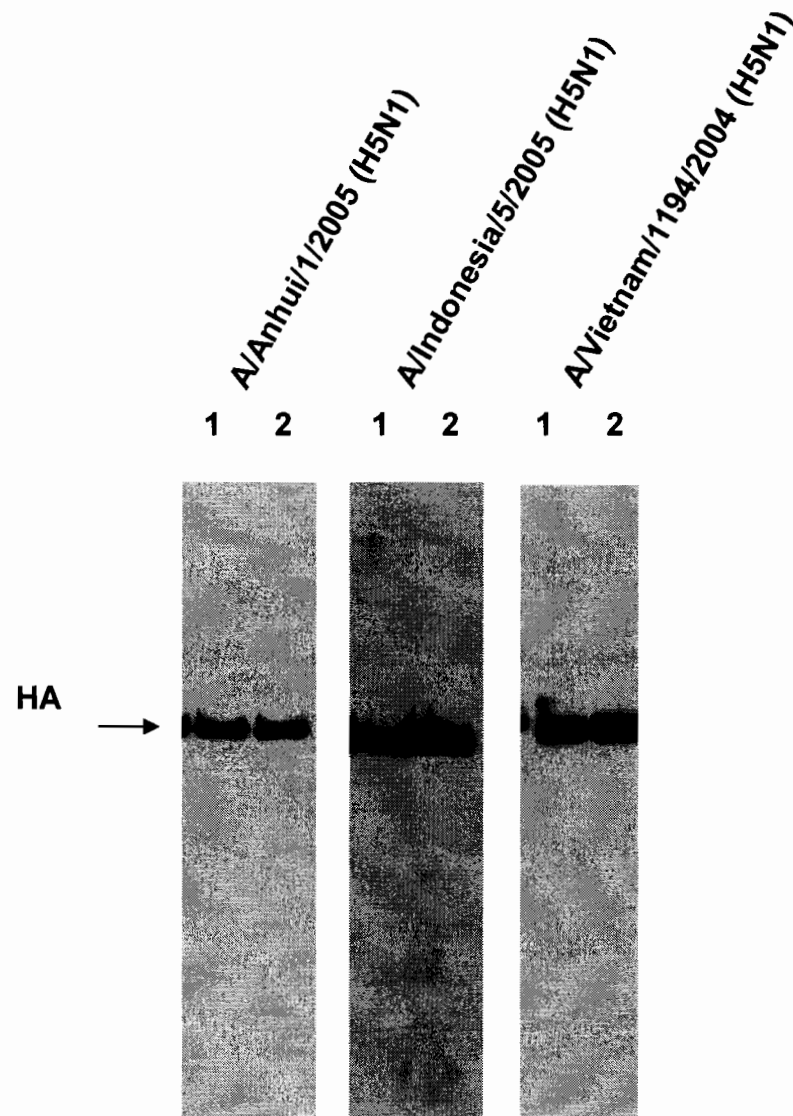
Fig. 48a

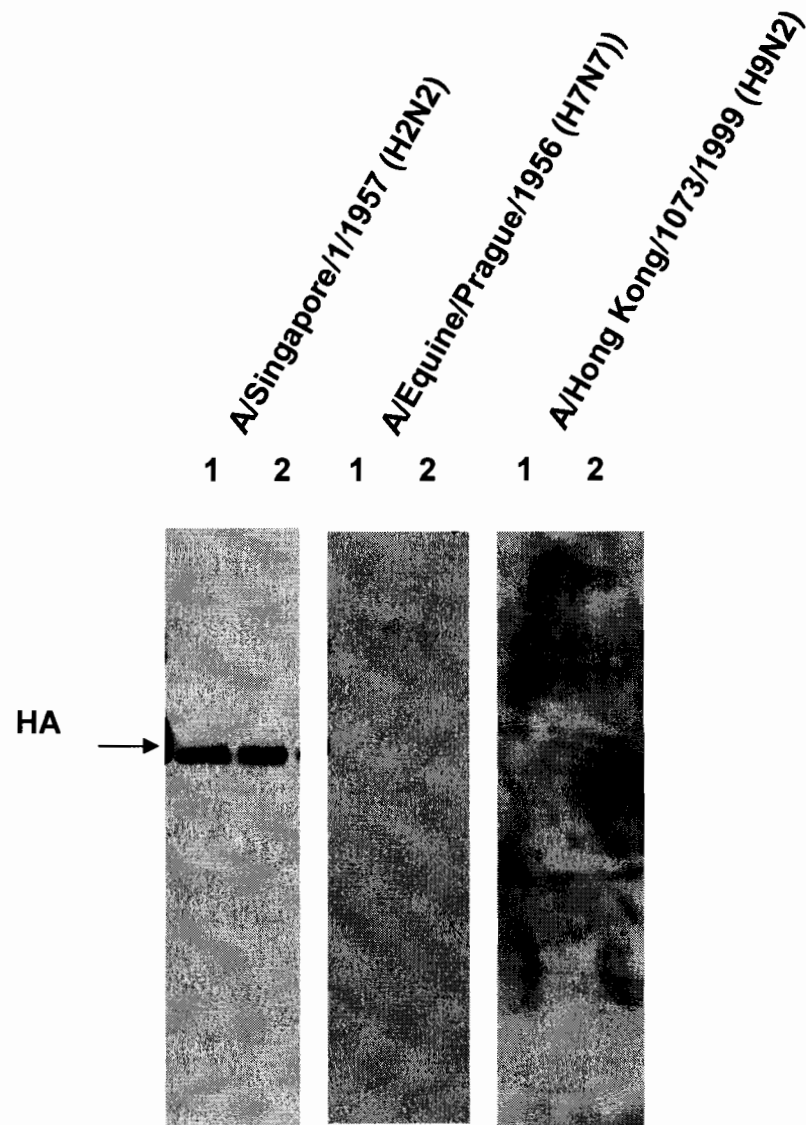
Fig. 48b

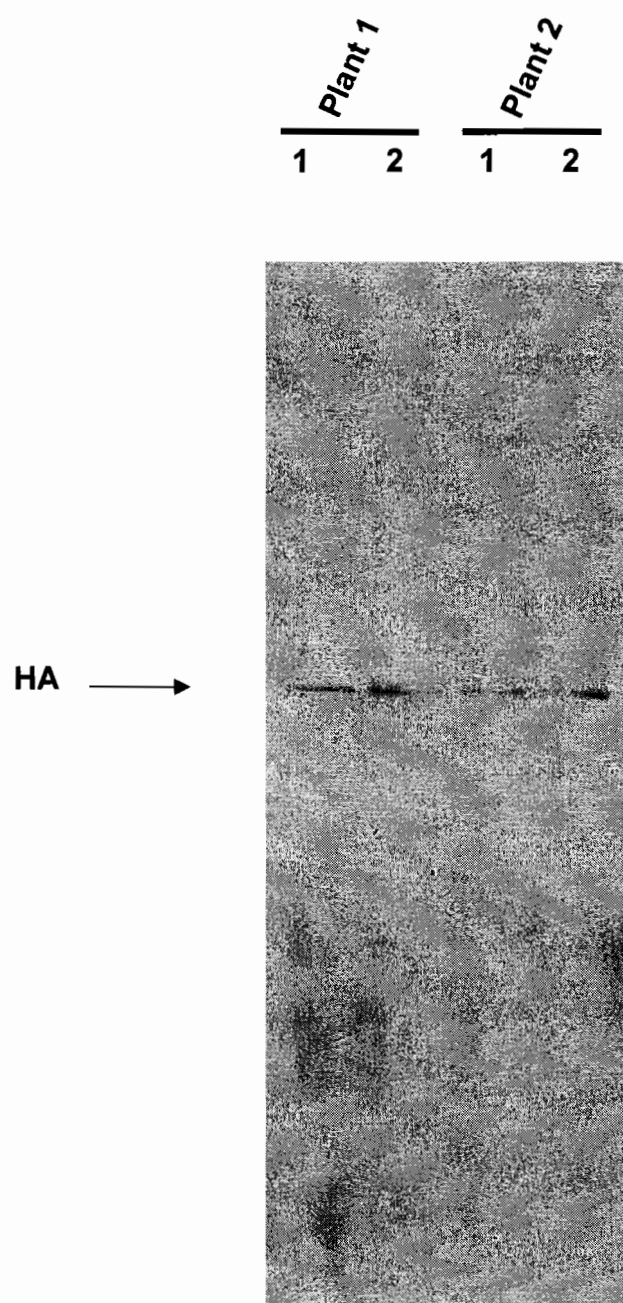
Fig. 49

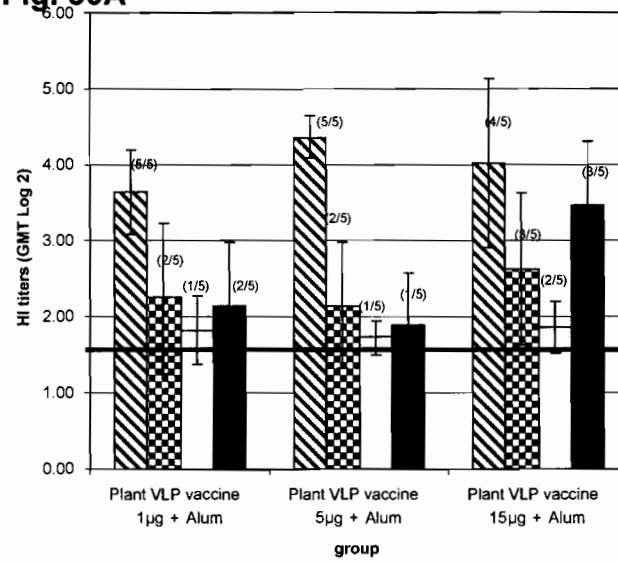
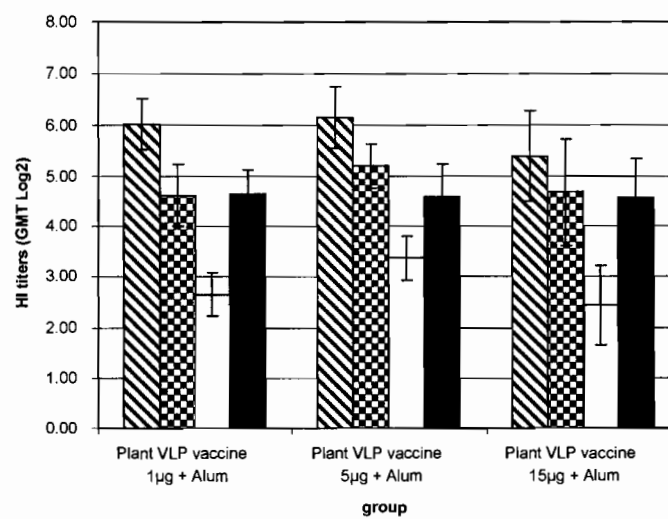
Fig. 50A**Fig. 50B**

Fig. 51

SEQ ID NO: 60

H5 from A/Indonesia/5/2005 (Construct # 660)

AGAGGTACCCCGGGCTGGTATATTTATATGTTGTCAAATAACTCAAAAACCATAAAAGTTTAAGTT
AGCAAGTGTGTACATTTTTACTTGAACAAAAATATTCACCTACTACTGTTATAAATCATTATTTAAAC
ATTAGAGTAAAGAAATATGGATGATAAGAACAAGAGTAGTGATATTTTGACAACAATTTTGTTGCA
ACATTTGAGAAAATTTTGTTGTTCTCTCTTTTCATTGGTCAAAAACAATAGAGAGAGAGAAAAAGGAA
GAGGGAGAATAAAAAACATAATGTGAGTATGAGAGAGAAAAGTTGTACAAAAGTTGTACCAAAATAG
TTGTACAAATATCATTGAGGAATTTGACAAAAGCTACACAAATAAGGGTTAATTGCTGTAAATAAA
TAAGGATGACGCATTAGAGAGATGTACCATTAGAGAATTTTTGGCAAGTCATTAAGAAAGAAAGAAT
AAATTATTTTTAAATTAAGTTGAGTCATTTGATTAAACATGTGATTATTTAATGAATTGATGAAA
GAGTTGGATTAAAGTTGTATTAGTAATTAGAATTTGGTGTCAAATTTAATTTGACATTTGATCTTTT
CCTATATATTGCCCCATAGAGTCAGTTAACTCATTTTTATATTTTCATAGATCAAATAAGAGAAATAA
CGGTATATTAATCCCTCCAAAAAAGAGCGGTATATTTACTAAAAAATCTAAGCCACGTAGGAG
GATAACAGGATCCCGTAGGAGGATAACATCCAATCCAACCAATCACAACAATCCTGATGAGATA
ACCCACTTTAAGCCACGCATCTGTGGCACATCTACATTATCTAAATCACACATTCTTCCACACAT
CTGAGCCACACAAAAACCAATCCACATCTTTATCACCCATTCTATAAAAAATCACACTTTGTGAGT
CTACACTTTGATTCCCTTCAAACACATACAAAGAGAAGAGACTAATTAATTAATTAATCATCTTGA
GAGAAAATGGAGAAAATAGTGCTTCTTCTTGCAATAGTCAGTCTTGTTAAAAGTGATCAGATTTGC
ATTGGTTACCATGCAAACAATTCAACAGAGCAGGTTGACACAATCATGGAAAAGAACGTTACTGT
TACACATGCCCAAGACATACTGGAAAAGACACACAACGGGAAGCTCTGCGATCTAGATGGAGTG
AAGCCTCTAATTTTAAGAGATTGTAGTGTAGCTGGATGGCTCCTCGGGAACCCAATGTGTGACGA
ATTCATCAATGTACCGGAATGGTCTTACATAGTGGAGAAGGCCAATCCAACCAATGACCTCTGTT
ACCCAGGGAGTTTCAACGACTATGAAGAAGTGAACACCTATTGAGCAGAATAAACCATTTTGAG
AAAATTCAAATCATCCCCAAAAGTTCTTGGTCCGATCATGAAGCCTCATCAGGAGTTAGCTCAGC
ATGTCCATACCTGGGAAGTCCCTCCTTTTTAGAAATGTGGTATGGCTTATCAAAAAGAACAGTA
CATACCCAACAATAAAGAAAAGCTACAATAATACCAACCAAGAGGATCTTTTGGTACTGTGGGGA
ATTCACCATCCTAATGATGCGGCAGAGCAGACAAGGCTATATCAAAACCAACCACTATATTTT
CATTGGGACATCAACACTAAACCAGAGATTGGTACCAAAAATAGCTACTAGATCCAAAGTAAACG
GGCAAAGTGGAAGGATGGAGTTCTTCTGGACAATTTTAAACCTAATGATGCAATCAACTTCGAG
AGTAATGGAAATTTATTGCTCCAGAATATGCATACAAAATTGTCAAGAAAGGGGACTCAGCAATT
ATGAAAAGTGAATTGGAATATGGTAACTGCAACACCAAGTGTCAAACCTCAATGGGGGCGATAAA
CTCTAGTATGCCATTCCACAACATACACCTCTCACCATCGGGGAATGCCCAAATATGTGAAAT
CAAACAGATTAGTCCTTGCAACAGGGCTCAGAAATAGCCCTCAAAGAGAGAGCAGAAGAAAAA
GAGAGGACTATTTGGAGCTATAGCAGGTTTTATAGAGGGAGGATGGCAGGGAATGGTAGATGGT
TGGTATGGGTACCACCATAGCAATGAGCAGGGGAGTGGGTACGCTGCAGACAAAGAATCCACTC
AAAAGGCAATAGATGGAGTCACCAATAAGGTCAACTCAATCATTGACAAAATGAACACTCAGTTT
GAGGCCGTTTGAAGGGAATTTAATACTTAGAAAAGGAGAATAGAGAATTTAAACAAGAAGATGGA
AGACGGGTTTCTAGATGTCTGGACTTATAATGCCGAACCTCTGGTTCTCATGGAAAATGAGAGAA
CTCTAGACTTTTATGACTCAAATGTTAAGAACCTCTACGACAAGGTCCGACTACAGCTTAGGGAT
AATGCAAAGGAGCTGGGTAAACGGTTGTTTCGAGTTCTATCACAATGTGATAATGAATGTATGGA
AAGTATAAGAAACGGAACGTACAACCTATCCGCAGTATTCAGAAGAAGCAAGATTAAAAAGAGAGG
AAATAAGTGGGGTAAAATTGGAATCAATAGGAACCTACCAATACTGTCAATTTATTCAACAGTGG
CGAGTTCCCTAGCACTGGCAATCATGATGGCTGGTCTATCTTTATGGATGTGCTCCAATGGATCG
TTACAATGCAGAATTTGCATTTAAGAGCTCTAAGTTAAAATGCTTCTTCGTCTCTTATTATTAATAT
GGTTTGTTATTGTTAATTTTGTTCTTGTAGAAGAGCTTAATTAATCGTTGTTGTTATGAAATACTAT
TTGTATGAGATGAACTGGTGAATGTAATTCATTACATAAGTGGAGTCAGAATCAGAATGTTTCC
TCCATAACTAACTAGACATGAAGACCTGCCGCGTACAATTGTCTTATATTTGAACAACATAAATTG
AACATCTTTTGCCACAACCTTATAAGTGGTTAATATAGCTCAAATATATGGTCAAGTTCAATAGATT
AATAATGGAAATATCAGTTATCGAAATTCATTAACAATCAACTTAACGTTATTAATACTAATTTTAT
ATCATCCCTTTGATAAATGATAGTACA

Fig. 52

SEQ ID NO: 61

H1 from A/New Caledonia/20/1999 (Construct # 540)

AGAGGTACCCCGGGCTGGTATATTTATATGTTGTCAAATAACTCAAAAACCATATAAAGTTTAAGTT
AGCAAGTGTGTACATTTTTACTTGAACAAAAATATTCACCTACTACTGTTATAAATCATTATTAAAC
ATTAGAGTAAAGAAATATGGATGATAAGAACAAGAGTAGTGATATTTTGACAACAATTTTGTTGCA
ACATTTGAGAAAATTTTGTTGTTCTCTCTTTTCATTGGTCAAAAACAATAGAGAGAGAAAAAGGAA
GAGGGAGAATAAAAAACATAATGTGAGTATGAGAGAGAAAGTTGTACAAAAGTTGTACCAAAATAG
TTGTACAAATATCATTGAGGAATTTGACAAAAGCTACACAAATAAGGGTTAATTGCTGTAAATAAA
TAAGGATGACGCATTAGAGAGATGTACCATTAGAGAATTTTTGGCAAGTCATTA AAAAGAAAGAA
TAAATTATTTTTAAATTA AAAAGTTGAGTCATTTGATTAAACATGTGATTATTTAATGAATTGATGAA
AGAGTTGGATTAAAGTTGTATTAGTAATTAGAATTTGGTGTCAAATTTAATTTGACATTTGATCTTT
TCCTATATATTGCCCATAGAGTCAAGTTAACTCATTTTTATATTTATAGATCAAATAAGAGAAATA
ACGGTATATTAATCCCTCCAAAAA AAAAAACGGTATATTTACTAAAAATCTAAGCCACGTAGGA
GGATAACAGGATCCCGTAGGAGGATAACATCCAATCCAACCAATCACACAATCCTGATGAGA
TAACCCACTTTAAGCCCACGCATCTGTGGCACATCTACATTATCTAAATCACACATTCTTCCACAC
ATCTGAGCCACAAAAACCAATCCACATCTTTATCACCCATTCTATAAAAAATCACACTTTGTGA
GTCTACACTTTGATTCCCTTCAAACACATACAAAGAGAAGAGACTAATTAATTAATTAATCATCTT
GAGAGAAAATGGCGAAAAACGTTGCGATTTTCGGCTTATTGTTTTCTCTTCTTGTGTTGGTTCCTT
CTCAGATCTTCGCTGACACAATATGTATAGGCTACCATGCCAACAACTCAACCGACACTGTTGAC
ACAGTACTTGAGAAGAATGTGACAGTGACACACTCTGTCAACCTACTTGAGGACAGTCACAAATG
GAAAACTATGTCTACTAAAAGGAATAGCCCCACTACAATTGGGTAATTGCAGCGTTGCCGGATG
GATCTTAGGAAACCCAGAATGCGAATTACTGATTTCCAAGGAATCATGGTCCTACATTGTAGAAA
CACCAATCCTGAGAATGGAACATGTTACCCAGGGTATTTGCGCGACTATGAGGAACTGAGGGA
GCAATTGAGTTCAGTATCTTCATTTGAGAGATTGAAATATTTCCCAAGAAAGCTCATGGCCCA
ACCACACCGTAACCGGAGTATCAGCATCATGCTCCCATAAATGGGAAAAGCAGTTTTTACAGAAAT
TTGCTATGGCTGACGGGGAAGAATGGTTTGTACCCAAACCTGAGCAAGTCCTATGTAAACAACA
AAGAGAAAGAAGTCCTTGTACTATGGGGTGTTTCATCACCCGCCTAACATAGGGAACCAAAGGGC
ACTCTATCATACAGAAAATGCTTATGTCTCTGTAGTGTCTTCACATTATAGCAGAAGATTCACCCC
AGAAATAGCCAAAAGACCCAAAGTAAGAGATCAGGAAGGAAGAATCAACTACTACTGGACTCTG
CTGGAACCTGGGGATACAATAATTTGAGGCAAATGGAAATCTAATAGCGCCATGGTATGCTTT
TGCACTGAGTAGAGGCTTTGGATCAGGAATCATCACCTCAAATGCACCAATGGATGAATGTGAT
GCGAAGTGTCAAACACCTCAGGGAGCTATAACAGCAGTCTTCTTTCCAGAATGTACACCCAG
TCACAATAGGAGAGTGTCCAAAGTATGTCAGGAGTGCAAAATTAAGGATGGTTACAGGACTAAG
GAACATCCCATCCATTCAATCCAGAGGTTTGTGGAGCCATTGCCGGTTTCATTGAAGGGGGG
TGGACTGGAATGGTAGATGGGTGGTATGGTTATCATCATCAGAATGAGCAAGGATCTGGCTATG
CTGCAGATCAAAAAAGTACACAAAATGCCATTAACGGGATTACAAACAAGGTCAATTCTGTAAAT
GAGAAAATGAACACTCAATTCACAGCTGTGGGCAAAAGAGTTCAACAAATTGGAAAGAAGGATGG
AAAACCTAAATAAAAAAGTTGATGATGGGTTTCTAGACATTTGGACATATAATGCAGAATTGTTGG
TTCTACTGGAAAATGAAAGGACTTTGGATTTCCATGACTCCAATGTGAAGAATCTGTATGAGAAA
GTAAAAAGCCAATTAAGAATAATGCCAAAGAAATAGGAAACGGGTGTTTTGAGTTCTATCAAA
GTGTAACAATGAATGCATGGAGAGTGTGAAAAATGGTACCTATGACTATCCAAAATATTCCGAAG
AATCAAAGTTAAACAGGGAGAAAATTGATGGAGTGAAATTGGAATCAATGGGAGTATACCAGATT
CTGGCGATCTACTCAACTGTCGCCAGTTCCCTGGTTCTTTTGGTCTCCCTGGGGGCAATCAGCT
TCTGGATGTGTTCCAATGGGTCTTTGCAGTGTAGAATATGCATCTAAGAGCTCTAAGTTAAATG
CTTCTTCGTCTCCTATTTATAATATGGTTTGTATTGTTAATTTTGTCTTGTAGAAGAGCTTAATT
AATCGTTGTTGTTATGAAATACTATTTGTATGAGATGAACTGGTGTAAATGTAATTCATTTACATAAG
TGGAGTCAGAATCAGAATGTTTCTCCATAACTAAGTACATGAAGACCTGCCGCGTACAATTG
TCTTATATTTGAACAATAAATTGAACATCTTTGCCACAACCTTATAAGTGGTTAATATAGCTCA
AATATATGGTCAAGTTCAATAGATTAATAATGGAAATATCAGTTATCGAAATTCATTAACAATCAAC
TTAACGTTATTAATACTAATTTTATATCATCCCTTTGATAAATGATAGTACA

Fig. 53

SEQ ID NO: 62

H1 from A/Brisbane/59/2007 (construct #774)

CTGGTATATTTATATGTTGTCAAATAACTCAAAAACCATAAAAAGTTTAAAGTTAGCAAGTGTGTACAT
TTTTACTTGAACAAAAATATTCACCTACTACTGTTATAAATCATTATTAACATTAGAGTAAAGAAAT
ATGGATGATAAGAACAAGAGTAGTGATATTTTGACAACAATTTTGTTGCAACATTTGAGAAAAATTT
GTTGTTCTCTCTTTTCATTGGTCAAAAACAATAGAGAGAGAAAAAGGAAGAGGGGAGAATAAAAAACA
TAATGTGAGTATGAGAGAGAAAAGTTGTACAAAAGTTGTACCAAAATAGTTGTACAAATATCATTGA
GGAATTTGACAAAAGCTACACAAATAAGGGTTAATTGCTGTAAATAAATAAGGATGACGCATTAGA
GAGATGTACCATTAGAGAATTTTGGCAAGTCATTA AAAAGAAAGAATAAATTATTTTAAATTA
AAGTTGAGTCATTTGATTAAACATGTGATTATTTAATGAATTGATGAAAGAGTTGGATTAAAGTTGT
ATTAGTAATTAGAATTTGGTGTCAAATTTAATTGACATTTGATCTTTTCCTATATATTGCCCCATA
GAGTCAGTTAACTCATTTTTATATTTATAGATCAAATAAGAGAAATAACGGTATATTAATCCCTCC
AAAAAAAAAAAAACGGTATATTTACTAAAAATCTAAGCCACGTAGGAGGATAACAGGATCCCCGTA
GGAGGATAACATCCAATCCAACCAATCACACAATCCTGATGAGATAACCCACTTTAAGCCCACG
CATCTGTGGCACATCTACATTATCTAAATCACACATTCTTCCACACATCTGAGCCACACAAAAACC
AATCCACATCTTTATCACCCATTCTATAAAAAATCACACTTTGTGAGTCTACACTTTGATTCCCTTC
AAACACATACAAAGAGAAGAGACTAATTAATTAATTAATCATCTTGAGAGAAAATGAAAGTAAACT
ACTGGTCCTGTTATGCACATTTACAGCTACATATGCAGACACAATATGTATAGGCTACCATGCTAA
CAACTCGACCGACACTGTTGACACAGTACTTGAAAAGAATGTGACAGTGACACACTCTGTCAACC
TGCTTGAGAACAGTCACAATGGAAAATATGTCTATTA AAAAGGAATAGCCCCACTACAATTGGGT
AATTGCAGCGTTGCCGGGTGGATCTTAGGAAACCCAGAATGCGAATTACTGATTTCCAAGGAGTC
ATGGTCCTACATTGTAGAAAAACCAATCCTGAGAATGGAACATGTTACCCAGGGCATTTTCGCTG
ACTATGAGGAACTGAGGGAGCAATTGAGTTCAGTATCTTCATTTGAGAGGTTGAAATATTCCCC
AAAGAAAGCTCATGGCCCAACCAACCGTAACCGGAGTGTCAGCATCATGCTCCCATATGAGGG
AAAGCAGTTTTTACAGAAATTTGCTATGGCTGACGGGGAAGAATGGTTTGTACCCAAACCTGAGC
AAGTCCTATGCAACAACAAAGAAAAAGAGTCTTGTACTATGGGGTGTTTCATCACCCGCCAAA
CATAGGTGACCAAAAGGCCCTCTATCATACAGAAAATGCTTATGTCTCTGTAGTGTCTTCACATTA
TAGCAGAAAATTCACCCCAAGAAATAGCCAAAAGACCCAAAGTAAGAGATCAAGAAGGAAGAATCA
ATTACTACTGGACTCTGCTTGAACCCGGGGATACAATAATATTTGAGGCAAATGGAAATCTAATAG
CGCCAAGATATGCTTTCGCACTGAGTAGAGGCTTTGGATCAGGAATCATCAACTCAAATGCACCA
ATGGATAAATGTGATGCCAAGTGCCAAACACCTCAGGGAGCTATAAACAGCAGTCTTCTTTCCA
GAACGTACACCCAGTCACAATAGGAGAGTGTCCAAAGTATGTGAGGAGTGCAAAATTAAGGATG
GTTACAGGACTAAGGAACATCCCATCCATTCAATCCAGAGGTTTGTGTTGGAGCCATTGCCGGTTT
CATTGAAGGGGGGTGGACTGGAATGGTAGATGGTTGGTATGGTTATCATCATCAGAATGAGCAA
GGATCTGGCTATGCTGCAGATCAAAAAAGCACACAAAATGCCATTAATGGGATTACAAACAAGGT
CAATTCTGTAATTGAGAAAATGAACACTCAATTCACAGCAGTGGGCAAAGAGTTCAACAAATTGG
AAAGAAGGATGGAAAATTTGAATAAAAAAGTTGATGATGGGTTTATAGACATTTGGACATATAATG
CAGAACTGTTGGTTCTACTGGAAAATGAAAGGACTTTGGATTTCATGACTCCAATGTGAAGAAT
CTGTATGAGAAAGTAAAAAGCCAGTTAAGAATAATGCTAAAGAAATAGGAAATGGGTGTTTTGAG
TTCTATCACAAAGTGAACGATGAATGCATGGAGAGTGTAAAGAATGGAACCTATGACTATCCAAAA
TATTCGAAGAATCAAAGTTAAACAGGGAGAAAATTGATGGAGTGAAATTGGAATCAATGGGAGT
CTATCAGATTCTGGCGATCTACTCAACAGTCGCCAGTTCTCTGGTTCTTTTGGTCTCCCTGGGGG
CAATCAGCTTCTGGATGTGTTCCAATGGGTCTTTACAGTGTAGAATATGCATCTAAGAGCTCTAA
GTTAAAATGCTTCTTCGTCTCCTATTTATAATATGGTTTGTTATTGTTAATTTTGTCTTGTAGAAGA
GCTTAATTAATCGTTGTTGTTATGAAATACTATTTGTATGAGATGAACTGGTGTAAATGTAATTCATT
TACATAAGTGGAGTCAGAATCAGAATGTTTCCTCCATAACTAACTAGACATGAAGACCTGCCGCG
TACAATTGTCTTATATTTGAACAACATAAAATTGAACATCTTTTGCCACAACCTTTATAAGTGTTAAT
ATAGCTCAAATATATGGTCAAGTTCAATAGATTAATAATGGAAATATCAGTTATCGAAATTCATTAA
CAATCAACTTAACGTTATTAATACTAATTTTATATCATCCCCTTTGATAAATGATAGTACA

Fig. 54

SEQ ID NO: 63

H1 from A/Solomon Islands/3/2006 (H1N1) (Construct # 775)

AGAGGTACCCCGGGCTGGTATATTTATATGTTGTCAAATAACTCAAAAACCATAAAAAGTTTA
AGTTAGCAAGTGTGTACATTTTTACTTGAACAAAAATATTCACCTACTACTGTTATAAATCAT
TATTAACATTAGAGTAAAGAAATATGGATGATAAGAACAAGAGTAGTGATATTTTGACAAC
AATTTTGTTGCAACATTTGAGAAAAATTTGTTGTTCTCTCTTTTCATTGGTCAAAAACAATAG
AGAGAGAAAAAGGAAGAGGGGAGAATAAAAAACATAATGTGAGTATGAGAGAGAAAGTTGTAC
AAAAGTTGTACCAAAATAGTTGTACAAATATCATTGAGGAATTTGACAAAAGCTACACAAATA
AGGGTTAATTGCTGTAAATAAATAAGGATGACGCATTAGAGAGATGTACCATTAGAGAATTT
TTGGCAAGTCATTAAAAAGAAAGAATAAATTATTTTTAAAATTAAGTTGAGTCATTTGATTA
AACATGTGATTATTTAATGAATTGATGAAAGAGTTGGATTAAAGTTGTATTAGTAATTAGAAT
TTGGTGTCAAATTTAATTTGACATTTGATCTTTTCTATATATTGCCCATAGAGTCAGTTAA
CTCATTTTTATATTTTCATAGATCAAATAAGAGAAATAACGGTATATTAATCCCTCCAAAAAAA
AAAAACGGTATATTTACTAAAAATCTAAGCCACGTAGGAGGATAACAGGATCCCCGTAGG
AGGATAACATCCAATCCAACCAATCACACAATCCTGATGAGATAACCCACTTTAAGCCCAC
GCATCTGTGGCACATCTACATTATCTAAATCACACATTCTTCCACACATCTGAGCCACACAA
AAACCAATCCACATCTTTATCACCCATTCTATAAAAAATCACACTTTGTGAGTCTACACTTTG
ATTCCTTCAAACACATACAAAGAGAAGAGACTAATTAATTAATTAATCATCTTGAGAGAAAA
TGAAAGTAAACTACTGGTCCTGTTATGCACATTTACAGCTACATATGCAGACACAATATGT
ATAGGCTACCATGCCAACAACTCAACCGACACTGTTGACACAGTACTTGAGAAGAATGTGA
CAGTGACACACTCTGTCAACCTGCTTGAGGACAGTCACAATGGAAAATTATGTCTATTAATA
GGAATAGCCCCACTACAATTGGGTAAATGCAGCGTTGCCGGATGGATCTTAGGAAACCCA
GAATGCGAATTACTGATTTCCAGGGAATCATGGTCCTACATTGTAGAAAAACCAATCCTGA
GAATGGAACATGTTACCCAGGGCATTTCGCCGACTATGAGGAACTGAGGGAGCAATTGAG
TTCAGTATCTTCATTTGAGAGATTCGAAATATTCCCAAAGAAAGCTCATGGCCCAACCACA
CCACAACCGGAGTATCAGCATCATGCTCCCATATGGGGAAAGCAGTTTTTACAAAAATTT
GCTATGGCTGACGGGGAAGAATGGTTTGTACCCAAACCTGAGCAAGTCCTATGCAAACAA
CAAAGAGAAAGAAGTCCTTGTACTATGGGGTGTTTCATCACCCGCCTAACATAGGTGACCAA
AGGGCTCTCTATCATAAAGAAAAATGCTTATGTCTCTGTAGTGTCTTCACATTATAGCAGAAA
ATTCACCCAGAAATAGCCAAAAGACCCAAAGTAAGAGATCAAGAAGGAAGAATCAACTAC
TACTGGACTCTACTTGAACCCGGGGATACAATAATATTTGAGGCAAATGGAAATCTAATAGC
GCCAAGATATGCTTTCGCACTGAGTAGAGGCTTTGGATCAGGAATCATCAACTCAAATGCA
CCAATGGATGAATGTGATGCGAAGTGCCAAACACCTCAGGGAGCTATAAACAGCAGTCTTC
CTTCCAGAATGTACACCCTGTACAATAGGAGAGTGTCCAAAGTATGTCAGGAGTGCAAAA
ATTAAGGATGGTTACAGGACTAAGGAACATCCCATCCATTCAATCCAGAGGTTTGTGTTGA
GCCATTGCCGTTTTCATTGAAGGGGGGTGGACTGGAATGGTAGATGGTTGGTATGGTTAT
CATCATCAGAATGAGCAAGGATCTGGCTATGCTGCAGATCAAAAAAGCACACAAAATGCCA
TTAATGGGATTACAAACAAGGTCAATTCTGTAATTGAGAAAATGAACACTCAATTCACAGCT
GTGGGCAAAGAGTTCAACAAATTGGAAAGAAGGATGGAAAACCTAAATAAAAAAGTTGATG
ATGGGTTTATAGACATTTGGACATATAATGCAGAATTGTTGGTTCTACTGGAAAATGAAAGG
ACTTTGGATTTCCATGACTCCAATGTGAAGAATCTGTATGAGAAAGTAAAAAGCCAATTAAA
GAATAATGCCAAAGAAATAGGAAATGGGTGTTTTGAGTTCTATCATAAGTGTAACGATGAAT
GCATGGAGAGTGTAaaaaatGGAACCTTATGACTATCCAAAATATTCCGAAGAATCAAAGTTA
AACAGGGAGAAAATTGATGGAGTGAAATTGGAATCAATGGGAGTCTATCAGATTCTGGCGA
TCTACTCAACAGTCGCCAGTTCTCTGGTTCTTTTGGTCTCCCTGGGGGCAATCAGCTTCTG
GATGTGTTCCAATGGGTCTTTGCAGTGTAGAATATGCATCTGAGAGCTCTAAGTTAAATGC
TTCTTCGTCTCCTATTTATAATATGGTTTGTTATTGTTAATTTTGTCTTGTAGAAGAGCTTAA
TTAATCGTTGTTGTTATGAAATACTATTTGTATGAGATGAACTGGTGTAATGTAATTCATTTA
CATAAGTGGAGTCAGAATCAGAATGTTTCTCCATAACTAAGTACATGAAGACCTGCCG
CGTACAATTGTCTTATATTTGAACAATAAAATTGAACATCTTTTGCCACAACCTTTATAAGTG
GTTAATATAGCTCAAATATATGGTCAAGTTCAATAGATTAATAATGGAAATATCAGTTATCGA
AATTCATTAACAATCAACTTAACGTTATTAATACTACTAATTTTATATCATCCCTTTGATAAATG
ATAGTACA

Fig. 55

SEQ ID NO: 64

H2 from A/Singapore/1/57 (H2N2) (construct # 780)

AGAGGTACCCCGGGCTGGTATATTTATATGTTGTCAAATAACTCAAAAACCATAAAAAGTTTAA
GTTAGCAAGTGTGTACATTTTTACTTGAACAAAAATATTCACCTACTACTGTTATAAATCATTAT
TAAACATTAGAGTAAAGAAATATGGATGATAAGAACAAGAGTAGTGATATTTTGACAACAATTT
TGTTGCAACATTTGAGAAAATTTTGTTGTTCTCTCTTTTCATTGGTCAAAAACAATAGAGAGAG
AAAAAGGAAGAGGGAGAAATAAAACATAATGTGAGTATGAGAGAGAAAAGTTGTACAAAAGTTG
TACCAAAATAGTTGTACAAATATCATTGAGGAATTTGACAAAAGCTACACAAATAAGGGTTAAT
TGCTGTAAATAAATAAGGATGACGCATTAGAGAGATGTACCATTAGAGAATTTTTGGCAAGTC
ATTA AAAAGAAAGAATAAATTATTTTTAAAATTAAAAGTTGAGTCATTTGATTAAACATGTGATT
ATTTAATGAATTGATGAAAGAGTTGGATTAAAGTTGTATTAGTAATTAGAATTTGGTGTCAAAT
TTAATTTGACATTTGATCTTTTCTATATATTGCCCATAGAGTCAGTTAACTCATTTTTATATT
TCATAGATCAAAATAAGAGAAATAACGGTATATTAATCCCTCCAAAAAAAAAAAAACGGTATATTT
ACTAAAAATCTAAGCCACGTAGGAGGATAACAGGATCCCGTAGGAGGATAACATCCAATC
CAACCAATCACAACAATCCTGATGAGATAACCCACTTTAAGCCACGCATCTGTGGCACATCT
ACATTATCTAAATCACACATTCTTCCACACATCTGAGCCACACAAAAACCAATCCACATCTTTA
TCACCCATTCTATAAAAAATCACACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACA
AAGAGAAGAGACTAATTAATTAATTAATCATCTTGAGAGAAAATGGCCATCATTTATCTAATTC
TCCTGTTTACAGCAGTGAGAGGGGACCAAAATATGCATTGGATACCATGCCAATAATTCCACA
GAGAAGGTGACACAAATCTAGAGCGGAACGTCACTGTGACTCATGCCAAGGACATTCTTGA
GAAGACCCATAACGGAAAGTTATGCAAACTAAACGGAATCCCTCCACTTGAAGTGGGGACT
GTAGCATTGCCGGATGGCTCCTTGAAATCCAGAATGTGATAGGCTTCTAAGTGTGCCAGAA
TGGTCCTATATAATGGAGAAAGAAAACCCGAGAGACGGTTTGTGTTATCCAGGCAGCTTCAA
TGATTATGAAGAATTGAAACATCTCCTCAGCAGCGTGAAACATTTGAGAAAAGTAAAGATTCT
GCCCAAAGATAGATGGACACAGCATACAACAACCTGGAGGTTACAGGGCCTGCGCGGTGTCT
GGTAATCCATCATTCTTCAGGAACATGGTCTGGCTGACAAAGAAAGAATCAAATTATCCGGTT
GCCAAAGGATCGTACAACAATAAAGCGGAGAAACAAATGCTAATAATTTGGGGGGTGCACCA
TCCAATGATGAGACAGAAACAAAGAACATTGTACCAGAATGTGGGAACCTATGTTTCCGTAG
GCACATCAACATTGAACAAAAGGTCAACCCCGAGACATAGCAACAAGGCCTAAAGTGAATGGA
CTAGGAAGTAGAATGGAGTTCTCTTGACCCTATTGGATATGTGGGACACCATAAATTTTGAG
AGTACTGGTAATCTAATTGCACCAGAGTATGGATTCAAAATATCGAAAAGAGGTAGTTTCAGGG
ATCATGAAAACAGAAGGAACACTTGAGAACTGTGAGACCAAATGCCAACTCCTTTGGGAGC
AATAAATACAACATTGCCTTTTACAATGTCCACCCACTGACAATAGGTGAGTGCCCCAAATA
TGTA AAATCGGAGAAGTTGGTCTTAGCAACAGGACTAAGGAATGTTCCCGAGATTGAATCAA
GAGGATTGTTTGGGGCAATAGCTGGTTTTATAGAAGGAGGATGGCAAGGAATGGTTGATGGT
TGGTATGGATACCATCACAGCAATGACCAGGGATCAGGGTATGCAGCAGACAAAGAATCCAC
TCAAAAGGCATTTGATGGAATCACCACAAGGTAAATTCTGTGATTGAAAAGATGAACACCCA
ATTTGAAGCTGTTGGGAAAGAGTTCAGTAACTTAGAGAGAAGACTGGAGAAGTTGAACAAAAA
GATGGAAGACGGGTTTCTAGATGTGTGGACATACAATGCTGAGCTTCTAGTTCTGATGGAAA
ATGAGAGGACACTTGACTTTTATGATTCTAATGTCAAGAACTGTATGATAAAGTCAGAATGC
AGCTGAGAGACAACGTCAAAGAAGTAAAGTAAAGTAAAGTAAAGTAAAGTAAAGTAAAGTAAAGT
ATGAATGCATGAATAGTGTGAAAAACGGGACGTATGATTATCCAAGTATGAAGAAGAGTCTA
AACTAAATAGAAATGAAATCAAAGGGGTAAAATTGAGCAGCATGGGGGTTTATCAAATCCTTG
CCATTTATGCTACAGTAGCAGGTTCTCTGTCACTGGCAATCATGATGGCTGGGATCTCTTTCT
GGATGTGCTCCAACGGGTCTCTGCAGTGCAGGATCTGCATATGAGAGCTCTAAGTTAAATG
CTTCTTCGTCTCCTATTTATAATATGGTTTGTATTGTTAATTTTGTCTTGTAGAAGAGCTTAA
TTAATCGTTGTTGTTATGAAATACTATTTGTATGAGATGAACTGGTGTAAATGTAATTCATTTACA
TAAGTGGAGTCAGAATCAGAATGTTTCTCCATAACTAACTAGACATGAAGACCTGCCGCGTA
CAATTGTCTTATATTTGAACAACATAAATTGAACATCTTTTGCCACAACCTTTATAAGTGGTTAAT
ATAGCTCAAATATATGGTCAAGTTCAATAGATTAATAATGGAAATATCAGTTATCGAAATTCAT
TAACAATCAACTTAACGTTATTAATACTAATTTTATATCATCCCCTTTGATAAATGATAGTACA

Fig. 56

SEQ ID NO: 65

H5 from A/Anhui/1/2005 (H5N1) (Construct# 781)

AGAGGTACCCCGGGCTGGTATATTTATATGTTGTCAAATAACTCAAAAACCATAAAAAGTTTAAAG
TTAGCAAGTGTGTACATTTTTACTTGAACAAAAATATTCACCTACTACTGTTATAAATCATTATT
AAACATTAGAGTAAAGAAATATGGATGATAAGAACAAGAGTAGTGATATTTTGACAACAATTTT
GTTGCAACATTTGAGAAAATTTTGTGTTCTCTCTTTTCATTGGTCAAAAACAATAGAGAGAGA
AAAAGGAAGAGGGGAGAATAAAAAACATAATGTGAGTATGAGAGAGAAAAGTTGTACAAAAGTTGT
ACCAAAATAGTTGTACAAATATCATTGAGGAATTTGACAAAAGCTACACAAAATAAGGGTTAATT
GCTGTAAATAAATAAGGATGACGCATTAGAGAGATGTACCATTAGAGAATTTTGGCAAGTCA
TTAAAAAGAAAGAATAAATTATTTTTAAAAATTAAGTTGAGTCATTTGATTAAACATGTGATTAT
TTAATGAATTGATGAAAGAGTTGGATTAAAGTTGTATTAGTAATTAGAATTTGGTGTCAAATTTA
ATTTGACATTTGATCTTTTCTATATATTGCCCATAGAGTCAGTTAACTCATTTTTATATTTTCAT
AGATCAAATAAGAGAAATAACGGTATATTAATCCCTCCAAAAAACCGGTATATTTACTA
AAAAATCTAAGCCACGTAGGAGGATAACAGGATCCCGTAGGAGGATAACATCCAATCCAAC
CAATCACACAATCCTGATGAGATAACCCACTTTAAGCCCACGCATCTGTGGCACATCTACAT
TATCTAAATCACACATTCTTCCACACATCTGAGCCACACAAAAACCAATCCACATCTTTATCAC
CCATTCTATAAAAAATCACACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGA
GAAGAGACTAATTAATTAATTAATCATCTTGAGAGAAAATGGAGAAAATAGTGCTTCTTCTTGC
AATAGTCAGCCTTGTTAAAAGTGATCAGATTTGCATTGGTTACCATGCAAAACAACCTCGACAGA
GCAGGTTGACACAATAATGGAAAAGAACGTTACTGTTACACATGCCCAAGACATACTGGAAAA
GACACACAACGGGAAGCTCTGCGATCTAGATGGAGTGAAGCCTCTGATTTTAAGAGATTGTA
GTGTAGCTGGATGGCTCCTCGGAAACCCAATGTGTGACGAGTTCATCAATGTGCCGGAATGG
TCTTACATAGTGGAGAAGGCCAACCAGCCAATGACCTCTGTTACCCAGGGAATTTCAACGA
CTATGAAGAACTGAAACACCTATTGAGCAGAATAAACCATTTTGAGAAAATTCAGATCATCCCC
AAAAGTTCTTGGTCCGATCATGAAGCCTCATCAGGGGTGAGCTCAGCATGTCCATACCAGGG
AACGCCCTCTTTTTTCAGAAATGTGGTATGGCTTATCAAAAAGAACAATACATACCCAACAATA
AAGAGAAGCTACAATAATACCAACCAGGAAGATCTTTTGATACTGTGGGGGATTTCATCATTCT
AATGATGCGGCAGAGCAGACAAAGCTCTATCAAAACCCAACCACCTATATTTCCGTTGGGACA
TCAACACTAAACCAGAGATTGGTACCAAAAATAGCTACTAGATCCAAAGTAAACGGGCAAAGT
GGAAGGATGGATTTCTTCTGGACAATTTTAAACCGAATGATGCAATCAACTTCGAGAGTAAT
GGAAATTTTCATTGCTCCAGAATATGCATACAAAATTGTCAAGAAAGGGGACTCAGCAATTGTT
AAAAGTGAAGTGGAATATGGTAACTGCAATACAAAGTGTCAAACCTCCAATAGGGGCGATAAAC
TCTAGTATGCCATTCCACAACATACACCCTCTCACCATCGGGGAATGCCCAAATATGTGAAA
TCAAACAAATTAGTCCTTGCGACTGGGCTCAGAAATAGTCCTCTAAGAGAAAAGAAGAAAA
AGAGGACTATTTGGAGCTATAGCAGGGTTTATAGAGGGAGGATGGCAGGGAATGGTAGATGG
TTGGTATGGGTACCACCATAGCAATGAGCAGGGGAGTGGGTACGCTGCAGACAAAGAATCCA
CTCAAAGGCAATAGATGGAGTCACCAATAAGGTCAACTCGATCATTGACAAAATGAACACTC
AGTTTGAGGCCGTTGGAAGGGAATTTAATAACTTAGAAAGGAGAATAGAGAATTTAAACAAGA
AAATGGAAGACGGATTCTAGATGTCTGGACTTATAATGCTGAACCTTCTGGTTCTCATGGAAA
ATGAGAGAACTCTAGACTTCCATGATTCAAATGTCAAGAACCTTTACGACAAGGTCGACTAC
AGCTTAGGGATAATGCAAAGGAGCTGGGTAACGGTTGTTTCGAGTTCTATCACAAATGTGATA
ATGAATGTATGGAAAGTGTAAGAAACGGAACGTATGACTACCCGCAGTATTCAGAAGAAGCAA
GATTA AAAAGAGAGGAAATAAGTGGAGTAAAATTGGAATCAATAGGAACCTTACCAAATACTGT
CAATTTATTCAACAGTTGCGAGTTCTCTAGCACTGGCAATCATGGTGGCTGGTCTATCTTTGT
GGATGTGCTCCAATGGGTCGTTACAATGCAGAATTTGCATTTAAGAGCTCTAAGTTAAAATGC
TTCTTCGTCCTATTTATAATATGGTTTGTATTGTTAATTTTGTCTTGTAGAAGAGCTTAATT
AATCGTTGTTGTTATGAAATACTATTTGTATGAGATGAACTGGTGTAAATGTAATTCATTTACATA
AGTGGAGTCAGAATCAGAATGTTTCTCCATAACTAACTAGACATGAAGACCTGCCGCGTACA
ATTGTCTTATATTTGAACAACATAAATTGAACATCTTTTGCCACAACCTTTATAAGTGGTTAATAT
AGCTCAAATATATGGTCAAGTTCAATAGATTAATAATGGAAATATCAGTTATCGAAATTCATTAA
CAATCAACTTAACGTTATTAATACTACTAATTTTATATCATCCCCTTTGATAAATGATAGTACA

Fig. 57

SEQ ID NO: 66

H5 from A/Vietnam/1194/2004 (H5N1) (Construct # 782)

AGAGGTACCCCGGGCTGGTATATTTATATGTTGTCAAATAACTCAAAAACCATAAAAAGTTTAAAG
TTAGCAAGTGTGTACATTTTACTTGAACAAAAATATTCACCTACTACTGTTATAAATCATTATT
AAACATTAGAGTAAAGAAATATGGATGATAAGAACAAGAGTAGTGATATTTTGACAACAATTTT
GTTGCAACATTTGAGAAAAATTTGTTGTTCTCTCTTTTCATTGGTCAAAAACAATAGAGAGAGA
AAAAGGAAGAGGGAGAATAAAAAACATAATGTGAGTATGAGAGAGAAAAGTTGTACAAAAGTTGT
ACCAAAATAGTTGTACAAATATCATTGAGGAATTTGACAAAAGCTACACAAATAAGGGTTAATT
GCTGTAAATAAATAAGGATGACGCATTAGAGAGATGTACCATTAGAGAATTTTGGCAAGTCA
TTAAAAAGAAAGAATAAATTATTTTAAAAATTAAGTTGAGTCATTTGATTAAACATGTGATTAT
TTAATGAATTGATGAAAGAGTTGGATTAAAGTTGTATTAGTAATTAGAATTTGGTGTCAAATTTA
ATTTGACATTTGATCTTTTCTATATATTGCCCATAGAGTCAGTTAACTCATTTTATATTTTCAT
AGATCAAATAAGAGAAATAACGGTATATTAATCCCTCCAAAAACGGTATATTTACTA
AAAAATCTAAGCCACGTAGGAGGATAACAGGATCCCGTAGGAGGATAACATCCAATCCAAC
CAATCACAACAATCCTGATGAGATAACCCACTTAAAGCCCACGCATCTGTGGCACATCTACAT
TATCTAAATCACACATTCTTCCACACATCTGAGCCACACAAAAACCAATCCACATCTTTATCAC
CCATTCTATAAAAAATCACACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGA
GAAGAGACTAATTAATTAATTAATCATCTTGAGAGAAAATGGAGAAAATAGTGCTTCTTTTGC
AATAGTCAGTCTTGTTAAAAGTGATCAGATTTGCATTGGTTACCATGCAAACAACCTCGACAGA
GCAGGTTGACACAATAATGGAAAAGAAGCTTACTGTTACACATGCCCAAGACATACTGGAAAA
GACACACAATGGGAAGCTCTGCGATCTAGATGGAGTGAAGCCTCTAATTTTGAGAGATTGTAG
TGTAGCTGGATGGCTCCTCGGAAACCCAATGTGTGACGAGTTCATCAATGTGCCGGAATGGT
CTTACATAGTGAGAGAAGGCCAATCCAGTCAATGACCTCTGTTACCCAGGGGATTTCATGACT
ATGAAGAATTGAAACACCTATTGAGCAGAATAAACCATTTTGAGAAAATTCAGATCATCCCCAA
AAGTTCTTGGTCCAGTCATGAAGCCTCATTGGGGTCAGCTCAGCATGTCCATACCAGGGAA
AGTCCTCCTTTTTTCAAGAAATGTGGTATGGCTTATCAAAAAGAACAGTACATACCCAACAATAAA
GAGGAGCTACAATAATACCAACCAAGAAGATCTTTTGGTACTGTGGGGGATTACCACCTCTAA
TGATGCGGCAGAGCAGACAAAGCTCTATCAAAACCCAACCACCTATATTTCCGTTGGGACATC
TACACTAAACCAGAGATTGGTACCAAGAATAGCTACTAGATCCAAAGTAAACGGGCAAAAGTGG
AAGGATGGAGTTCTTCTGGACAATTTTAAACCGAATGATGCAATCACTTCGAGAGTAATGG
AAATTTTATTGCTCCAGAATATGCATACAAAATTTGTCAAGAAAGGGGACTCAACAATTAGAAA
AGTGAATTGGAATATGGTAACTGCAATACCAAGTGTCAAACCTCAATGGGGGCGATAAACTCT
AGCATGCCATTCCACAATATACACCCTCTCACCATCGGGGAATGCCCAAATATGTGAAATCA
AACAGATTAGTCCTTGGGACTGGGCTCAGAAATAGCCCTCAAAGAGAGAGAAGAAGAAAAAA
GAGAGGATTATTTGGAGCTATAGCAGGTTTATAGAGGGAGGATGGCAGGGAATGGTAGATG
GTTGGTATGGGTACCACCATAGCAACGAGCAGGGGAGTGGGTACGCTGCAGACAAAGAATC
CACTCAAAGGCAATAGATGGAGTCACCAATAAGGTCAACTCGATTATTGACAAAATGAACAC
TCAGTTTGAGGCCGTTGGAAGGGAATTTAACAACCTTAGAAAGGAGAATAGAGAATTTAAACAA
GAAGATGGAAGACGGGTTCTAGATGTCTGGACTTATAATGCTGAACCTCTAGTTCTCATGGA
AAACGAGAGAGAAGCTAGACTTTTATGACTCAAAATGTCAAGAACCTTTACGACAAGGTCGACT
ACAGCTTAGGGATAATGCAAAGGAGCTGGGTAAACGGTTGTTTCGAGTTCTATCATAAATGTGA
TAATGAATGTATGGAAGGTGTAAGAAACGGAACGTATGACTACCCGCAGTATTAGAAAGAAGC
AAGACTAAAAAGAGAGAGAAATAAGTGGAGTAAATTTGAATCAATAGGAATTTACCAATATTG
TCAATTTATTCTACAGTGGCCAGCTCCCTAGCACTGGCAATCATGGTAGCTGGTCTATCCTTA
TGGATGTGCTCCAATGGGTGCTTACAATGCAGAATTTGCATTTAAGAGCTCTAAGTTAAATG
CTTCTTCGTCTCCTATTTATAATATGTTTGTATTGTTAATTTTGTCTTGTAGAAGAGCTTAA
TTAATCGTTGTTGTTATGAAATACTATTTGTATGAGATGAACTGGTGTAAATGTAATTCATTTACA
TAAGTGGAGTCAGAATCAGAATGTTTCTCCATAACTAAGTACATGAAGACCTGCCGCGTA
CAATTGTCTTATATTTGAACAACATAAATTGAACATCTTTTCCACAACCTTTATAAGTGGTTAAT
ATAGCTCAAATATATGGTCAAGTTCAATAGATTAATAATGGAAATATCAGTTATCGAAATTCATT
ACAATCAACTTAACGTTATTAATACTAATTTTATATCATCCCTTTGATAAATGATAGTACA

Fig. 58

SEQ ID NO: 67

H6 from A/Teal/Hong Kong/W312/97 (H6N1) (Construct # 783)

AGAGGTACCCCGGGCTGGTATATTTATATGTTGTCAAATAACTCAAAAACCATAAAAAGTTTA
AGTTAGCAAGTGTGTACATTTTTACTTGAACAAAAATATTCACCTACTACTGTTATAAATCAT
TATTAACATTAGAGTAAAGAAATATGGATGATAAGAACAAGAGTAGTGATATTTTGACAACA
ATTTTGTGCAACATTTGAGAAAATTTTGTGTTCTCTCTTTTCATTGGTCAAAAACAATAGA
GAGAGAAAAAGGAAGAGGGAGAATAAAAACATAATGTGAGTATGAGAGAGAAAGTTGTACA
AAAGTTGTACCAAAATAGTTGTACAAATATCATTGAGGAATTTGACAAAAGCTACACAAATAA
GGGTAAATTGCTGTAAATAAATAAGGATGACGCATTAGAGAGATGTACCATTAGAGAATTTT
TGGCAAGTCATTA AAAAGAAAGAATAAATTATTTTTAAAAATTAAAGTTGAGTCATTTGATTAA
ACATGTGATTATTTAATGAATTGATGAAAGAGTTGGATTAAAGTTGTATTAGTAATTAGAATT
TGGTGTCAAATTTAATTTGACATTTGATCTTTTCTATATATTGCCCCATAGAGTCAGTTAAC
TCATTTTTATATTTATAGATCAAATAAGAGAAATAACGGTATATTAATCCCTCCAAAAA
AAACGGTATATTTACTAAAAATCTAAGCCACGTAGGAGGATAACAGGATCCCCGTAGGAG
GATAACATCCAATCCAACCAATCACACAATCCTGATGAGATAACCCACTTTAAGCCCACGC
ATCTGTGGCACATCTACATTATCTAAATCACACATTCTTCCACACATCTGAGCCACACAAAA
ACCAATCCACATCTTTATCACCCATTCTATAAAAAATCACACTTTGTGAGTCTACACTTTGAT
TCCCTTCAAACACATACAAAGAGAAGAGACTAATTAATTAATTAATCATCTTGAGAGAAAATG
ATTGCAATCATTGTAATAGCAATACTGGCAGCAGCCGGAAGTCAGACAAGATCTGCATTG
GGTATCATGCCAACAATTCAACAACACAGGTAGATACGATACTTGAGAAGAATGTGACTGT
CACACACTCAATTGAATTGCTGGAAAATCAGAAGGAAGAAAGATTCTGCAAGATATTGAACA
AGGCCCTCTCGACTTAAGGGAATGTACCATAGAGGGTTGGATCTTGGGGAATCCCCAAT
GCGACCTATTGCTTGGTGATCAAAGCTGGTCATACATTGTGGAAAGACCTACTGCTCAAAA
CGGGATCTGCTACCCAGGAACCTTAATGAGGTAGAAGAACTGAGGGCACTTATTGGATCA
GGAGAAAGGGTAGAGAGATTTGAGATGTTTCCCCAAAGCACCTGGCAAGGAGTTGACACC
AACAGTGGAACAACAAGATCCTGCCCTTATTCTACTGGTGCGTCTTTCTACAGAAACCTCCT
ATGGATAATAAAAAACCAAGACAGCAGAATATCCAGTAATTAAGGGAATTTACAACAACACTG
GAACCCAGCCAATCCTCTATTTCTGGGGTGTGCATCATCCTCCTAACACCGACGAGCAAGA
TACTCTGTATGGCTCTGGTGATCGATACGTTAGAATGGGAACTGAAAGCATGAATTTTGCCA
AGAGTCCGGAAATTGCGGCAAGGCCTGCTGTGAATGGACAAAGAGGCAGAATTGATTATTA
TTGGTTCGGTTTTAAACCAGGGGAAACCTTGAATGTGGAATCTAATGGAAATCTAATCGCC
CCTTGGTATGCATACAAATTTGTCAACACAAATAGTAAAGGAGCCGTCTTCAGGTCAGATTT
ACCAATCGAGAACTGCGATGCCACATGCCAGACTATTGCAGGGGTTCTAAGGACCAATAAA
ACATTTCAGAATGTGAGTCCCCTGTGGATAGGAGAATGTCCCAAATACGTGAAAAGTGAAA
GTCTGAGGCTTGCAACTGGACTAAGAAATGTTCCACAGATTGAACTAGAGGACTCTTCGG
AGCTATTGCAGGGTTTATTGAAGGAGGATGGACTGGGATGATAGATGGGTGGTATGGCTAT
CACCATGAAAATTCTCAAGGGTCAGGATATGCAGCAGACAGAGAAAGCACTCAAAGGCTG
TAAACAGAATTACAAATAAGGTCAATTCCATCATCAACAAAATGAACACACAATTTGAAGCTG
TCGATCACGAATTTTCAAATCTGGAGAGGAGAATTGACAATCTGAACAAAAGAATGCAAGAT
GGATTTCTGGATGTTTGGACATACAATGCTGAACTGTTGGTTCTTCTTGAAAACGAAAGAAC
ACTAGACATGCATGACGCAAATGTGAAGAACCTACATGAAAAGGTCAAATCACAACCTAAGG
GACAATGCTACGATCTTAGGGAATGGTTGCTTTGAATTTTGGCATAAGTGTGACAATGAATG
CATAGAGTCTGTCAAAAATGGTACATATGACTATCCCAAATACCAGACTGAAAGCAAATTA
ACAGGCTAAAAATAGAATCAGTAAAGCTAGAGAACCTTGGTGTGTATCAAATCTTGCCATT
TATAGTACGGTATCGAGCAGCCTAGTGTTGGTAGGGCTGATCATGGCAATGGGTCTTTGGA
TGTGTTCAAATGGTTCAATGCAGTGCAGGATATGTATATAAGAGCTCTAAGTTAAATGCTT
CTTCGTCTCCTATTTATAATATGGTTTGTTATTGTTAATTTTGTCTTGTAGAAGAGCTTAATT
AATCGTTGTTGTTATGAAATACTATTTGTATGAGATGAACTGGTGTAAATGTAATTCATTTACA
TAAGTGGAGTCAGAATCAGAATGTTTCTCCATAACTAACTAGACATGAAGACCTGCCGCG
TACAATTGCTTATATTTGAACAATAAATTGAACATCTTTGCCACAACCTTTATAAGTGGTT
AATATAGCTCAAATATATGGTCAAGTTCAATAGATTAATAATGGAAATATCAGTTATCGAAAT
TCATTAACAATCAACTTAACGTTATTAATACTACTAATTTTATATCATCCCTTTGATAAATGATA
GTACA

Fig. 59

SEQ ID NO: 68

H9 from A/Hong Kong/1073/99 (H9N2) (Construct # 785)

AGAGGTACCCCGGGCTGGTATATTTATATGTTGTCAAATAACTCAAAAACCATATAAAGTTTAA
GTTAGCAAGTGTGTACATTTTTACTTGAACAAAAATATTCACCTACTACTGTTATAAATCATT
TTAAACATTAGAGTAAAGAAATATGGATGATAAGAACAAGAGTAGTGATATTTTGACAACAAT
TTTGTGCAACATTTGAGAAAATTTTGTGTTCTCTCTTTTCATTGGTCAAAAACAATAGAGAG
AGAAAAAGGAAGAGGGAGAATAAAAAACATAATGTGAGTATGAGAGAGAAAAGTTGTACAAAAG
TTGTACCAAAATAGTTGTACAAATATCATTGAGGAATTTGACAAAAGCTACACAAATAAGGGT
TAATTGCTGTAAATAAATAAGGATGACGCATTAGAGAGATGTACCATTAGAGAATTTTTGGCA
AGTCATTAAAAAGAAAAGAATAAATTATTTTTAAAATTTAAAGTTGAGTCATTTGATTAAACATG
TGATTATTTAATGAATTGATGAAAGAGTTGGATTAAAGTTGTATTAGTAATTAGAATTTGGTGT
CAAATTTAATTTGACATTTGATCTTTTCTATATATTGCCCCATAGAGTCAGTTAACTCATTTT
TATATTTCATAGATCAAATAAGAGAAAATAACGGTATATTAATCCCTCCAAAAAAAAAAAAACGG
TATATTTACTAAAAAATCTAAGCCACGTAGGAGGATAACAGGATCCCCGTAGGAGGATAACA
TCCAATCCAACCAATCACAACAATCCTGATGAGATAACCCACTTTAAGCCACGCATCTGTG
GCACATCTACATTATCTAAATCACACATTCTTCCACACATCTGAGCCACACAAAAACCAATCC
ACATCTTTATCACCCATTCTATAAAAAATCACACTTTGTGAGTCTACACTTTGATTCCCTTCAA
ACACATACAAAGAGAAGAGACTAATTAATTAATTAATCATCTTGAGAGAAAATGGAACAATA
TCACTAATAACTATACTAGTAGTAACAGCAAGCAATGCAGATAAAATCTGCATCGGCCA
CCAGTCAACAACTCCACAGAACTGTGGACACGCTAACAGAAACCAATGTTCTGTGACAC
ATGCCAAAGAATTGCTCCACACAGAGCATAATGGAATGCTGTGTGCAACAAGCCTGGGACA
TCCCTCATTCTAGACACATGCCTATTGAAGGACTAGTCTATGGCAACCCTTCTGTGACC
TGCTGTTGGGAGGAAGAGAATGGTCCTACATCGTCGAAAGATCATCAGCTGTAAATGGAAC
GTGTTACCCTGGGAATGTAGAAAACCTAGAGGAACCTCAGGACACTTTTTAGTTCCGCTAGTT
CCTACCAAAGAATCCAATCTTCCAGACACAACCTGGAATGTGACTTACACTGGAACAAGC
AGAGCATGTTCAGGTTTATTCTACAGGAGTATGAGATGGCTGACTCAAAAGAGCGGTTTTTA
CCCTGTTCAAGAGCGCCAATACACAAATAACAGGGGAAAGAGCATTCTTTCTGTGGGGC
ATACATCACCCACCCACCTATACCGAGCAACAAATTTGTACATAAGAAACGACACAACAAC
AAGCGTGACAACAGAAGATTTGAATAGGACCTTCAAACCAGTGATAGGGCCAAGGCCCTT
GTCAATGGTCTGCAGGGAAGAATTGATTATTATTGGTCGGTACTAAAACCAGGCCAAACATT
GCGAGTACGATCCAATGGGAATCTAATTGCTCCATGGTATGGACACGTTCTTTCAGGAGGG
AGCCATGGAAGAATCCTGAAGACTGATTTAAAAGGTGTAATTGTGTAGTGCAATGTCAGAC
TGAAAAAGGTGGCTTAACAGTACATTGCCATTCCACAATATCAGTAAATATGCATTTGGAAC
CTGCCCCAAATATGTAAGAGTTAATAGTCTCAAACCTGGCAGTCGGTCTGAGGAACGTGCCT
GCTAGATCAAGTAGAGGACTATTTGGAGCCATAGCTGGATTATAGAAGGAGGTTGGCCAG
GACTAGTCGCTGGCTGGTATGGTTTCCAGCATTCAAATGATCAAGGGGTTGGTATGGCTGC
AGATAGGGATTCAACTCAAAAGGCAATTGATAAAATAACATCCAAGGTGAATAATATAGTCGA
CAAGATGAACAAGCAATATGAAATAATTGATCATGAATTTAGTGAGGTTGAACTAGACTCAA
TATGATCAATAATAAGATTGATGACCAAAATACAAGACGTATGGGCATATAATGCAGAATTGCT
AGTACTACTTGAAAAATCAAAAAACACTCGATGAGCATGATGCGAACGTGAACAATCTATATAA
CAAGGTGAAGAGGGCACTGGGCTCCAATGCTATGGAAGATGGGAAAGGCTGTTTCGAGCTA
TACCATAAATGTGATGATCAGTGCATGGAACAATTCGGAACGGGACCTATAATAGGAGAAA
GTATAGAGAGGAATCAAGACTAGAAAGGCAGAAAATAGAGGGGGTTAAGCTGGAATCTGAG
GGAACCTACAAAATCCTCACCATTATTCGACTGTCGCCTCATCTCTTGTGCTTGCAATGGG
GTTTGCTGCCCTTCTGTTCTGGGCCATGTCCAATGGATCTTGACAGATGCAACATTTGTATAT
AAGAGCTCTAAGTTAAATGCTTCTTCGCTCCTATTTATAATATGGTTTGTTATTGTTAATTT
TGTTCTTGTAAGAGCTTAATTAATCGTTGTTGTTATGAAATACTATTTGTATGAGATGAACT
GGTGTAAATGTAATTCATTTACATAAGTGGAGTCAGAATCAGAATGTTTCCTCCATAACTAACT
AGACATGAAGACCTGCCGCGTACAATTGTCTTATATTTGAACAACCTAAAATTGAACATCTTTT
GCCACAACCTTTATAAGTGGTTAATATAGCTCAAATATATGGTCAAGTTCAATAGATTAAAT
GGAAATATCAGTTATCGAAATTCATTAACAATCAACTTAACGTTATTAACCTACTAATTTTATAT
CATCCCTTTGATAAATGATAGTACA

Fig. 60

SEQ ID NO: 69

H3 from A/Brisbane/10/2007 (H3N2)

AGAGGTACCCCGGGCTGGTATATTTATATGTTGTCAAATAACTCAAAAACCATATAAAAGTTTAAGT
TAGCAAGTGTGTACATTTTTACTTGAACAAAAATATTACCTACTACTGTTATAAATCATTATTAA
ACATTAGAGTAAAGAAATATGGATGATAAGAACAAGAGTAGTGATATTTTGACAACAATTTTGTT
GCAACATTTGAGAAAATTTTGTTGTTCTCTCTTTTCATTGGTCAAAAACAATAGAGAGAGAAAAA
GGAAGAGGGAGAATAAAAAACATAATGTGAGTATGAGAGAGAAAAGTTGTACAAAAGTTGTACCAA
AATAGTTGTACAAATATCATTGAGGAATTTGACAAAAGCTACACAAATAAGGGTTAATTGCTGTA
AATAATAAGGATGACGCATTAGAGAGATGTACCATTAGAGAATTTTGGCAAGTCATTAAAAAG
AAAGAATAAATTATTTTTAAAATTTAAAGTTGAGTCATTTGATTAACATGTGATTATTTAATGAAT
TGATGAAAGAGTTGGATTAAAGTTGTATTAGTAATTAGAATTTGGTGTCAAATTTAATTTGACATT
TGATCTTTTCTATATATTGCCCCATAGAGTCAGTTAACTCATTTTTATATTTTCATAGATCAAATA
AGAGAAATAACGGTATATTAATCCCTCCAAAAAACGGTATATTTACTAAAAATCTAAG
CCACGTAGGAGGATAACAGGATCCCGTAGGAGGATAACATCCAATCCAACCAATCACAACAA
TCCTGATGAGATAACCCACTTTAAGCCCACGCATCTGTGGCACATCTACATTATCTAAATCACA
CATTCTTCCACACATCTGAGCCACACAAAAACCAATCCACATCTTTATCACCCATTCTATAAAAA
ATCACACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGAGAAGAGACTAATTA
TTAATTAATCATCTTGAGAGAAAATGAAGACTATCATTGCTTTGAGCTACATTCTATGTCTGGTT
TTCACTCAAAAACCTTCCCGGAAATGACAACAGCACGGCAACGCTGTGCCTTGGGCACCATGCA
GTACCAAACGGAACGATAGTGAAAACAATCACGAATGACCAAATTGAAGTTACTAATGCTACTG
AGCTGGTTTCAGAGTTCCTCAACAGGTGAAATATGCGACAGTCCTCATCAGATCCTTGATGGAG
AAAACCTGCACACTAATAGATGCTCTATTGGGAGACCCTCAGTGTGATGGCTTCCAAAATAAGAA
ATGGGACCTTTTTGTTGAACGCAGCAAAGCCTACAGCAACTGTTACCCTTATGATGTGCCGGAT
TATGCCTCCCTTAGGTCACTAGTTGCCTCATCCGGCACACTGGAGTTTAACAATGAAAGTTTCA
ATTGGACTGGAGTCACTCAAACGGAACAAGCTCTGCTTGCATAAGGAGATCTAATAACAGTTT
CTTTAGTAGATTGAATTGGTTGACCCACTTAAATTCAAATACCCAGCATTGAACGTGACTATGC
CAAACAATGAAAAATTTGACAAATTGTACATTTGGGGGGTTCAACACCCGGGTACGGACAATGA
CCAAATCTTCCTGTATGCTCAAGCATCAGGAAGAATCACAGTCTCTACCAAAAAGAAGCCAACAA
ACTGTAATCCCGAATATCGGATCTAGACCCAGAGTAAGGAATATCCCCAGCAGAATAAGCATCT
ATTGGACAATAGTAAAACCGGGAGACATACTTTTGATTAAACAGCACAGGGAATCTAATTGCTCC
TAGGGGTTACTTCAAATACGAAGTGGGAAAAGCTCAATAATGAGATCAGATGCACCCATTGG
CAAATGCAATTCTGAATGCATCACTCCAAACGGAAGCATTCCCAATGACAAACCATTCCAAAT
GTAAACAGGATCACATACGGGGCCTGTCCAGATATGTTAAGCAAAACACTCTGAAATTGGCA
ACAGGGATGCGAAATGTACCAGAGAAACAACTAGAGGCATATTTGGCGCAATCGCGGGTTTC
ATAGAAAATGGTTGGGAGGGAATGGTGGATGGTTGGTATGGTTTCAGGCATCAAATTTCTGAG
GGAATAGGACAAGCAGCAGATCTCAAAGCACTCAAGCAGCAATCGATCAAATCAATGGGAAG
CTGAATAGGTTGATCGGGAAAACCAACGAGAAATTCCATCAGATTGAAAAAGAGTTCTCAGAAG
TCGAAGGGAGAATCCAGGACCTTGAGAAATATGTTGAGGACACCAAAATAGATCTCTGGTCAT
ACAACGCGGAGCTTCTTGTGCCCCTGGAGAACCAACATACAATTGATCTAACTGACTCAGAAAT
GAACAACTGTTTGAAAAACAAAGAAGCAACTGAGGGAAAATGCTGAGGATATGGGCAATGG
TTGTTTCAAATATACCACAAATGTGACAATGCCTGCATAGGATCAATCAGAAATGGAACCTTATG
ACCACGATGTATACAGAGATGAAGCATTAAACAACCGGTTCCAGATCAAGGGCGTTGAGCTGA
AGTCAGGATACAAAGATTGGATACTATGGATTTCTTTGCCATATCATGTTTTTGTCTTTGTGTT
GCTTTGTTGGGGTTCATCATGTGGGCCTGCCAAAAGGCAACATTAGGTGCAACATTTGCATTT
GAGAGCTCTAAGTTAAATGCTTCTTCGTCTCCTATTTATAATATGGTTTGTTATTGTTAATTTG
TTCTTGTAAGAGCTTAATTAATCGTTGTTGTTATGAAATACTATTTGTATGAGATGAACTGGT
GTAATGTAATTCATTTACATAAGTGGAGTCAGAATCAGAATGTTTCTCCATACTAACTAGACA
TGAAGACCTGCCGCGTACAATTGTCTTATATTTGAACAACTAAAATTGAACATCTTTGCCACAA
CTTTATAAGTGGTTAATATAGCTCAAATATATGGTCAAGTTCAATAGATTAATAATGGAAATATCA
GTTATCGAAATTCATTAACAATCAACTTAACGTTATTACTACTAATTTTATATCATCCCTTTGA
TAAATGATAGTACA

Fig. 61

SEQ ID NO: 70

H3 from A/Wisconsin/67/2005 (H3N2)

AGAGGTACCCCGGGCTGGTATATTTATATGTTGTCAAATAACTCAAAAACCATAAAAGTTTAA
GTTAGCAAGTGTGTACATTTTTACTTGAACAAAAATATTCACCTACTACTGTTATAAATCATT
TTAAACATTAGAGTAAAGAAATATGGATGATAAGAACAAGAGTAGTGATATTTTGACAACAAT
TTTGTTGCAACATTTGAGAAAATTTTGTGTTCTCTCTTTTCATTGGTCAAAAACAATAGAGAG
AGAAAAAGGAAGAGGGGAGAATAAAAAACATAATGTGAGTATGAGAGAGAAAGTTGTACAAAAG
TTGTACCAAAATAGTTGTACAAATATCATTGAGGAATTTGACAAAAGCTACACAAATAAGGGT
TAATTGCTGTAAATAAATAAGGATGACGCATTAGAGAGATGTACCATTAGAGAATTTTTGGCA
AGTCATTAAAAAGAAAGAATAAATTATTTTTAAAAATTAAAAGTTGAGTCATTTGATTAAACATGT
GATTATTTAATGAATTGATGAAAGAGTTGGATTAAAGTTGTATTAGTAATTAGAATTTGGTGTC
AAATTTAATTTGACATTTGATCTTTTCTATATATTGCCCCATAGAGTCAGTTAACTCATTTTTA
TATTTCATAGATCAAATAAGAGAAATAACGGTATATTAAATCCCTCCAAAAAAAAAAAAACGGTAT
ATTTACTAAAAAATCTAAGCCACGTAGGAGGATAACAGGATCCCCGTAGGAGGATAACATCC
AATCCAACCAATCACAACAATCCTGATGAGATAACCCACTTTAAGCCACGCATCTGTGGCA
CATCTACATTATCTAAATCACACATTCTTCCACACATCTGAGCCACACAAAAACCAATCCACA
TCTTTATCACCCATTCTATAAAAAATCACACTTTGTGAGTCTACACTTTGATTCCCTTCAAACA
CATACAAAGAGAAGAGACTAATTAATTAATTAATCATCTTGAGAGAAAATGAAGACTATCATT
GCTTTGAGCTACATTCTATGTCTGGTTTTCACTCAAAAACCTTCCCGGAAATGACAACAGCAC
GGCAACGCTGTGCCTTGGGCACCATGCAGTACCAACGGAACGATAGTGAACAACATCAGC
AATGACCAAATTGAAGTTACTAATGCTACTGAGCTGGTTCAGAGTTCCTCAACAGGTGGAAT
ATGCGACAGTCCTCATCAGATCCTTGATGGAGAAAACCTGCACACTAATAGATGCTCTATTGG
GAGACCCTCAGTGTGATGGCTTCCAAAATAAGAAATGGGACCTTTTTGTTGAACGCAGCAAA
GCCTACAGCAACTGTTACCCTTATGATGTGCCGGATTATGCCTCCCTTAGGTCACTAGTTGC
CTCATCCGGCACACTGGAGTTTAACGATGAAAGTTTCAATTGGACTGGAGTCACTCAAAATG
GAACAAGCTCTGCTTGCAAAAGGAGATCTAATAACAGTTTCTTTAGTAGATTGAATTGGTTGA
CCCCTTAAAAATTCAAATACCCAGCATTGAACGTGACTATGCCAAACAATGAAAAATTTGACA
AATTGTACATTTGGGGGGTTCAACACCCGGGTACGGACAATGACCAAATCTTCCTGCATGCT
CAAGCATCAGGAAGAATCACAGTCTCTACCAAAAGAAGCCAACAAACTGTAATCCCGAATAT
CGGATCTAGACCCAGAATAAGGAATATCCCAGCAGAATAAGCATCTATTGGACAATAGTAA
AACC GGGAGACATACTTTTGATTAACAGCACAGGGAATCTAATTGCTCCTAGGGGTTACTTC
AAAATACGAAGTGGGAAAAGCTCAATAATGAGATCAGATGCACCCATTGGCAAAATGCAATTC
TGAATGCATCACTCCAAATGGAAGCATTCCAATGACAAACCATTTCAAATGTAAACAGGAT
CACATATGGGGCCTGTCCCAGATATGTTAAGCAAAACACTCTGAAATTGGCAACAGGGATGC
GAAATGTACCAGAGAAACAACTAGAGGCATATTTGGCGCAATCGCGGGTTTCATAGAAAAT
GGTTGGGAGGGAATGGTGGATGGTTGGTACGGTTTCAGGCATCAAAATTCTGAGGGAATAG
GACAAGCAGCAGATCTCAAAAGCACTCAAGCAGCAATCAATCAATCAATGGGAAGCTGAAT
AGGTTGATCGGGAAAACCAACGAGAAATTCATCAGATTGAAAAAGAGTTCTCAGAAGTAGA
AGGGAGAATCCAGGACCTCGAGAAATATGTTGAGGACACTAAAATAGATCTCTGGTCATACA
ACGCGGAGCTTCTTGTGGCCCTGGAGAACCAACATACAATTGATCTAACTGACTCAGAAATG
AACAAACTGTTTGAAAGAACAAAGAAGCAACTGAGGGAAAATGCTGAGGATATGGGCAATGG
TTGTTTCAAATATACCACAAATGTGACAATGCCTGCATAGGATCAATCAGAAATGGAACCTTA
TGACCATGATGTATACAGAGATGAAGCATTAAACAACCGGTTCCAGATCAAAGGCGTTGAGC
TGAAGTCAGGATACAAAGATTGGATACTATGGATTTCTTTGCCATATCATGTTTTTTGCTTT
GTGTTGCTTTGTTGGGGTTTCATCATGTGGGCCTGCCAAAAAGGCAACATTAGGTGCAACATT
TGCATTTGAGAGCTCTAAGTTAAATGCTTCTTCGTCTCCTATTTATAATATGTTTTGTATTG
TTAATTTTGTCTTGTAGAAGAGCTTAATTAATCGTTGTTGTTATGAAATACTATTTGTATGAG
ATGAACTGGTGTAAATGTAATTCATTTACATAAGTGGAGTCAGAATCAGAATGTTTCCTCCATA
ACTAACTAGACATGAAGACCTGCCGCGTACAATTGTCTTATTTGAACAACATAAATTGAAC
ATCTTTTGCCACAACCTTTATAAGTGGTTAATATAGCTCAAATATATGGTCAAGTTCAATAGATT
AATAATGGAAATATCAGTTATCGAAATTCATTAACAATCAACTTAACGTTATTAACACTACTAATTT
TATATCATCCCCTTTGATAAATGATAGTACA

Fig. 62

SEQ ID NO: 71

H7 from A/Equine/Prague/56 (H7N7)

AGAGGTACCCCGGGCTGGTATATTTATATGTTGTCAAATAACTCAAAAACCATATAAAGTTTAAAG
TTAGCAAGTGTGTACATTTTTACTTGAACAAAAATATTCACCTACTACTGTTATAAATCATTATT
AAACATTAGAGTAAAGAAATATGGATGATAAGAACAAGAGTAGTGATATTTTGACAACAATTTT
GTTGCAACATTTGAGAAAATTTTGTGTTCTCTCTTTTCATTGGTCAAAAACAATAGAGAGAGA
AAAAGGAAGAGGGGAGAATAAAAAACATAATGTGAGTATGAGAGAGAAAAGTTGTACAAAAGTTGT
ACCAAAATAGTTGTACAAATATCATTGAGGAATTTGACAAAAGCTACACAAATAAGGGTTAATT
GCTGTAAATAAATAAGGATGACGCATTAGAGAGATGTACCATTAGAGAATTTTTGGCAAGTCA
TTAAAAAGAAAAGAATAAATTATTTTTAAAATTTAAAGTTGAGTCATTTGATTAACATGTGATTAT
TTAATGAATTGATGAAAGAGTTGGATTAAAGTTGTATTAGTAATTAGAATTTGGTGTCAAATTTA
ATTTGACATTTGATCTTTTCTATATATTGCCCATAGAGTCAGTTAACTCATTTTTATATTTCA
TAGATCAAATAAGAGAAAATAACGGTATATTAATCCCTCCAAAAAAAAAAAAACGGTATATTTACT
AAAAAATCTAAGCCACGTAGGAGGATAACAGGATCCCGTAGGAGGATAACATCCAATCCAA
CCAATCACACAATCCTGATGAGATAACCCACTTTAAGCCACGCATCTGTGGCACATCTACA
TTATCTAAATCACACATTCTTCCACACATCTGAGCCACACAAAAACCAATCCACATCTTTATCA
CCCATTCTATAAAAAATCACACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAG
AGAAGAGACTAATTAATTAATTAATCATCTTGAGAGAAAATGAACACTCAAATTTCTAATATTAG
CCACTTCGGCATTCTTCTATGTACGTGCAGATAAAATCTGCCTAGGACATCATGCTGTGTCTA
ATGGAACCAAAGTAGACACCCTTACTGAAAAAGGAATAGAAGTTGTCAATGCAACAGAAACAG
TTGAACAAACAAACATCCCTAAGATCTGCTCAAAAGGAAAACAGACTGTTGACCTTGGTCAAT
GTGGATTACTAGGGACCGTTATTGGTCTCCCAATGTGACCAATTTCTTGAGTTCTCTGCTA
ATTTAATAGTTGAAAGAAGGGAAGGTAATGACATTTGTTATCCAGGCAAATTTGACAATGAAGA
AACATTGAGAAAAATACTCAGAAAATCCGGAGGAATTAAGGAGAGAATATGGGATTCACATA
TACCGGAGTGAGAACCAATGGAGAGACTAGCGCATGTAGAAGGTCAAGATCTTCCTTTTATG
CAGAGATGAAATGGCTTCTATCCAGCACAGACAATGGGACATTTCCACAAATGACAAAGTCCT
ACAAGAACACTAAGAAGGTACCAGCTCTGATAATCTGGGGAATCCACCACTCAGGATCAACT
ACTGAACAGACTAGATTATATGGAAGTGGGAATAAATTGATAACAGTTTGGAGTTCCAAATAC
CAACAATCTTTTGTCCCAAATCCTGGACCAAGACCGCAAATGAATGGTCAATCAGGAAGAATT
GACTTTCACTGGCTGATGCTAGATCCCAATGATACTGTCACTTTCACTTTTAAATGGGGCCTTT
ATAGCACCTGACCGCGCCAGTTTTCTAAGAGGTAAATCTCTAGGAATCCAAAGTGATGCACAA
CTTGACAATAATTGTGAAGGTGAATGCTATCATATTGGAGGTACTATAATTAGCAACTTGCCCT
TTCAAAACATTAATAGTAGGGCAATCGGAAAATGCCCCAGATACGTGAAGCAGAAGAGCTTAA
TGCTAGCAACAGGAATGAAAAATGTTCTGAAGCTCCTGCACATAAACAATACTCATCACA
TGCGCAAAAAAGAGGTTTATTTGGTGAATAGCAGGATTCATTGAAAATGGGTGGGAAGGAT
TAATAGACGGATGGTATGGATATAAGCATCAGAATGCACAAGGAGAAGGGACTGCTGCAGAC
TACAAAAGTACACAATCTGCTATCAACCAAATAACCGGAAAAATTGAACAGACTAATAGAAAAAA
CCAACCAGCAATTCGAACATAATAGATAATGAGTTCAATGAAATAGAAAAACAAATTGGCAATGT
TATTAAGTGGACTAGAGATTCTATCATCGAAGTATGGTCATATAATGCAGAGTTCTCTCGTAGC
AGTGGAGAATCAACACACTATTGATTTAACTGACTCAGAAATGAACAACTATATGAAAAGGTA
AGAAGACAAGTGAAGAGAAAATGCTGAGGAAGATGGTAATGGCTGTTTTGAAATATTCCACCAA
TGTGACAATGATTGCATGGCCAGCATTAGAAACAACACATATGACCATAAAAAATACAGAAAA
GAGGCAATACAAAACAGAATCCAGATTGACGCGAGTAAAGTTGAGCAGTGGTTACAAAGATATA
ATACTTTGGTTTAGCTTCGGGGCATCATGTTTCTTATTTCTTGCCATTGCAATGGGTCTTGTTT
TCATATGTATAAAAAATGGAACATGCGGTGCACTATTTGTATATAAGAGCTCTAAGTTAAAT
GCTTCTTCGTCTCCTATTTATAATATGGTTTGTATTGTTAATTTGTTCTTGTAAGAGCTTA
ATTAATCGTTGTTGTTATGAAATACTATTTGTATGAGATGAACTGGTGTAAATGTAATTCATTTAC
ATAAGTGGAGTCAGAATCAGAATGTTTCTCCATAACTAAGTACATGAAGACCTGCCGCGT
ACAATTGCTTATATTTGAACAATAAAATTGAACATCTTTGCCACAACCTTATAAGTGGTTAA
TATAGCTCAAATATATGGTCAAGTTCAATAGATTAATAATGGAATATCAGTTATCGAAATTCAT
TAACAATCAACTTAACGTTATTAAGTAACTAATTTTATATCATCCCTTTGATAAATGATAGTACA

Fig. 63

SEQ ID NO: 72

HA from B/Malaysia/2506/2004

AGAGGTACCCCGGGCTGGTATATTTATATGTTGTCAAATAACTCAAAAACCATAAAAGTTTAAAG
TTAGCAAGTGTGTACATTTTTACTTGAACAAAAATATTCACCTACTACTGTTATAAATCATTATTA
AACATTAGAGTAAAGAAATATGGATGATAAGAACAAGAGTAGTGATATTTTGACAACAATTTTGT
TGCAACATTTGAGAAAATTTTGTGTTCTCTCTTTTCATTGGTCAAAAACAATAGAGAGAGAAAA
AGGAAGAGGGAGAATAAAAACATAATGTGAGTATGAGAGAGAAAGTTGTACAAAAGTTGTACC
AAAATAGTTGTACAAATATCATTGAGGAATTTGACAAAAGCTACACAAATAAGGGTTAATTGCTG
TAAATAAATAAGGATGACGCATTAGAGAGATGTACCATTAGAGAATTTTTGGCAAGTCATTAAA
AAGAAAGAATAAATTATTTTTAAAATTAAGTTGAGTCATTTGATTAAACATGTGATTATTTAAT
GAATTGATGAAAGAGTTGGATTAAAGTTGTATTAGTAATTAGAATTTGGTGTCAAATTTAATTTG
ACATTTGATCTTTTCTATATATTGCCCCATAGAGTCAGTTAACTCATTTTTATTTTCATAGATC
AAATAAGAGAAATAACGGTATATTAATCCCTCCAAAAAAAAAACGGTATATTTACTAAAAAAT
CTAAGCCACGTAGGAGGATAACAGGATCCCCGTAGGAGGATAACATCCAATCCAACCAATCAC
ACAATCCTGATGAGATAACCCACTTTAAGCCCACGCATCTGTGGCACATCTACATTATCTAAA
TCACACATTCTTCCACACATCTGAGCCACACAAAAACCAATCCACATCTTTATCACCCATTCTAT
AAAAAATCACACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGAGAAGAGACT
AATTAATTAATTAATCATCTTGAGAGAAAATGAAGGCAATAATTGTACTACTCATGGTAGTAACA
TCCAATGCAGATCGAATCTGCACTGGGATAACATCGTCAAACCTCACCACATGTTGTCAAACCTG
CTACTCAAGGGGAGGTCAATGTGACTGGTGTAAATCCACTGACAACAACACCCACCAAATCTC
ATTTTGCAAATCTCAAAGGAACAGAAACCAGAGGGAAACTATGCCCAAAATGCCTCAACTGCA
CAGATCTGGACGTGGCCTTGGGCAGACCAAAATGCACGGGGAACATACCCTCGGCAAGAGTT
TCAATACTCCATGAAGTCAGACCTGTTACATCTGGGTGCTTTCCTATAATGCACGACAGAACAA
AAATTAGACAGCTGCCTAACTTCTCAGAGGATACGAACATATCAGGTTATCAACTCATAACGT
TATCAATGCAGAAAATGCACCAGGAGGACCCTACAAAATTGGAACCTCAGGGTCTTGCCCTAA
CGTTACCAATGGAACCGGATTTTTCGCAACAATGGCTTGGGCCGTCCCAAAAAACGACAACAA
CAAAACAGCAACAAATTCATTAACAATAGAAGTACCATACATTTGTACAGAAGGAGAAGACCAA
ATTACCGTTTGGGGGTTCCACTCTGATAACGAAACCCAAATGGCAAAGCTCTATGGGGACTCA
AAGCCCCAGAAGTTCACCTCATCTGCCAACGGAGTGACCACACATTACGTTTCACAGATTGGT
GGCTTCCCAAAATCAAACAGAAGACGGAGGACTACCACAAAGCGGTAGAATTGTTGTTGATTAC
ATGGTGCAAAAATCTGGGAAAACAGGAACAATTACCTATCAAAGAGGTATTTTATTGCCTCAA
AAGTGTGGTGCGCAAGTGGCAGGAGCAAGGTAATAAAAGGATCGTTGCCTTTAATTGGAGAAG
CAGATTGCCTCCACGAAAAATACGGTGGATTAAACAAAAGCAAGCCTTACTACACAGGGGAAC
ATGCAAAGGCCATAGGAAATTGCCCAATATGGGTGAAAACACCCTTGAAGCTGGCCAATGGAA
CCAAATATAGACCTCCTGCAAACTATTAAGGAAAGGGGTTTCTTCGGAGCTATTGCTGGTTT
CTTAGAAGGAGGATGGGAAGGAATGATTGCAGGTTGGCACGGATACACATCCCATGGGGCAC
ATGGAGTAGCGGTGGCAGCAGACCTTAAGAGCACTCAAGAGGCCATAAACAAGATAACAAAA
ATCTCAACTCTTTGAGTGAGCTGGAAGTAAAGAATCTTCAAAGACTAAGCGGTGCCATGGATG
AACTCCACAACGAAATACTAGAACTAGACGAGAAAGTGGATGATCTCAGAGCTGATACAATAA
GCTCACAAATAGAACTCGCAGTCCTGCTTTCCAATGAAGGAATAATAAACAGTGAAGATGAGC
ATCTCTTGGCGCTTGAAAGAAAGCTGAAGAAAATGCTGGGCCCTCTGCTGTAGAGATAGGGA
ATGGATGCTTTGAAACCAACACAAGTGCAACCAGACCTGTCTCGACAGAATAGCTGCTGGTA
CCTTTGATGCAGGAGAATTTTCTCTCCCACTTTTGATTCACTGAATATTACTGCTGCATCTTTA
AATGACGATGGATTGGATAATCATACTATACTGCTTTACTACTCAACTGCTGCCTCCAGTTTGG
CTGTAACATTGATGATAGCTATCTTTGTTGTTTATATGGTCTCCAGAGACAATGTTTCTTGCTCC
ATCTGTCTATAAGAGCTCTAAGTTAAAATGCTTCTTCGTCTCCTATTTATAATATGGTTTGTTATT
GTTAATTTTGTCTTGTAAGAGCTTAATTAATCGTTGTTGTTATGAAATACTATTTGTATGAGA
TGAAGTGGTGTAATGTAATTCATTTACATAAGTGGAGTCAGAATCAGAATGTTTCTCCATAACT
AACTAGACATGAAGACCTGCCGCGTACAATTGTCTTATATTTGAACAACTAAAATTGAACATCTT
TTGCCACAACCTTTATAAGTGGTTAATATAGCTCAAATATATGGTCAAGTTCAATAGATTAATAAT
GGAAATATCAGTTATCGAAATTCATTAACAATCAACTTAACGTTATTAATACTAATTTTATATCA
TCCCTTTGATAAATGATAGTACA

Fig. 64

SEQ ID NO: 73

HA from B/Florida/4/2006

AGAGGTACCCCGGGCTGGTATATTTATATGTTGTCAAATAACTCAAAAACCATAAAAAGTTTAAGT
TAGCAAGTGTGTACATTTTTACTTGAACAAAAATATTCACCTACTACTGTTATAAATCATTATTAA
ACATTAGAGTAAAGAAATATGGATGATAAGAACAAGAGTAGTGATATTTTGACAACAATTTTGTT
GCAACATTTGAGAAAATTTTGTTGTTCTCTCTTTTCATTGGTCAAAAACAATAGAGAGAGAAAAA
GGAAGAGGGAGAATAAAAAACATAATGTGAGTATGAGAGAGAAAGTTGTACAAAAGTTGTACCAA
AATAGTTGTACAAATATCATTGAGGAATTTGACAAAAGCTACACAAATAAGGGTTAATTGCTGTA
AATAAATAAGGATGACGCATTAGAGAGATGTACCATTAGAGAATTTTTGGCAAGTCATTAAAAAG
AAAGAATAAATTATTTTTAAAATTAAGTTGAGTCATTTGATTAAACATGTGATTATTTAATGAAT
TGATGAAAGAGTTGGATTAAAGTTGTATTAGTAATTAGAATTTGGTGTCAAATTTAATTTGACATT
TGATCTTTTCTATATATTGCCCCATAGAGTCAGTTAACTCATTTTTATTTTCATAGATCAAATA
AGAGAAATAACGGTATATTAATCCCTCCAAAAACCGGTATATTTACTAAAAATCTAAG
CCACGTAGGAGGATAACAGGATCCCGTAGGAGGATAACATCCAATCCAACCAATCACAACAA
TCCTGATGAGATAACCCACTTTAAGCCCACGCATCTGTGGCACATCTACATTATCTAAATCACA
CATTCTTCCACACATCTGAGCCACAAAAACCAATCCACATCTTATCACCCATTCTATAAAAA
ATCACACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGAGAAGAGACTAATTAA
TTAATTAATCATCTTGAGAGAAAATGAAGGCAATAATTGTACTACTCATGGTAGTAACATCCAAT
GCAGATCGAATCTGCACTGGAATAACATCTTCAAACCTCACCTCATGTGGTCAAAACAGCCACTC
AAGGGGAGGTCAATGTGACTGGTGTGATACCACTAACAACAACACCAACAAAATCTTATTTTGC
AAATCTCAAAGGAACAAGGACCAGAGGGAACTATGCCCAGACTGTCTCAACTGCACAGATCT
GGATGTGGCTTTGGGCAGACCAATGTGTGTGGGACCACACCTTCGGCGAAGGCTTCAATAC
TCCACGAAGTCAAACCTGTTACATCCGGGTGCTTTCCTATAATGCACGACAGAACAACAAAATCAG
GCAACTACCCAATCTTCTCAGAGGATATGAAATATCAGGCTATCAACCCAAAACGTCATCGAT
GCGGAAAAGGCACCAGGAGGACCCTACAGACTTGGAACCTCAGGATCTTGCCCTAACGCTAC
CAGTAAGAGCGGATTTTTCGCAACAATGGCTTGGGCTGTCCCAAAGGACAACAACAAAATGC
AACGAACCCACTAACAGTAGAAGTACCATACATTTGTACAGAAGGGGAAGACCAAAATCACTGTT
TGGGGGTTCCATTGAGATAACAAAACCCAAATGAAGAACCTCTATGGAGACTCAAATCCTCAA
AGTTCACCTCATCTGCTAATGGAGTAACCACACACTATGTTTCTCAGATTGGCAGCTTCCCAGA
TCAAACAGAAGACGGAGGACTACCACAAAGCGGCAGGATTGTTGTTGATTACATGATGCAAAA
ACCTGGGAAAACAGGAACAATTGTCTACCAAGAGGTGTTTTGTTGCCTCAAAGGTGTGGTG
CGCGAGTGGCAGGAGCAAAGTAATAAAAGGGTCCTTGCCCTTAATTGGTGAAGCAGATTGCCT
TCATGAAAAATACGGTGGATTAACAAAAGCAAGCCTTACTACACAGGAGAACATGCAAAAGCC
ATAGGAAATTGCCCAATATGGGTGAAAACACCTTTGAAGCTCGCCAATGGAACCAATATAGAC
CTCCTGCAAACTATTAAGGAAAGGGGTTTCTTCGGAGCTATTGCTGGTTTCTAGAAGGAG
GATGGGAAGGAATGATTGCAGGCTGGCACGGATACACATCTCACGGAGCACATGGAGTGGCA
GTGGCGGCGGACCTTAAGAGTACGCAAGAAGCTATAAACAAGATAACAAAAAATCTCAATTCTT
TGAGTGAGCTAGAAGTAAAGAATCTTCAAAGACTAAGTGGTGCCATGGATGAACTCCACAACG
AAATACTCGAGCTGGATGAGAAAGTGGATGATCTCAGAGCTGACACTATAAGCTCGCAAATAG
AACTTGCACTCTTGCTTCCAAACGAAGGAATAATAACAGTGAAGATGAGCATCTATTGGCACT
TGAGAGAAAACTAAAGAAAATGCTGGGTCCCTCTGCTGTAGAGATAGGAAATGGATGCTTCGA
AACCAACACAAGTGCAACCAGACCTGCTTAGACAGGATAGCTGCTGGCACCTTTAATGCAGG
AGAATTTTCTCTCCCACTTTTGATTCACTGAACATTACTGCTGCATCTTTAAATGATGATGGAT
TGGATAACCATACTATACTGCTCTATTACTCAACTGCTGCTTCTAGTTTGGCTGTAACATTGATG
CTAGCTATTTTTATTGTTTATATGGTCTCCAGAGACAACGTTTCATGCTCCATCTGTCTATAAGA
GCTCTAAGTTAAAATGCTTCTTCGTCTCCTATTTATAATATGGTTTGTTATTGTTAATTTTGTTCT
TGTAAGAAGAGCTTAATTAATCGTTGTTGTTATGAAATACTATTTGTATGAGATGAACTGGTGTA
TGTAATTCATTTACATAAGTGGAGTCAGAATCAGAATGTTTCCTCCATAACTAAGTACATGAA
GACCTGCCGCGTACAATTGCTTATATTTGAACAACATAAAATTGAACATCTTTGCCACAACCTT
ATAAGTGGTTAATATAGCTCAAATATATGGTCAAGTTCAATAGATTAAATGGAATATCAGTTA
TCGAAATTCATTAACAATCAACTAACGTTATTAACCTACTAATTTTATATCATCCCTTTGATAAA
TGATAGTACA

Fig. 65

Consensus of SEQ ID NO: 49, 48, 33 and 9

SEQ ID NO: 74

MK(X₁)KLLVLLCTFTATYADTICIGYHANNSTDTVDTVLEKNVTVTHSVNLL
E(X₂)SHNGKLCLLKGIAPLQLGNCSVAGWILGNPECELLIS(X₃)ESWSYIVE(X₄)P
NPENGTCYPG(X₅)FADYEELREQLSSVSSFERFEIFPKESSWPNT(X₆)TGVSA
SCSHNG(X₇)SSFY(X₈)NLLWLTGKNGLYPNLSKSY(X₉)NNKEKEVLVLWGVHHPN
IG(X₁₀)Q(X₁₁)ALYH(X₁₂)ENAYVSVVSSHYSR(X₁₃)FTPEIAKRPKVRDQEGRINYWTLL
EPGDTIIFEANGNLIAP(X₁₄)YAFALSRGFGSGII(X₁₅)SNAPMD(X₁₆)CDAKCQTPQG
AINSSLPFQNVHPVTIGECPKYVRSACLRLMTGLRNIPSIQSRGLFGAIA
GFIEGGWTGMVDGWYGYHHQNEQSGYAADQKSTQNAINGITNKVNSVIE
KMNTQFTAVGKEFNKLERRMENLNKKVDDGF(X₁₇)DIWTYNAELLVLENER
LDFHDSNVKNLYEKVKSQKNNAKEIGNGCFFYHKCN(X₁₈)ECMESVKNGT
DYPKYSEESKLNREKIDGVKLESMGVYQILAIYSTVASSLVLLVSLGAIS
FWMCSNGSLQCRICI

Fig. 66

SEQ ID NO: 75

MKAKLLVLLCTFTATYADTICIGYHANNSTDTVDTVLEKNVTVTHSVNLLED SHNGKLCLLK
PLQLG
NCSVAGWILGNPECELLISKESWSYIVETPNPENGTCYPGYFADYEELREQLSSVSSFERFEIF
PKESSW
PNHTVTGVSASCSHNGKSSFYRNLLWLTGKNGLYPNLSKSYVNNKEKEVLVLWGVHHPNI
GNQRALYHT
ENAYVSVVSSHYSRRFTPEIAKRPKVRDQEGRINYWTLLPGDTIIFEANGNLIAPWYAFALS
RGFGSG
IITSNAPMDECDACQTPQGAINSSLPFQNVHPVTIGECPKYVRS AKLRMTGLRNIPSIQSRG
LFGAIA
GFIEGGWTGMVDGWYGYHHQNEQSGSYAADQKSTQNAINGITNKVNSVIEKMNTQFTAVGK
EFNKLERRM
ENLNKKVDDGFLDIWTYNAELLVLENERTLDFHDSNVKNLYEKVKSQKNNAKEIGNGCFEF
YHKCNNE
CMESVKNGTYDYPKYSEESKLNREKIDGVKLESMGVYQILAIYSTVASSLVLLVSLGAISFWMC
SNGSLQ
CRICI

Fig. 67

SEQ ID NO: 76

MSLLTEVETYVLSIIPSGPLKAEIAQRLEDVFAGKNTDLEVLMEWLKTRPILSPLTKGILGFVFTLTVPS
ERGLQRRRFVQNALNGNGDPNNMDKAVKLYRKLKREITFHGAKEISLSYSAGALASCMGLIYNRMGAV
TT
EVAFGLVCATCEQIADSQHRSHRQMVT TTNPLIRHENRMVLASTTAKAMEQMAGSSEQAAEAMEVAS
QAR
QMVQAMRTIGTHPSSSAGLKNDLLENLQAYQKRMGVQMQRFK

Figure 68

TTAATTAAGAATTTCGAGCTCCACCGCGGAAACCTCCTCGGATTCCATTGCCAGCTATCTGTC
ACTTTATTGAGAAGATAGTGGAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAG
GAAAGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCACG
AGGAGCATCGTGGAAGAAAGACGTTCCAACCACGTCTTCAAAGCAAGTGGATTGATGTGAT
ATCTCCACTGACGTAAGGGATGACGCACAATCCCCTATCCTTCGCAAGACCCCTTCCTCTATA
TAAGGAAGTTCATTTCAATTTGGAGAGGTATTAAATCTTAATAGGTTTTGATAAAAGCGAACGT
GGGGAACCCGAACCAAACCTTCTTCTAAACTCTCTCTCATCTCTCTTAAAGCAAACCTTCTCTC
TTGTCTTTCTTGCGTGAGCGATCTTCAACGTTGTGAGATCGTGCTTCGGCACCAGTACAACGT
TTTCTTTCACTGAAGCGAAATCAAAGATCTCTTTGTGGACACGTAGTGGCGGCCATTAAATAA
CGTGTACTTGTCTATTCTTGTGCGGTGTGGTCTTGGGAAAAGAAAGCTTGCTGGAGGCTGCTG
TTCAGCCCCATACATTACTTGTACGATTCTGCTGACTTTTCGGCGGGTGCAATATCTCTACTTC
TGCTTGACGAGGTATTGTTGCCTGTACTTCTTTCTTCTTCTTCTTGCTGATTGGTTCTATAAGAA
ATCTAGTATTTTCTTTGAAACAGAGTTTTCCCGTGGTTTTCGAACTTGGAGAAAGATTGTTAAGC
TTCTGTATATTCTGCCCAAATTTGTGCGGCCCATGGTTTTCACACCTCAGATACTTGGACTTAT
GCTTTTTTGGATTTGAGCCTCCAGAGGTGATATTGTGCTAACTCAGTCTCCAGCCACCCTGTCT
GTGACTCCAGGAGATAGTGTGAGTCTTTCTGTCAGGGCCAGCCAAAGTATTAGCAACAACCTA
CACTGGTTTTCAACAAAATCGCATGAGTCTCCAAGGCTTCTCATCAAGTATGCTTCCCAGTCCA
TATCTGGGATCCCCTCCAGGTTGAGTGGCAGTGGATCTGGGACAGATTTCACTCTCAGTATCA
ACAGTGTGAAGACTGAAGATTTTGGAATGTTTTCTGTCAACAGAGTAACAGCTGGCCTCTCAC
GTTGCGGTGATGGGACAAAGCTGGAGCTGAAACGGGCTGATGCTGCACCAACTGTATCCATCT
TCCCACCATCCAGTGAGCAGTTAACATCTGGAGGTGCCTCAGTCGTGTGCTTCTTGAACAACCT
TCTACCCCAAAGACATCAATGTCAAGTGGAAGATTGATGGCAGTGAACGACAAAATGGCGTCC
TGAACAGTTGGACTGATCAGGACAGCAAAGACAGCACCTACAGCATGAGCAGCACCCCTCACG
TTGACCAAGGACGAGTATGAACGACATAACAGCTATACCTGTGAGGCCACTCACAAGACATCA
ACTTCACCCATTGTCAAGAGCTTCAACAGGAATGAGTGTTAGAGGCCTATTTTCTTTAGTTTGA
ATTTACTGTTATTCGGTGTGCATTTCTATGTTTGGTGAGCGGTTTTCTGTGCTCAGAGTGTGTT
TATTTTATGTAATTTAATTTCTTTGTGAGCTCCTGTTTAGCAGGTCGTCCCTTCAGCAAGGACAC
AAAAAGATTTTAATTTTATTAATAAAAAAAAAAAAAAAAAAGACCGGAATTCGATATCAAGCTTATC
GACCTGCAGATCGTTCAAACATTTGGCAATAAAGTTTCTTAAGATTGAATCCTGTTGCCGGTCT
TGCGATGATTATCATATAATTTCTGTTGAATTACGTTAAGCATGTAATAATTAACATGTAATGCA
TGACGTTATTTATGAGATGGGTTTTTATGATTAGAGTCCCGCAATTATACATTTAATACGCGATA
GAAAACAAAATATAGCGCGCAAACCTAGGATAAATTATCGCGCGCGGTGTCATCTATGTTACTA
GATTCTAGAGTCTCAAGCTTCGGCGCGCC

Figure 69

AAGCTTGCTAGCGGCCTCAATGGCCCTGCAGGTCGACTCTAGAGGTACCCCGGGCTGGTAT
 ATTTATATGTTGTCAAATAACTCAAAAACCATATAAAGTTAAGTTAGCAAGTGTGTACATTTTA
 CTTGAACAAAAATATTCACCTACTACTGTTATAAATCATTATTAAACATTAGAGTAAAGAAATAT
 GGATGATAAGAACAAGAGTAGTGATTTTTGACAACAATTTTGTGCAACATTTGAGAAAATTT
 TGTTGTTCTCTCTTTTCATTGGTCAAAAACAATAGAGAGAGAAAAAGGAAGAGGGAGAATAAA
 AACATAATGTGAGTATGAGAGAGAAAAGTTGTACAAAAGTTGTACCAAAATAGTTGTACAAATAT
 CATTGAGGAATTTGACAAAAGCTACACAAATAAGGGTTAATTGCTGTAAATAAATAAGGATGAC
 GCATTAGAGAGATGTACCATTAGAGAATTTTTGGCAAGTCATTAAGAAAGAAAGAAATAAATTATT
 TTTAAATTAAGTTGAGTCATTTGATTAAACATGTGATTATTTAATGAATTGATGAAAGAGTT
 GGATTAAGTTGTATTAGTAATTAGAATTTGGTGTCAAATTTAATTTGACATTTGATCTTTTCCT
 ATATATTGCCCCATAGAGTCAGTTAACTCATTTTTATATTTATAGATCAAATAAGAGAAATAAC
 GGTATATTAATCCCTCCAAAAAAGGATATTTACTAAAAATCTAAGCCACGTAGGA
 GGATAACAGGATCCCCGTAGGAGGATAACATCCAATCCAACCAATCACAACAATCCTGATGA
 GATAACCCACTTTAAGCCCACGCATCTGTGGCACATCTACATTATCTAAATCACACATTCTTCC
 ACACATCTGAGCCACACAAAAACCAATCCACATCTTTATCACCCATTCTATAAAAAATCACACT
 TTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGAGAAGAGACTAATTAATTAATTA
 ATCATCTTGAGAGAAAATGGCGAAAAACGTTGCGATTTTCGGCTTATTGTTTTCTCTTCTGTG
 TTGGTTCCCTTCTCAGATCTTCGCTGATCAGATTTGCATTGGTTACCATGCAAACAATTCACAG
 AGCAGGTTGACACAATCATGGAAAAGAAGCTTACTGTTACACATGCCCAAGACATACTGGAAA
 AGACACACAACGGGAAGCTCTGCGATCTAGATGGAGTGAAGCCTCTAATTTAAGAGATTGTA
 GTGTAGCTGGATGGCTCCTCGGGAACCCAATGTGTGACGAATTCATCAATGTACCGGAATGG
 TCTTACATAGTGGAGAAGGCCAATCCAACCAATGACCTCTGTTACCCAGGGAGTTTCAACGAC
 TATGAAGAACTGAAACACCTATTGAGCAGAATAAACCATTGAGAAAAATCAAATCATCCCCA
 AAAGTTCTTGGTCCGATCATGAAGCCTCATCAGGAGTTAGCTCAGCATGTCCATACCTGGGAA
 GTCCCTCCTTTTTTAGAAATGTGGTATGGCTTATCAAAAAGAACAGTACATACCCAACAATAAA
 GAAAAGCTACAATAATACCAACCAAGAGGATCTTTTGGTACTGTGGGGAATTCACCATCCTAA
 TGATGCGGCAGAGCAGACAAGGCTATATCAAAACCAACCACCTATATTTCCATTGGGACATC
 AACACTAAACCAGAGATTGGTACCAAAATAGCTACTAGATCCAAAGTAAACGGGCAAAGTGG
 AAGGATGGAGTTCTTCTGGACAATTTTAAACCTAATGATGCAATCAACTTCGAGAGTAATGG
 AAATTTTATTGCTCCAGAATATGCATACAAAATTGTCAAGAAAGGGGACTCAGCAATTATGAAA
 AGTGAATTGGAATATGGTAACTGCAACACCAAGTGTCAAACCTCAATGGGGGCGATAAACTCT
 AGTATGCCATTCCACAACATACACCCTCTCACCATCGGGGAATGCCCAATATGTGAAATCA
 AACAGATTAGTCCTTGCAACAGGGCTCAGAAATAGCCCTCAAAGAGAGAGCAGAAGAAAAA
 GAGAGGACTATTTGGAGCTATAGCAGGTTTTATAGAGGGAGGATGGCAGGGAATGGTAGATG
 GTTGGTATGGGTACCACCATAGCAATGAGCAGGGGAGTGGGTACGCTGCAGACAAAGAATC
 CACTCAAAGGCAATAGATGGAGTCACCAATAAGGTCAACTCAATCATTGACAAAATGAACAC
 TCAGTTTGAGGCCGTTGGAAGGGAATTTAATAACTTAGAAAGGAGAATAGAGAATTTAAACAA
 GAAGATGGAAGACGGGTTTCTAGATGTCTGGACTTATAATGCCGAACCTCTGGTTCTCATGGA
 AAATGAGAGAACTCTAGACTTTTCTGACTCAAATGTTAAGAACCTCTACGACAAGGTCCGACT
 ACAGCTTAGGGATAATGCAAAGGAGCTGGGTAAACGGTTGTTTCGAGTTCTATCACAATGTGA
 TAATGAATGTATGGAAAGTATAAGAAACGGAACGTACAACCTATCCGCAGTATTCAGAAGAAGC
 AAGATTAAGAGAGAGGAAATAAGTGGGGTAAATTTGGAATCAATAGGAACTTACCAATACT
 GTCAATTTATTCAACAGTGGCGAGTTCCCTAGCACTGGCAATCATGATGGCTGGTCTATCTTT
 ATGGATGTGCTCCAATGGATCGTTACAATGCAGAATTTGCATTTAAGAGCTCTAAGTTAAATG
 CTTCTTCGTCTCCTATTTATAATATGGTTTGTATTGTTAATTTTGTCTTGTAAGAGCTTAA
 TTAATCGTTGTTGTTATGAAATACTATTTGTATGAGATGAACTGGTGTAAATGTAATTCATTTACA
 TAAGTGGAGTCAGAATCAGAATGTTTCCTCCATAACTAACTAGACATGAAGACCTGCCGCGTA
 CAATTGTCTTATTTGAACAACATAAATTGAACATCTTTTGCCACAACCTTTATAAGTGGTTAAT
 ATAGCTCAAATATATGGTCAAGTTCAATAGATTAATAATGGAAATATCAGTTATCGAAATTCATT
 AACAATCAACTTAACGTTATTAATACTAATTTTATATCATCCCTTTGATAAATGATAGTACAC
 CAATTAGGAAGGAGCATGCTCGAGGCCTGGCTGGCCGAATTC

Figure 70

AAGCTTGCTAGCGGCCTCAATGGCCCTGCAGGTCGACTCTAGAGGTACCCCGGGCTGGTATA
TTTATATGTTGTCAAATAACTCAAAAACCATAAAAAGTTTAAAGTTAGCAAGTGTGTACATTTTACT
TGAACAAAAATATTCACCTACTACTGTTATAAATCATTATTAACATTAGAGTAAAGAAATATGGA
TGATAAGAACAAGAGTAGTGATATTTTGACAACAATTTTGTGCAACATTTGAGAAAATTTTGT
GTTCTCTCTTTTCATTGGTCAAAAACAATAGAGAGAGAAAAAGGAAGAGGGAGAATAAAAAACAT
AATGTGAGTATGAGAGAGAAAGTTGTACAAAAGTTGTACCAAATAGTTGTACAAATATCATTGA
GGAATTTGACAAAAGCTACACAAATAAGGGTTAATTGCTGTAAATAAATAAGGATGACGCATTA
GAGAGATGTACCATTAGAGAATTTTGGCAAGTCATTAAAAAGAAAGAATAAATTATTTTAAAA
TAAAAGTTGAGTCATTTGATTAAACATGTGATTATTTAATGAATTGATGAAAGAGTTGGATTAA
AGTTGTATTAGTAATTAGAATTTGGTGTCAAATTTAATTTGACATTTGATCTTTTCTATATATTG
CCCCATAGAGTCAGTTAACTCATTTTATATTTTCATAGATCAAATAAGAGAAATAACGGTATATT
AATCCCTCCAAAAAACGGTATATTTACTAAAAATCTAAGCCACGTAGGAGGATAACA
GGATCCCCGTAGGAGGATAACATCCAATCCAACCAATCACAACAATCCTGATGAGATAACCCA
CTTTAAGCCCACGCATCTGTGGCACATCTACATTATCTAAATCACACATTCTTCCACACATCTG
AGCCACACAAAAACCAATCCACATCTTTATCACCCATTCTATAAAAAATCACACTTTGTGAGTCT
ACACTTTGATTCCCTTCAAACACATACAAAGAGAAGAGACTAATTAATTAATTAATCATCTTGAG
AGAAAATGGCGAAAAACGTTGCGATTTTCGGCTTATTGTTTTCTCTTCTGTGTTGGTTCCTTCT
CAGATCTTCGCTGACACAATATGTATAGGCTACCATGCTAACAACCTCGACCGACACTGTTGACA
CAGTACTTGAAAAGAATGTGACAGTGACACACTCTGTCAACCTGCTTGAGAACAGTCACAATG
GAAAATATGTCTATTTAAAGGAATAGCCCCACTACAATTGGGTAAATTGCAGCGTTGCCGGGT
GGATCTTAGGAAACCCAGAATGCGAATTACTGATTTCCAAGGAGTCATGGTCTACATTGTAGA
AAAACCAAATCCTGAGAATGGAACATGTTACCCAGGGCATTTTCGCTGACTATGAGGAACTGAG
GGAGCAATTGAGTTCAGTATCTTCATTTGAGAGGTTGAAATATTTCCCAAAGAAAGCTCATGG
CCCAACACACCGTAACCGGAGTGTCAGCATCATGCTCCATAATGGGGAAAGCAGTTTTTAC
AGAAATTTGCTATGGCTGACGGGGAAGAATGGTTTGTACCCAAACCTGAGCAAGTCCTATGCA
AACAACAAGAAAAAGAAGTCCTTGTACTATGGGGTGTTCATCACCCGCCAAACATAGGTGAC
CAAAAGGCCCTCTATCATACAGAAAATGCTTATGTCTCTGTAGTGTCTTCACATTATAGCAGAA
AATTCACCCCAGAAATAGCCAAAAGACCCAAAGTAAGAGATCAAGAAGGAAGAATCAATTACTA
CTGGACTCTGCTTGAACCCGGGGATACAATAATATTTGAGGCAAATGGAAATCTAATAGCGCC
AAGATATGCTTTCGCACTGAGTAGAGGCTTTGGATCAGGAATCATCAACTCAAATGCACCAATG
GATAAATGTGATGCGAAGTGCCAAACACCTCAGGGAGCTATAAACAGCAGTCTTCTTTCCAG
AACGTACACCCAGTCACAATAGGAGAGTGTCCAAAGTATGTCAGGAGTGCAAAATTAAGGATG
GTTACAGGACTAAGGAACATCCCATCCATTCAATCCAGAGGTTTGTGTTGGAGCCATTGCCGGT
TTCATTGAAGGGGGGTGGACTGGAATGGTAGATGGTTGGTATGGTTATCATCATCAGAATGAG
CAAGGATCTGGCTATGCTGCAGATCAAAAAAGCACACAAAATGCCATTAATGGGATTACAAACA
AGGTCAATTCTGTAATTGAGAAAATGAACACTCAATTCACAGCAGTGGGCAAAGAGTTCAACAA
ATTGGAAAGAAGGATGGAAAACCTGAATAAAAAAGTTGATGATGGGTTTATAGACATTTGGACA
TATAATGCAGAACTGTTGGTTCTACTGGAAAATGAAAGGACTTTGGATTTCCATGACTCCAATG
TGAAGAATCTGTATGAGAAAGTAAAAAGCCAGTTAAAGAATAATGCTAAAGAAATAGGAAATGG
GTGTTTTGAGTTCTATCACAAGTGTAAACGATGAATGCATGGAGAGTGTAAAGAATGGAACCTTAT
GACTATCCAAAATATTTCCGAAGAATCAAAGTTAAACAGGGAGAAAAATTGATGGAGTGAAATGG
AATCAATGGGAGTCTATCAGATTCTGGCGATCTACTCAACAGTCGCCAGTTCTCTGGTTCTTTT
GGTCTCCCTGGGGGCAATCAGCTTCTGGATGTGTTCCAATGGGTCTTTACAGTGTAGAATATG
CATCTAAGAGCTCTAAGTTAAAATGCTTCTTCGTCTCCTATTTATAATATGGTTTGTATTGTTAA
TTTTGTTCTTGTAGAAGAGCTTAATTAATCGTTGTTGTTATGAAATACTATTTGTATGAGATGAAC
TGGTGTAAATGTAATTCATTTACATAAGTGGAGTCAGAATCAGAATGTTTCCTCCATAACTAATA
GACATGAAGACCTGCCGCGTACAATTGTCTTATATTTGAACAATAAATTGAACATCTTTTGC
CACAACCTTTATAAGTGGTTAATATAGCTCAAATATATGGTCAAGTTCAATAGATTAATAATGGAA
ATATCAGTTATCGAAATTCATTAACAATCAACTTAACGTTATTAATACTAATTTTATATCATCCC
CTTTGATAAATGATAGTACACCAATTAGGAAGGAGCATGCTCGAGGCCTGGCTGGCCGAATTC

Figure 71

AAGCTTGCTAGCGGCCTCAATGGCCCTGCAGGTCGACTCTAGAGGTACCCCGGGCTGGTATAT
TTATATGTTGTCAAATAACTCAAAAACCATAAAAGTTTAAGTTAGCAAGTGTGTACATTTTTACTT
GAACAAAAATATTACCTACTACTGTTATAAATCATTATTAACATTAGAGTAAAGAAATATGGAT
GATAAGAACAAGAGTAGTGATATTTTGACAACAATTTTGTTGCAACATTTGAGAAAATTTTGTTGT
TCTCTCTTTTCATTGGTCAAAAACAATAGAGAGAGAAAAAGGAAGAGGGAGAATAAAAACATAAT
GTGAGTATGAGAGAGAAAAGTTGTACAAAAGTTGTACCAAAATAGTTGTACAAATATCATTGAGG
AATTTGACAAAAGCTACACAAATAAGGGTTAATTGCTGTAAATAAATAAGGATGACGCATTAGAG
AGATGTACCATTAGAGAATTTTTGGCAAGTCATTAAGAAAGAAAGAATAAATTATTTTTAAATTA
AAGTTGAGTCATTTGATTAAACATGTGATTATTTAATGAATTGATGAAAGAGTTGGATTAAAGTTG
TATTAGTAATTAGAATTTGGTGTCAAATTTAATTTGACATTTGATCTTTTCTATATATTGCCCAT
AGAGTCAGTTAACTCATTTTTATATTTCATAGATCAAATAAGAGAAAATAACGGTATATTAATCCCT
CCAAAAAAGAAACCGGTATATTTACTAAAAAATCTAAGCCACGTAGGAGGATAACAGGATCCC
CGTAGGAGGATAACATCCAATCCAACCAATCACACAATCCTGATGAGATAACCCACTTTAAGC
CCACGCATCTGTGGCACATCTACATTATCTAAATCACACATTCTCCACACATCTGAGCCACAC
AAAAACCAATCCACATCTTTATCACCCATTCTATAAAAAATCACACTTTGTGAGTCTACACTTTGA
TTCCCTTCAAACACATACAAAGAGAAGAGACTAATTAATTAATTAATCATCTTGAGAGAAAATGG
CGAAAAACGTTGCGATTTTCGGCTTATTGTTTTCTCTTCTTGTTGGTTTCTTCTCAGATCTTC
GCTCAAAAACCTTCCCGGAAATGACAACAGCACGGCAACGCTGTGCCTTGGGCACCATGCAGTA
CCAAACGGAACGATAGTGAACAATCACGAATGACCAAAATTGAAGTTACTAATGCTACTGAGC
TGGTTCAGAGTTCTCAACAGGTGAAATATGCGACAGTCCTCATCAGATCCTTGATGGAGAAAA
CTGCACACTAATAGATGCTCTATTGGGAGACCTCAGTGTGATGGCTTCCAAAATAAGAAATGG
GACCTTTTTGTTGAACGCAGCAAAGCCTACAGCAACTGTTACCCTTATGATGTGCCGGATTATG
CCTCCCTTAGGTCAGTGTGCTCATCCGGCACACTGGAGTTTAACAATGAAAGTTTCAATTG
GACTGGAGTCACTCAAACGGAACAAGCTCTGCTTGCTAAGGAGATCTAATAACAGTTTCTTT
AGTAGATTGAATTGGTTGACCCACTTAAATTCAAATACCCAGCATTGAACGTGACTATGCCAAA
CAATGAAAAATTTGACAAATTTGTACATTTGGGGGGTTCACCACCCGGGTACGGACAATGACCAA
ATCTTCCTGTATGCTCAAGCATCAGGAAGAATCACAGTCTCTACCAAAAGAAGCCAACAACTG
TAATCCCGAATATCGGATCTAGACCCAGAGTAAGGAATATCCCCAGCAGAATAAGCATCTATTG
GACAATAGTAAAACCGGGAGACATACTTTTGATTAAACAGCACAGGGAATCTAATTGCTCCTAGG
GGTTACTTCAAATACGAAGTGGGAAAAGCTCAATAATGAGATCAGATGCACCCATTGGCAAAT
GCAATTCTGAATGCATCACTCCAAACGGAAGCATTCCCAATGACAAACCATTCCAAAATGTAAA
CAGGATCACATACGGGGCCTGTCCCAGATATGTTAAGCAAAACACTCTGAAATTGGCAACAGG
GATGCGAAATGTACCAGAGAAACAACTAGAGGCATATTTGGCGCAATCGCGGGTTTCATAGA
AAATGGTTGGGAGGGAATGGTGGATGGTTGGTATGGTTTCAGGCATCAAATTTCTGAGGGAAT
AGGACAAGCAGCAGATCTCAAAGCACTCAAGCAGCAATCGATCAAATCAATGGGAAGCTGAA
TAGGTTGATCGGGAAAACCAACGAGAAATTCATCAGATTGAAAAAGAGTTCTCAGAAGTCGAA
GGGAGAATCCAGGACCTTGAGAAATATGTTGAGGACACCAAAATAGATCTCTGGTCATACAACG
CGGAGCTTCTTGTTGCCCTGGAGAACCAACATACAATTGATCTAACTGACTCAGAAATGAACAA
ACTGTTTGAAAAAACAAAGAAGCAACTGAGGGAAAATGCTGAGGATATGGGCAATGGTTGTTTC
AAAATATACCACAAATGTGACAATGCCTGCATAGGATCAATCAGAAATGGAACCTTATGACCACG
ATGTATACAGAGATGAAGCATTAAACAACCGGTTCCAGATCAAGGGCGTTGAGCTGAAGTCAG
GATACAAAGATTGGATACTATGGATTTCTTTGCCATATCATGTTTTTGCTTTGTGTTGCTTTGT
TGGGGTTCATCATGTGGGCCTGCCAAAAGGCAACATTAGGTGCAACATTTGCATTTGAGAGC
TCTAAGTTAAATGCTTCTTCGTCTCCTATTTATAATATGGTTTGTTATTGTTAATTTGTTCTTGT
AGAAGAGCTTAATTAATCGTTGTTGTTATGAAATACTATTTGTATGAGATGAACTGGTGTAAATGT
AATTCATTTACATAAGTGGAGTCAGAATCAGAATGTTTCTCCATAACTAAGTACATGAAGAC
CTGCCGCGTACAATTGTCTTATATTTGAACAATAAATGAACATCTTTGCCACAACCTTTATAA
GTGGTTAATATAGCTCAAATATATGGTCAAGTTCAATAGATTAATAATGGAAATATCAGTTATCG
AAATTCATTAACAATCAACTTAACGTTATTAATACTAATTTTATATCATCCCCTTTGATAAATGAT
AGTACACCAATTAGGAAGGAGCATGCTCGAGGCCTGGCTGGCCGAATTC

Figure 72

AAGCTTGCTAGCGGCCTCAATGGCCCTGCAGGTCGACTCTAGAGGTACCCCGGGCTGGTATATT
TATATGTTGTCAAATAACTCAAAAACCATAAAAGTTTAAGTTAGCAAGTGTGTACATTTTTACTTGA
ACAAAAATATTCACCTACTACTGTTATAAATCATTATTAACATTAGAGTAAAGAAATATGGATGAT
AAGAACAAGAGTAGTGATATTTTGACAACAATTTTGTTGCAACATTTGAGAAAATTTTGTTGTTCTC
TCTTTTCATTGGTCAAAAACAATAGAGAGAGAAAAAGGAAGAGGGAGAATAAAAAACATAATGTGA
GTATGAGAGAGAAAAGTTGTACAAAAGTTGTACCAAAATAGTTGTACAAATATCATTGAGGAATTTG
ACAAAAGCTACACAAATAAGGGTTAATTGCTGTAAATAAATAAGGATGACGCATTAGAGAGATGTA
CCATTAGAGAATTTTTGGCAAGTCATTA AAAAGAAAGAATAAATTATTTTTAAAATTAAGTTGAG
TCATTTGATTAAACATGTGATTATTTAATGAATTGATGAAAAGAGTTGGATTAAAGTTGTATTAGTAA
TTAGAATTTGGTGTCAAATTTAATTTGACATTTGATCTTTTCTATATATTGCCCATAGAGTCAGT
TAACTCATTTTTATATTTCATAGATCAAATAAGAGAAATAACGGTATATTAATCCCTCCAAAAAAA
AAAACGGTATATTTACTAAAAATCTAAGCCACGTAGGAGGATAACAGGATCCCGTAGGAGGAT
AACATCCAATCCAACCAATCACAACAATCCTGATGAGATAACCCACTTTAAGCCCACGCATCTGT
GGCACATCTACATTATCTAAATCACACATTCTCCACACATCTGAGCCACACAAAAACCAATCCAC
ATCTTTATCACCCATTCTATAAAAAATCACACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACA
TACAAAGAGAAGAGACTAATTAATTAATTAATCATCTTGAGAGAAAATGGCGAAAAACGTTGCGAT
TTTCGGCTTATTGTTTTCTCTTCTGTGTTGGTTCTTCTCAGATCTTCGCTGATCGAATCTGCACT
GGAATAACATCTTCAAACCTCACCTCATGTGGTCAAACAGCCACTCAAGGGGAGGTCAATGTGAC
TGGTGTGATACCACTAACACAACACCAACAAAATCTTATTTTGCAAATCTCAAAGGAACAAGGAC
CAGAGGGAAACTATGCCCAGACTGTCTCAACTGCACAGATCTGGATGTGGCTTTGGGCAGACCA
ATGTGTGTGGGGACCACACCTTCGGCGAAGGCTTCAATACTCCACGAAGTCAAACCTGTTACATC
CGGGTGCTTTCTATAATGCACGACAGAACAAAAATCAGGCAACTACCCAATCTTCTCAGAGGAT
ATGAAAATATCAGGCTATCAACCCAAAACGTCATCGATGCGGAAAAGGCACCAGGAGGACCCTA
CAGACTTGGAACCTCAGGATCTTGCCCTAACGCTACCAGTAAGAGCGGATTTTTCGCAACAATGG
CTTGGGCTGTCCCAAAGGACAACAACAAAAATGCAACGAACCCACTAACAGTAGAAGTACCATAC
ATTTGTACAGAAGGGGAAGACCAATCACTGTTTGGGGTTCCATTGAGATAACAAAACCCAAT
GAAGAACCTCTATGGAGACTCAAATCCTCAAAGTTACCTCATCTGCTAATGGAGTAACCACAC
ACTATGTTTCTCAGATTGGCAGCTTCCAGATCAAACAGAAGACGGAGGACTACCACAAAAGCGG
CAGGATTGTTGTTGATTACATGATGCAAAAACCTGGGAAAACAGGAACAATTGTCTACCAAAGAG
GTGTTTTGTTGCCTCAAAGGTGTGGTGCGGAGTGGCAGGAGCAAAGTAATAAAAGGGTCCTT
GCCTTTAATTGGTGAAGCAGATTGCCTTCATGAAAAATACGGTGGATTAAACAAAAGCAAGCCTTA
CTACACAGGAGAACATGCAAAAAGCCATAGGAAATTGCCCAATATGGGTGAAAACACCTTTGAAGC
TCGCCAATGGAACCAATATAGACCTCCTGCAAACTATTAAAGGAAAGGGGTTTCTTCGGAGCT
ATTGCTGGTTTCTAGAAGGAGGATGGGAAGGAATGATTGCAGGCTGGCACGGATACACATCTC
ACGGAGCACATGGAGTGGCAGTGGCGGCGGACCTTAAGAGTACGCAAGAAGCTATAAACAAGAT
AACAAAAAATCTCAATTCCTTTGAGTGAGCTAGAAGTAAAGAATCTTCAAAGACTAAGTGGTGCCAT
GGATGAACTCCACAACGAAATACTCGAGCTGGATGAGAAAGTGGATGATCTCAGAGCTGACACT
ATAAGCTCGCAAATAGAACTTGCACTCTTGCTTTCCAACGAAGGAATAATAAACAGTGAAGATGA
GCATCTATTGGCACTTGAGAGAAAACATAAGAAAATGCTGGGTCCCTCTGCTGTAGAGATAGGAA
ATGGATGCTTCGAAACCAACACAAGTGCAACCAGACCTGCTTAGACAGGATAGCTGCTGGCAC
CTTTAATGCAGGAGAATTTTCTCTCCCACTTTTGATTCACTGAACATTACTGCTGCATCTTTAAAT
GATGATGGATTGGATAACCATACTATACTGCTCTATTACTCAACTGCTGCTTCTAGTTTGGCTGTA
ACATTGATGCTAGCTATTTTTATTGTTTATATGGTCTCCAGAGACAACGTTTCATGCTCCATCTGTC
TATAAGAGCTCTAAGTTAAATGCTTCTTCGTCTCCTATTTATAATATGGTTTGTATTGTTAATTTT
GTTCTTGTAGAAGAGCTTAATTAATCGTTGTTGTTATGAAATACTATTTGTATGAGATGAAGTGGT
TAATGTAATTCATTTACATAAGTGGAGTCAGAATCAGAATGTTTCCTCCATAACTAAGTACATGA
AGACCTGCCGCGTACAATTGCTTATATTTGAACAATAAAATTGAACATCTTTGCCACAACCTTA
TAAGTGGTTAATATAGCTCAAATATATGGTCAAGTTCAATAGATTAATAATGGAAATATCAGTTATC
GAAATTCATTAACAATCAACTTAACGTTATTAATACTAATTTTATATCATCCCTTTGATAAATGAT
AGTACACCAATTAGGAAGGAGCATGCTCGAGGCCTGGCTGGCCGAATTC

Figure 73

TTAATTAAGAATTTCGAGCTCCACCGCGGAAACCTCCTCGGATTCCATTGCCAGCTATCT
 GTCACTTTATTGAGAAGATAGTGGAAAAGGAAGGTGGCTCCTACAAATGCCATCATTGCG
 ATAAAGGAAAGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGATGGACCC
 CCACCCACGAGGAGCATCGTGGAAAAAGAAGACGTTCCAACCACGTCTTCAAAGCAAGT
 GGATTGATGTGATATCTCCACTGACGTAAGGGATGACGCACAATCCCACTATCCTTCGCA
 AGACCCTTCTCTATATAAGGAAGTTCATTTCAATTTGGAGAGGTATTAATAATCTTAATAGGT
 TTTGATAAAAGCGAACGTGGGGAAACCCGAACCAAACCTTCTTCTAAACTCTCTCATCT
 CTCTTAAAGCAAACCTTCTCTTGTCTTTCTTGCCTGAGCGATCTTCAACGTTGTCAGATC
 GTGCTTCGGCACCAGTACAACGTTTTCTTCACTGAAGCGAAATCAAAGATCTCTTTGTGG
 ACACGTAGTGCGGCGCCATTAAATAACGTGTACTTGTCTATTCTTGTGGTGTGGTCTT
 GGGAAAAGAAAGCTTGCTGGAGGCTGCTGTTGAGCCCATACATTACTTGTTACGATTCT
 GCTGACTTTTCGGCGGGTGCAATATCTCTACTTCTGCTTGACGAGGTATTGTTGCCTGTAC
 TTCTTTCTTCTTCTTCTTGTGCTGATTGGTTCTATAAGAAATCTAGTATTTTCTTTGAAACAGA
 GTTTTCCCGTGGTTTTCGAACCTGGAGAAAGATTGTTAAGCTTCTGTATATTCTGCCAAA
 TTTGTGCGGGCCCATGGCGAAAAACGTTGCGATTTTCGGCTTATTGTTTTCTTCTTGTGT
 TGGTTCCTTCTCAGATCTTCGCTGACACAATATGTATAGGCTACCATGCCAACAACTCAAC
 CGACACTGTTGACACAGTACTTGAGAAGAATGTGACAGTGACACACTCTGTCAACCTACT
 TGAGGACAGTCACAATGGAAAACTATGTCTACTAAAAGGAATAGCCCCACTACAATTGGG
 TAATTGCAGCGTTGCCGGATGGATCTTAGGAAACCCAGAATGCGAATTACTGATTTCCAA
 GGAATCATGGTCTACATTGTAGAAACACCAATCCTGAGAATGGAACATGTTACCCAGG
 GTATTTGCGCCACTATGAGGAACTGAGGGAGCAATTGAGTTCAGTATCTTCATTTGAGAG
 ATTCGAAATATTCGCCAAAGAAAGCTCATGGCCCAACCACACCGTAACCGGAGTATCAGC
 ATCATGCTCCCATAAATGGGAAAAGCAGTTTTTACAGAAATTTGCTATGGCTGACGGGGAA
 GAATGGTTTGTACCCAAACCTGAGCAAGTCCTATGTAAACAACAAGAGAAAGAAGTCCTT
 GTACTATGGGGTGTTCATCACCCGCCTAACATAGGGAACCAAAGGGCACTCTATCATACA
 GAAATGCTTATGTCTCTGTAGTGTCTTCACATTATAGCAGAAGATTACCCCCAGAAATAG
 CCAAAAGACCCAAAGTAAGAGATCAGGAAGGAAGAATCAACTACTACTGGACTCTGCTGG
 AACCTGGGGATACAATAATATTTGAGGCAAATGGAAATCTAATAGCGCCATGGTATGCTTT
 TGCACTGAGTAGAGGCTTTGGATCAGGAATCATCACCTCAAATGCACCAATGGATGAATG
 TGATGCGAAGTGTCAAACACCTCAGGGAGCTATAAACAGCAGTCTTCTTTCCAGAATGT
 ACACCCAGTCACAATAGGAGAGTGTCCAAAGTATGTCAGGAGTGCAAAATTAAGGATGGT
 TACAGGACTAAGGAACATCCCATCATTCAATCCAGAGGTTTGTGGAGCCATTGCCGG
 TTTCAATTGAAGGGGGGTGGACTGGAATGGTAGATGGGTGGTATGGTTATCATCATCAGAA
 TGAGCAAGGATCTGGCTATGCTGCAGATCAAAAAAGTACACAAAATGCCATTAACGGGAT
 TACAAACAAGGTCAATTCTGTAATTGAGAAAATGAACACTCAATTCACAGCTGTGGGCAA
 GAGTTCAACAAATTGGAAAGAAGGATGGAAAACCTTAAATAAAAAAGTTGATGATGGGTTTC
 TAGACATTTGGACATATAATGCAGAATTGTTGGTTCTACTGGAAAATGAAAGGACTTTGGA
 TTTCCATGACTCCAATGTGAAGAATCTGTATGAGAAAGTAAAAAGCCAATTAAGAATAAT
 GCCAAAGAAATAGGAAACGGGTGTTTTGAGTTCTATCACAAGTGTAAACATGAATGCATG
 GAGAGTGTGAAAAATGGTACCTATGACTATCCAAAATATTCCGAAGAATCAAAGTTAAACA
 GGGAGAAAAATTGATGGAGTGAAATTGGAATCAATGGGAGTATACCAGATTCTGGCGATCT
 ACTCAACTGTCGCCAGTTCCTGTTCTTTTGGTCTCCCTGGGGGCAATCAGCTTCTGGA
 TGTGTTCCAATGGGTCTTTCAGTGTAGAATATGCATCTAAAGGCCTATTTTCTTTAGTTT
 GAATTTACTGTTATTCGGTGTGCATTTCTATGTTTGGTGAGCGGTTTTCTGTGCTCAGAGT
 GTGTTTATTTTATGTAATTTAATTTCTTTGTGAGCTCCTGTTTAGCAGGTCGTCCCTTCAGC
 AAGGACACAAAAAGATTTTAAATTTATTAAAAAAAAAAAAAAAAAAGACCGGGAATTCGATA
 TCAAGCTTATCGACCTGCAGATCGTTCAAACATTTGGCAATAAAGTTTCTTAAGATTGAAT
 CCTGTTGCCGGTCTTTCGATGATTATCATATAATTTCTGTTGAATTACGTTAAGCATGTAAT
 AATTAACATGTAATGCATGACGTTATTTATGAGATGGGTTTTTATGATTAGAGTCCCGCAAT
 TATACATTTAATACGCGATAGAAAACAAAATATAGCGCGCAACTAGGATAAATTATCGCG
 CGCGGTGTCATCTATGTTACTAGATTCTAGAGTCTCAAGCTTCGGCGCGCC

Figure 74

TTAATTAAGAATTTCGAGCTCCACCGCGGAAACCTCCTCGGATTCCATTGCCAGCTATCT
 GTCACTTTATTGAGAAGATAGTGGAAAAGGAAGGTGGCTCCTACAAATGCCATCATTGCG
 ATAAAGGAAAGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGATGGACCC
 CCACCCACGAGGAGCATCGTGGAAGAAAGACGTTCCAACCACGTCTTCAAAGCAAGT
 GGATTGATGTGATATCTCCACTGACGTAAGGGATGACGCACAATCCCACTATCCTTCGCA
 AGACCCTTCCTCTATATAAGGAAGTTCATTTCAATTTGGAGAGGTATTAATAATCTTAATAGGT
 TTTGATAAAAGCGAACGTGGGGAAACCCGAACCAAACCTTCTTCTAAACTCTCTCTCATCT
 CTCTTAAAGCAAACCTTCTCTCTTGTCTTTCTTGCGTGAGCGATCTTCAACGTTGTCAGATC
 GTGCTTCGGCACCAGTACAACGTTTTCTTCACTGAAGCGAAATCAAAGATCTCTTTGTGG
 ACACGTAGTGCGGCGCCATTAAATAACGTGTACTTGTCTATTCTTGTGCGGTGTGGTCTT
 GGGAAAAGAAAGCTTGCTGGAGGCTGCTGTTGAGCCCCATACATTACTTGTTACGATTCT
 GCTGACTTTCGGCGGGTGCAATATCTCTACTTCTGCTTGACGAGGTATTGTTGCCTGTAC
 TTCTTTCTTCTTCTTCTTGTGCTGATTGGTCTATAAGAAATCTAGTATTTTCTTTGAAACAGA
 GTTTTCCCGTGGTTTTCGAACTTGAGAAAGATTGTTAAGCTTCTGTATATTCTGCCAAA
 TTTGTGCGGGCCCATGGAGAAAATAGTGCTTCTTCTTGAATAGTCAGTCTTGTTAAAAGTG
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 CTGCGATCTAGATGGAGTGAAGCCTCTAATTTTAAGAGATTGTAGTGTAGCTGGATGGCT
 CCTCGGGAACCCAATGTGTGACGAATTCATCAATGTACCGGAATGGTCTTACATAGTGGA
 GAAGGCCAATCCAACCAATGACCTCTGTTACCCAGGGAGTTTCAACGACTATGAAGAAT
 GAAACACCTATTGAGCAGAATAAACCATTTTGAGAAAATTCAAATCATCCCCAAAAGTTCT
 TGGTCCGATCATGAAGCCTCATCAGGAGTTAGCTCAGCATGTCCATACCTGGGAAGTCCC
 TCCTTTTTTAGAAATGTGGTATGGCTTATCAAAAAGAACAGTACATACCCAACAATAAAGA
 AAAGCTACAATAATACCAACCAAGAGGATCTTTTGGTACTGTGGGGAATTCACCATCCTAA
 TGATGCGGCAGAGCAGACAAGGCTATATCAAAACCCAACCACCTATATTTCCATTGGGAC
 ATCAACACTAAACCAGAGATTGGTACCAAAAATAGCTACTAGATCCAAAGTAAACGGGGCAA
 AGTGAAGGATGGAGTTCTTCTGGACAATTTTAAACCTAATGATGCAATCAACTTCGAGA
 GTAATGGAAATTTTATTGCTCCAGAATATGCATACAAAATTGTCAAGAAAGGGGACTCAGC
 AATTATGAAAAGTGAATTGGAATATGGTAAGTCAACACCAAGTGTCAAATCCAATGGGG
 GCGATAAACTCTAGTATGCCATTCCACAACATACACCCTCTCACCATCGGGGAATGCCCC
 AAATATGTGAAATCAAACAGATTAGTCCTTGCAACAGGGCTCAGAAATAGCCCTCAAAGA
 GAGAGCAGAAGAAAAAGAGAGGACTATTTGGAGCTATAGCAGGTTTTATAGAGGGAGGA
 TGGCAGGGAATGGTAGATGGTTGGTATGGGTACCACCATAGCAATGAGCAGGGGAGTGG
 GTACGCTGCAGACAAAGAATCCACTCAAAGGCAATAGATGGAGTCACCAATAAGGTCAA
 CTCAATCATTGACAAAATGAACACTCAGTTTGAGGCCGTTGGAAGGGAATTTAATAACTTA
 GAAAGGAGAATAGAGAATTTAAACAAGAAGATGGAAGACGGGTTTCTAGATGTCTGGACT
 TATAATGCCGAACCTTCTGGTTCTCATGGAAAATGAGAGAATCTAGACTTTTCATGACTCAA
 ATGTTAAGAACCTCTACGACAAGGTCCGACTACAGCTTAGGGATAATGCAAAGGAGCTGG
 GTAACGTTGTTTCGAGTTCTATCACAATGTGATAATGAATGTATGGAAAGTATAAGAAA
 CGGAACGTACAACCTATCCGCAAGTATTCAGAAGAAGCAAGATTAAGAGAGAGGAAATAAG
 TGGGGTAAAATTGGAATCAATAGGAACTTACCAATACTGTCAATTTATTCAACAGTGCGG
 AGTTCCCTAGCACTGGCAATCATGATGGCTGGTCTATCTTTATGGATGTGCTCCAATGGA
 TCGTTACAATGCAGAATTTGCATTTAAAGGCCTATTTTCTTAGTTTGAATTTACTGTTATT
 CGGTGTGCATTTCTATGTTTGGTGAGCGGTTTTCTGTGCTCAGAGTGTGTTTATTTATGT
 AATTTAATTTCTTTGTGAGCTCCTGTTTAGCAGGTCTGTCCTTCAGCAAGGACACAAAAAG
 ATTTAATTTTATTAATAAAAAAAAAAAAAAAAAAGACCGGGAATTCGATATCAAGCTTATCGAC
 CTGCAGATCGTTCAAACATTTGGCAATAAAGTTTCTTAAGATTGAATCCTGTTGCCGGTCT
 TGCGATGATTATCATATAATTTCTGTTGAATTACGTTAAGCATGTAATAATTAACATGTAAT
 GCATGACGTTATTTATGAGATGGGTTTTATGATTAGAGTCCCGCAATTATACATTTAATAC
 GCGATAGAAAACAAAATATAGCGCGCAAAGTAGGATAAATTATCGCGCGCGGTGTCTATCT
 ATGTTACTAGATTCTAGAGTCTCAAGCTTCGGCGCGCC

Figure 75

TTAATTAAGAATTCGAGCTCCACCGCGGAAACCTCCTCGGATTCCATTGCCCAGCTATCT
 GTCACTTTATTGAGAAGATAGTGGAAAAGGAAGGTGGCTCTACAAATGCCATCATTGCG
 ATAAAGGAAAGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGATGGACCC
 CCACCCACGAGGAGCATCGTGGAAAAAGAAGACGTTCCAACCACGTCTTCAAAGCAAGT
 GGATTGATGTGATATCTCCACTGACGTAAGGGATGACGCACAATCCCACTATCCTTCGCA
 AGACCCTTCTCTATATAAGGAAGTTCATTTCAATTTGGAGAGGTATTAATAATCTTAATAGG
 TTTTGATAAAAGCGAACGTGGGGAAACCCGAACCAAACCTTCTTCTAAACTCTCTCAT
 CTCTCTTAAAGCAAACCTTCTCTTGTCTTTCTTGCCTGAGCGATCTTCAACGTTGTCAGA
 TCGTGCTTCGGCACCAGTACAACGTTTTCTTCACTGAAGCGAAATCAAAGATCTCTTTGT
 GGACACGTAGTGC GGCGCCATTAAATAACGTGTACTTGTCTATTCTTGTGGTGTGGTC
 TTGGGAAAAGAAAGCTTGCTGGAGGCTGCTGTTCAAGCCCATACATTACTTGTACGATT
 CTGCTGACTTTTCGGCGGGTGCAATATCTCTACTTCTGCTTGACGAGGTATTGTTGCCTGT
 ACTTCTTTCTTCTTCTTCTTGTCTGATTGGTTCTATAAGAAATCTAGTATTTTCTTGAACA
 GAGTTTTCCCGTGGTTTTCTGAACCTTGAGAAAGATTGTTAAGCTTCTGTATATTCTGCCCA
 AATTTGTGGGCCCCATGGCGAAAACGTTGCGATTTTCGGCTTATTGTTTTCTTCTTGT
 GTTGGTTCTTCTCAGATCTTCGCTGATCAGATTTGCATTGGTTACCATGCAAACAATTCA
 ACAGAGCAGGTTGACACAATCATGGAAAAGAAGCTTACTGTTACACATGCCCAAGACATA
 CTGGAAAAGACACACAACGGGAAGCTCTGCGATCTAGATGGAGTGAAGCCTCTAATTTTA
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 GTACCGGAATGGTCTTACATAGTGGAGAAGGCCAATCCAACCAATGACCTCTGTTACCCA
 GGGAGTTTTCAACGACTATGAAGAACTGAAACACCTATTGAGCAGAATAAACCATTITGAG
 AAAATTCAAATCATCCCCAAAAGTTCTTGGTCCGATCATGAAGCCTCATCAGGAGTTAGC
 TCAGCATGTCCATACCTGGGAAGTCCCTCCTTTTTAGAAATGTGGTATGGCTTATCAAAA
 AGAACAGTACATACCCAACAATAAAGAAAAGCTACAATAATACCAACCAAGAGGATCTTTT
 GGTACTGTGGGGAATTCAACATCCTAATGATGCGGCAGAGCAGACAAGGCTATATCAAA
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 AGCTACTAGATCCAAAGTAAACGGGCAAAGTGGAAGGATGGAGTTCTTCTGGACAATTTT
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 TACACCCTCTCACCATCGGGGAATGCCCCAAATATGTGAAATCAAACAGATTAGTCCTTG
 CAACAGGGCTCAGAAATAGCCCTCAAAGAGAGAGCAGAAGAAAAAAGAGAGGACTATTT
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 AGGCAATAGATGGAGTCACCAATAAGGTCAACTCAATCATTGACAAAATGAACACTCAGT
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 GACTACAGCTTAGGGATAATGCAAAGGAGCTGGGTAACGGTTGTTTCGAGTTCTATCACA
 AATGTGATAATGAATGTATGGAAAGTATAAGAAACGGAACGTACAACCTATCCGCAGTATT
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 GCTGGTCTATCTTTATGGATGTGCTCCAATGGATCGTTACAATGCAGAATTTGCATTTAAA
 GGCCTATTTTCTTTAGTTTGAATTTACTGTTATTCGGTGTGCATTTCTATGTTTGGTGAGC
 GGTCTTCTGTGCTCAGAGTGTGTTTATTTTATGTAATTTAATTTCTTTGTGAGCTCCTGTT
 AGCAGGTCTGCCCTCAGCAAGGACACAAAAAGATTTTAAATTTATTAATAAAAAAAAAAAAA
 AAAAGACCGGGAATTCGATATCAAGCTTATCGACCTGCAGATCGTTCAAACATTTGGCAA
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 GAATTACGTTAAGCATGTAATAATTAACATGTAATGCATGACGTTATTTATGAGATGGGTT
 TTTATGATTAGAGTCCCGCAATTATACATTTAATACGCGATAGAAAACAAAATATAGCGCG
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 GCTTCGGCGCGCC

Figure 76

TTAATTAAGAATTCGAGCTCCACCGCGGAAACCTCCTCGGATTCCATTGCCAGCTAT
 CTGTCACTTTATTGAGAAGATAGTGGAAGGAAGGTGGCTCCTACAAATGCCATCAT
 TGCGATAAAGGAAAGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGAT
 GGACCCCCACCCACGAGGAGCATCGTGGAAAAGAAGACGTTCCAACCACGTCTTCA
 AAGCAAGTGGATTGATGTGATATCTCCACTGACGTAAGGGATGACGCACAATCCCACT
 ATCCTTCGCAAGACCCTTCCTCTATATAAGGAAGTTCATTTCAATTTGGAGAGGTATTAA
 AATCTTAATAGGTTTTGATAAAAGCGAACGTGGGGAAACCCGAACCAAACCTTCTTCTA
 AACTCTCTCATCTCTCTTAAAGCAAACCTTCTCTTGTCTTTCTTGCGTGAGCGATC
 TTCAACGTTGTCAGATCGTGCTTCGGCACCAGTACAACGTTTTCTTCACTGAAGCGA
 AATCAAAGATCTCTTTGTGGACACGTAGTGCGGCGCCATTAAATAACGTGTACTTGTG
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 GAAATCTAGTATTTTCTTTGAAACAGAGTTTTCCCGTGGTTTTCGAAGTTGGAGAAAGA
 TTGTTAAGCTTCTGTATATTCTGCCCAAATTTGTCGGGGCCCATGAAAGTAAACTACTG
 GTCCTGTTATGCACATTTACAGCTACATATGCAGACACAATATGTATAGGCTACCATGC
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 TCTGTCAACCTGCTTGAGAACAGTCACAATGGAAAACCTATGTCTATTAAAGGAATAGC
 CCCACTACAATTGGGTAATTGCAGCGTTGCCGGGTGGATCTTAGGAAACCCAGAATG
 CGAATTACTGATTTCCAAGGAGTCATGGTCTACATTGTAGAAAAACCAAATCCTGAGA
 ATGGAACATGTTACCCAGGGCATTTCGCTGACTATGAGGAACTGAGGGAGCAATTGA
 GTTCAGTATCTTCATTTGAGAGGTTTCAAATATTCCCAAAGAAAGCTCATGGCCCAA
 CCACACCGTAACCGGAGTGTGAGCATCATGCTCCATAATGGGGAAAGCAGTTTTTAC
 AGAAATTTGCTATGGCTGACGGGGAAGAATGGTTTGTACCCAAACCTGAGCAAGTCCT
 ATGCAAAACAACAAAGAAAAAGAAGTCCTTGACTATGGGGTGTTCATCACCCGCCAAA
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 GAGGCAAATGGAAATCTAATAGCGCCAAGATATGCTTTGCACTGAGTAGAGGCTTTG
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 GGAGAGTGTCCAAAGTATGTCAGGAGTGCAAAATTAAGGATGGTTACAGGACTAAGGA
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 GGGGTGGACTGGAATGGTAGATGGTTGGTATGGTTATCATCATCAGAATGAGCAAGG
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 AGGTCAATTCTGTAATTGAGAAAATGAACACTCAATTCACAGCAGTGGGCAAAGAGTT
 CAACAAATTGGAAAGAAGGATGGAAAACCTGAATAAAAAAGTTGATGATGGGTTTTATAG
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 TGCTAAAGAAATAGGAAATGGGTGTTTTGAGTTCTATCACAAGTGTAACGATGAATGCA
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 CTTCTGGATGTGTTCCAATGGGTCTTTACAGTGTAGAATATGCATCTAAAGGCCTATTT
 TCTTTAGTTTGAATTTACTGTTATTCGGTGTGCATTTCTATGTTTGGTGAGCGGTTTTCT
 GTGCTCAGAGTGTGTTTATTTTATGTAATTTAATTTCTTTGTGAGCTCCTGTTTAGCAGG
 TCGTCCCTTCAGCAAGGACACAAAAAGATTTTAATTTTATTAATAAAAAAAAAAAAAAAAAAG
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 TTATGATTAGAGTCCCGCAATTATACATTTAATACGCGATAGAAAACAAAATATAGCGC
 GCAAACTAGGATAAATTATCGCGCGCGGTGTCATCTATGTTACTAGATTCTAGAGTCT
 CAAGCTTCGGCGCGCC

Figure 77

TTAATTAAGAATTTCGAGCTCCACCGCGAAACCTCCTCGGATTCCATTGCCAGCTATCT
GTCACCTTTATTGAGAAGATAGTGGAAAAGGAAGGTGGCTCCTACAAATGCCATCATTGC
GATAAAGGAAAAGGCCATCGTTGAAGATGCCTCTGCCACAGTGGTCCCAAAGATGGAC
CCCCACCCACGAGGAGCATCGTGAAAAAAGAAGACGTTCCAACCACGTCTTCAAAGCAA
GTGGATTGATGTGATATCTCCACTGACGTAAGGGATGACGCACAATCCCACTATCCTTC
GCAAGACCCTTCTCTATATAAGGAAGTTCATTTTCTTTGGAGAGGTATTAATACTTTAAT
AGGTTTTGATAAAGCGAACGTGGGGAAACCCGAACCAAACCTTCTTCTAACTCTCTCT
CATCTCTCTTAAAGCAAACCTTCTCTTGTCTTTCTTGCCTGAGCGATCTTCAACGTTGT
AGATCGTGCTTCGGCACCAGTACAACGTTTTCTTTCACTGAAGCGAAATCAAAGATCTCT
TTGTGGACACGTAGTGCGGCGCCATTAAATAACGTGTACTTGTCTATTCTTGTGGTGT
GGTCTTGGGAAAAGAAAGCTTGCTGGAGGCTGCTGTTACGCCCATACATTACTTGTTA
CGATTCTGCTGACTTTCGGCGGGTGCAATATCTCTACTTCTGCTTGACGAGGTATTGTG
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TAGAGTCTCAAGCTTCGGCGCGGCC

Figure 78

TTAATAATTAAGAAATTCGAGCTCCACCGCGGAAACCTCCTCGGATTCCATTGCCACGCTAT
CTGTCACTTTATTGAGAAGATAGTGGAAGGAAGGTGGCTCCTACAAATGCCATCATI
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GAGTCCCGCAATTATACATTTAATACGCGATAGAAAACAAATATAGCGCGCAAACTAG
GATAAATTATCGCGCGCGGTGTCATCTATGTTACTAGATTCTAGAGTCTCAAGCTTCGG
CGCGCC

Figure 79

TTAATTAAGAATTGAGCTCCACCGCGGAAACCTCCTCGGATTCCATTGCCAGCTATC
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 CGATAAAGGAAAGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGATGGA
 CCCCCACCCACGAGGAGCATCGTGGAAGAAAGAACGTTCCAACCACGTCTTCAAAGC
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 TCGCAAGACCCTTCTCTATATAAGGAAGTTTCATTTCAATTTGGAGAGGTATTAATCTT
 AATAGGTTTTGATAAAAGCGAACGTGGGGAAACCCGAACCAAACCTTCTTCTAACTCT
 CTCTCATCTCTCTTAAAGCAAACCTTCTCTCTTGTCTTTCTTGCGTGAGCGATCTTCAACG
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 TTATGATTAGAGTCCCGCAATTATACATTTAATACGCGATAGAAAACAAAATATAGCGCG
 CAACTAGGATAAATTATCGCGCGCGGTGTCATCTATGTTACTAGATTCTAGAGTCTCA
 AGCTTCGGCGCGCC

Figure 80

TTAATTAAGAATTGAGCTCCACCGCGGAAACCTCCTCGGATTCCATTGCCAGCTAT
CTGTCACCTTTATTGAGAAGATAGTGAAAAAGGAAGGTGGCTCCTACAAATGCCATCAT
TGCGATAAAGGAAAGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGAT
GGACCCCCACCCACGAGGAGCATCGTGAAAAAGAACGTTCCAACCACGTCTTCA
AAGCAAGTGGATTGATGTGATATCTCCACTGACGTAAGGGATGACGCACAATCCCACT
ATCCTTCGCAAGACCCTTCCTCTATATAAGGAAGTTCATTTCAATTTGGAGAGGTATTAA
AATCTTAATAGGTTTTGATAAAAGCGAACGTGGGGAAACCCGAACCAAACCTTCTTCT
AAACTCTCTCTCATCTCTCTTAAAGCAAACCTTCTCTTGTCTTTCTTGCGTGAGCGAT
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AAATCAAAGATCTCTTTGTGGACACGTAGTGCGGCGCCATTAAATAACGTGTACTTGT
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CAAACCTCACCTCATGTGGTCAAAACAGCCACTCAAGGGGAGGTCAATGTGACTGGTG
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GATGCGGAAAAGGCACCAGGAGGACCCTACAGACTTGGAACCTCAGGATCTTGCCCT
AACGCTACCAGTAAGAGCGGATTTTTCGCAACAATGGCTTGGGCTGTCCCAAAGGAC
AACAACAAAATGCAACGAACCCACTAACAGTAGAAGTACCATACATTTGTACAGAAG
GGGAAGACCAAATCACTGTTTGGGGTTCCATTAGATAACAAAACCCAAATGAAGAA
CCTCTATGGAGACTCAAATCCTCAAAAGTTCACCTCATCTGCTAATGGAGTAACCACA
CACTATGTTTCTCAGATTGGCAGCTTCCAGATCAAACAGAAGACGGAGGACTACCAC
AAAGCGGCAGGATTGTTGTTGATTACATGATGCAAAAACCTGGGAAAACAGGAACAAT
TGTCTACCAAAGAGGTGTTTTGTTGCCTCAAAAGGTGTGGTGCAGGAGTGGCAGGAG
CAAAGTAATAAAAGGGTCCTTGCCTTAATTGGTGAAGCAGATTGCCTTCATGAAAAT
ACGGTGGATTAAACAAAAGCAAGCCTTACTACACAGGAGAACATGCAAAAGCCATAGG
AAATTGCCCAATATGGGTGAAAACACCTTTGAAGCTCGCCAATGGAACCAAATATAGA
CCTCCTGCAAACTATTAAAGGAAAGGGTTTTCTTCGGAGCTATTGCTGGTTTTCTAG
AAGGAGGATGGGAAGGAATGATTGCAGGCTGGCACGGATACACATCTCACGGAGCA
CATGGAGTGGCAGTGGCGGCGGACCTTAAGAGTACGCAAGAAGCTATAAACAAGATA
ACAAAAATCTCAATTCTTTGAGTGAGCTAGAAGTAAAGAATCTTCAAAGACTAAGTGG
TGCCATGGATGAACCTCACAAACGAAATACTCGAGCTGGATGAGAAAGTGGATGATCTC
AGAGCTGACACTATAAGCTCGCAAATAGAACTTGCAGTCTTGCTTTCCAACGAAGGAA
TAATAAACAGTGAAGATGAGCATCTATTGGCACTTGAGAGAAAACCTAAAGAAAATGCT
GGGTCCCTCTGCTGTAGAGATAGGAAATGGATGCTTCGAAACCAAACACAAGTGCAA
CCAGACCTGCTTAGACAGGATAGCTGCTGGCACCTTTAATGCAGGAGAATTTTCTCTC
CCCCTTTTGAATCACTGAACATTACTGCTGCATCTTTAAATGATGATGGATTGGATAA
CCATACTATACTGCTCTATTACTCAACTGCTGCTTCTAGTTTGGCTGTAACATTGATGC
TAGCTATTTTTATTGTTTATATGGTCTCCAGAGACAACGTTTCATGCTCCATCTGTCTAT
AAAGGCCTATTTTCTTAGTTTGAATTTACTGTTATTTCGGTGTGCATTTCTATGTTTGGT
GAGCGGTTTTCTGTGCTCAGAGTGTGTTTATTTATGTAATTTAATTTCTTTGTGAGCT
CCTGTTTAGCAGGTCTGTCCTTCAGCAAGGACACAAAAAGATTTTAATTTTATTAATAA
AAAAAAAAAAAAAGACCGGGAATTCGATATCAAGCTTATCGACCTGCAGATCGTTCAA
ACATTTGGCAATAAAGTTTCTTAAGATTGAATCCTGTTGCCGGTCTTGCGATGATTATC
ATATAATTTCTGTTGAATTACGTTAAGCATGTAATAATTAACATGTAATGCATGACGTTA
TTTATGAGATGGGTTTTTATGATTAGAGTCCCGCAATTATACATTTAATACGCGATAGA
AAACAAAATATAGCGCGCAAACTAGGATAAATTATCGCGCGCGGTGTCATCTATGTTA
CTAGATTCTAGAGTCTCAAGCTTCGGCGCGCC

Figure 81

TTAATTAAGAATTTCGAGCTCCACCGCGGAAACCTCCTCGGATTCCATTGCCAGCTATCTGTC
ACTTTATTGAGAAGATAGTGGAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAG
GAAAGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCAC
GAGGAGCATCGTGAAAAAGAAGACGTTCCAACCACGTCTTCAAAGCAAGTGATTGATGTG
ATATCTCCACTGACGTAAGGGATGACGCACAATCCCACTATCCTTCGCAAGACCCCTCCTCTA
TATAAGGAAGTTCATTTCAATTTGGAGAGGTATTAATAATCTTAATAGGTTTTGATAAAGCGAAC
GTGGGGAAACCCGAACCAAACCTTCTTCTAAACTCTCTCTCATCTCTCTTAAAGCAAACCTTCTC
TCTTGCTTTCTTGCGTGAGCGATCTTCAACGTTGTCAGATCGTGCTTCGGCACCAGTACAAC
GTTTTCTTTCACTGAAGCGAAATCAAAGATCTCTTTGTGGACACGTAGTGCGGCGCCATTAAA
TAACGTGTACTTGTCTATTCTTGTGCGGTGTGGTCTTGGGAAAAGAAAGCTTGCTGGAGGCTG
CTGTTCAAGCCCATACATTACTTGTACGATTCTGCTGACTTTCGGCGGGTGCAATATCTCTA
CTTCTGCTTGACGAGGTATTGTTGCCTGTACTTCTTCTTCTTCTTCTTCTGCTGATTGGTTCTAT
AAGAAATCTAGTATTTTCTTGAACAGAGTTTTCCCGTGTTTTCGAAGTTGGAGAAAGATTG
TTAAGCTTCTGTATATTCTGCCCAAATTTGTCGGGCCCATGGCGAAAAACGTTGCGATTTTCG
GCTTATTGTTTTCTTCTTGTGTTGGTTCCTTCTCAGATCTTCGCTGATCGAATCTGCACTGG
AATAACATCTTCAAACCTCACCTCATGTGGTCAAAACAGCCACTCAAGGGGAGGTCAATGTGAC
TGGTGTGATACCACTAACAACAACACCAACAAAATCTTATTTGCAAATCTCAAAGGAACAAGG
ACCAGAGGGAAACTATGCCAGACTGTCTCAACTGCACAGATCTGGATGTGGCTTTGGGCAG
ACCAATGTGTGTGGGGACCACACCTTCGGCGAAGGCTTCAATACTCCACGAAGTCAAACCTG
TTACATCCGGGTGCTTTCTTATAATGCACGACAGAACAAAAATCAGGCAACTACCCAATCTTC
TCAGAGGATATGAAAATATCAGGCTATCAACCCAAAACGTCATCGATGCGGAAAAGGCACCA
GGAGGACCCTACAGACTTGGAACCTCAGGATCTTGCCCTAACGCTACCAGTAAGAGCGGATT
TTTCGCAACAATGGCTTGGGCTGTCCCAAAGGACAACAACAAAAATGCAACGAACCCACTAAC
AGTAGAAGTACCATACATTTGTACAGAAGGGGAAGACCAAATCACTGTTTGGGGTTCCATTCT
AGATAACAAAACCCAAATGAAGAACCTCTATGGAGACTCAAATCCTCAAAGTTCACCTCATCT
GCTAATGGAGTAACCACACACTATGTTTCTCAGATTGGCAGCTTCCCAGATCAAACAGAAGAC
GGAGGACTACCACAAAGCGGCAGGATTGTTGTTGATTACATGATGCAAAAACCTGGGAAAAC
AGGAACAATTGTCTACCAAAGAGGTGTTTTGTTGCCTCAAAGGTGTGGTGCAGGAGTGGA
GGAGCAAAGTAATAAAAGGGTCTTGCCTTAATTGGTGAAGCAGATTGCCTTCATGAAAAAT
ACGGTGGATTAAACAAAAGCAAGCCTTACTACACAGGAGAACATGCAAAAGCCATAGGAAATT
GCCCAATATGGGTGAAAACACCTTTGAAGCTCGCCAATGGAACCAAATATAGACCTCCTGCAA
AACTATTAAGGAAAGGGGTTTTCTCGGAGCTATTGCTGGTTTTCTAGAAGGAGGATGGGAA
GGAATGATTGCAGGCTGGCACGGATACACATCTCACGGAGCACATGGAGTGGCAGTGGCGG
CGGACCTTAAGAGTACGCAAGAAGCTATAACAAGATAACAAAAAATCTCAATTCTTTGAGTGA
GCTAGAAGTAAAGAATCTTCAAAGACTAAGTGGTGCCATGGATGAAGTCCACAACGAAATACT
CGAGCTGGATGAGAAAGTGGATGATCTCAGAGCTGACACTATAAGCTCGCAATAGAACTTG
CAGTCTTGCTTTCCAACGAAGGAATAATAACAGTGAAGATGAGCATCTATTGGCACTTGAGA
GAAAACATAAGAAAATGCTGGGTCCCTCTGCTGTAGAGATAGGAAATGGATGCTTCGAAACCA
AACACAAGTGCAACCAGACCTGCTTAGACAGGATAGCTGCTGGCACCTTTAATGCAGGAGAA
TTTTCTCTCCCCACTTTTGATTCACTGAACATTACTGCTGCATCTTTAAATGATGATGGATTGG
ATAACCATACTATACTGCTCTATTACTCAACTGCTGCTTCTAGTTTGGCTGTAACATTGATGCT
AGCTATTTTTATTGTTTATATGGTCTCCAGAGACAACGTTTCATGCTCCATCTGTCTATAAAGG
CCTATTTTCTTAGTTTGAATTTACTGTTATTTCGGTGTGCATTTCTATGTTTGGTGAGCGGTTTT
CTGTGCTCAGAGTGTGTTTATTTTATGTAATTTAATTTCTTTGTGAGCTCCTGTTTACGAGTCT
GTCCCTTCAGCAAGGACACAAAAAGATTTTAAATTTATTAATAAAAAAAAAAAAAAAAAAGACCGGG
AATTCGATATCAAGCTTATCGACCTGCAGATCGTTCAAACATTTGGCAATAAAGTTTCTTAAGA
TTGAATCCTGTTGCCGGTCTTGCGATGATTATCATATAATTTCTGTTGAATTACGTTAAGCATG
TAATAATTAACATGTAATGCATGACGTTATTTATGAGATGGGTTTTTATGATTAGAGTCCCGCA
ATTATACATTTAATACGCGATAGAAAACAAAATATAGCGCGCAAAGTGGATAAATTATCGCGC
GCGGTGTCATCTATGTTACTAGATTCTAGAGTCTCAAGCTTCGGCGCGCC

Figure 82

ATGTTTGGGCGCGGACCAACAAGGAAGAGTGATAACACCAAATATTACGATATTCT
TGGTGTTTCAAAAAGTGCTAGTGAAGATGAAATCAAGAAAGCCTATAGAAAGGCAG
CGATGAAGAACCATCCAGATAAGGGTGGGGATCCTGAGAAGTTCAAGGAGTTGGG
CCAAGCATATGAAGTGTTGAGCGATCCTGAAAAGAAAGAACTGTATGATCAATATG
GTGAAGATGCCCTTAAGAAGGAATGGGGGGAGGCGCAGGAAGCTCATTTTCATAA
TCCGTTTGATATTTTCGAATCATTTTTTGGTGCAGGCTTTGGTGGTGGTGGTCCTT
CACGCGCAAGAAGACAGAAGCAAGGAGAAGATGTGGTGCATTCTATAAAGGTTTC
CTTGGAGGATGTGTATAACGGCACTACAAAAGAGCTATCACTTTCTAGGAATGCAC
TGTGCTCAAAATGTAAAGGGAAAGGTTCAAAAAGTGGAAGTCTGGAAGGTGTTTT
GGATGCCAGGGCACAGGTATGAAGATTACCAGAAGGCAAATTGGACTGGGCATGA
TTCAACAAATGCAACACGTCTGTCCTGACTGCAAAGGAACAGGCGAGGTCATTAG
TGAGAGAGATAGATGCCCTCAATGCAAGGGAAACAAGATTACTCAAGAAAAGAAG
GTGCTGGAGGTGCATGTGGAAAAGGGGATGCAGCAGGGTCACAAGATTGTATTG
AAGGACAAGCTGATGAAGCTCCTGATACAATCACAGGAGACATAGTTTTTGTCTTG
CAAGTAAAGGGACATCCGAAGTTTCGGAGGGAGCGTGATGACCTCCACATTGAAC
ACAATTTGAGCTTAACTGAGGCTCTCTGTGGCTTCCAGTTTAATGTCACACATCTT
GATGGAAGGCAACTATTGGTCAAATCGAACCCCGGCGAAGTCATCAAGCCAGGTC
AACATAAAGCTATAAATGATGAGGGAATGCCACAACATGGTAGGCCGTTTCATGAAG
GGACGCCTATACATCAAGTTTAGTGTTGATTTCCCGGATTCCGGGTTTTCTTTCCCC
AAGCCAAAGCCTGGAATTAGAAAAGATATTACCTCAAAAAGACAAGCAAGAACTTGT
CCCAAAAGGAGGTAGATGATTGTGAGGAGACCACCCTGCATGATGTCAATATTGC
AGAGGAGATGAGTCGAAAGAAGCAACAATACCGTGAGGCATATGATGACGATGAT
GATGAAGATGATGAGCACTCGCAGCCTCGGGTGCAATGCGCTCAACAGTAG

Figure 83

AAGCTTGCATGCCTGCAGGTCGACTCTAGAGGATCCCCGGGCTGGTCTGTACATTCATCTTGCCGCCTTTGCA
TTCATTTGGCCACAAAGAGTAGAGAGAAGGAAGAGAAGAGCCAGACTTCAAGAAGCGACCTTGCAAGTGCAC
TCGAGGGTCAGAACTGTATATCATATCTATGTGAGAGAAAGGGGAACATTTGAGATGGAGTCCATTTACTTGA
GGTATACTTATTATTTTATCAATAAATTTGTATACCTTCTTATTAGATCAATAAATTTGTCAATTAAGCTATAATCCA
AAATAAATTACGATCAAATATGCAAATGTTAGCCAGTACTTGTGTTAAACTTGATGGCATCTCTGGTTCTTTGG
CAATCACATGCCTAAGAAATAAATAGTATCATATGATTGTGTTTGGTCAGACTTCAGAGTCAGATGACTCTGTTT
GGATAAACAGCTTAATTAAGCGCTTATAGAATATCATATGATTGTGTTTGGTCAGACTTCAGAGCATCTCTGGT
TTCTCTGGCAATCATATGCCTAAGAAATAAATAGTATCATATGATTGTGTTTGGTCAGACTTCAGAGTCAGATGA
CCCTGTTTGGGTAACAGCTTAATTAAGTGCTTATAGAATAAGCGCTTATCATATAAGTGCTTTTGTACAGTTATT
TCTATGAAAGTAGAAGAAATAGTCATATTGTTTTAATAAGCTATCCTGGAGAGCTTGTGAAATAACCAGAAA
AGAACTTATGGACACGTCATGAGCTGTTTACATAAGATCTCCCTAACAGTCTCAAAAGTGTTTATGCCAGTAGAT
AAATTCAAATAAGTCAATCTAAACAGACCCTAAATCCATTATGGTACCTATCATTTTAGCTTATTCCATCTTTATTA
AGAATGTCATGAGATAACATAATGATAACACATTATTTTGACACAAATGGGCAGATCTAGCAATTTAACTCTGGA
GTCTTCAAGACTGCTGTTCTTACGAAGTTCAGTCCCTGAATCATGTTCTGTATGGAAGCCTGAAAGACCTC
AAATTCATAAAGGTGGCGATAAATTGAAGGTTTACAAAATATACCCTGCGGGCTTGACACAGAGGCAAGCTCTT
TATACCTCCAGTTCACGCGGGATGTTGATTTCAGAAGTCACCTGGAGAGCAATCCTTGTCGAAGTTTGAAGT
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GATTGAGTCATACATTTCACTAAGAAATGTTTCCAAGTACCAAACTATCATGACCCAGTTGCAACATGACGTTT
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CTGATGAGATAACCCACTTTAAGCCCACGCATCTGTGGCACATCTACATTATCTAAATCACACATTCTCCACAC
ATCTGAGCCACACAAAACCAATCCACATCTTTATCACCCATTCTATAAAAAATCACACTTTGTGAGTCTACACTT
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CGGACCAACAAGGAAGAGTGATAACACCAAATATTACGATATTTCTGGTGTTCAAAAAGTGCTAGTGAAGATG
AAATCAAGAAAGCCTATAGAAAGGCAGCGATGAAGAACCCTCCAGATAAGGGTGGGGTCTTGAGAGATTTCAA
GGAGTTGGGCCAAGCATATGAAGTGTGAGCGATCCTGAAAAGAAAGAACTGTATGATCAATATGGTGAAGAT
GCCCTTAAAGAAGGAATGGGGGAGGCGCAGGAAGCTCATTTTATAATCCGTTTGATTTTTCGAATCATTTTT
TGGTGCAGGCTTTGGTGGTGGTGGTCTTCACGCGCAAGAAGACAGAAGCAAGGAGAAGATGTGGTGCATTCT
TATAAAGGTTTCTTGGAGGATGTGTATAACGGCACTACAAGAAGCTATCACTTTCTAGGAATGCACTGTGCT
CAAAATGTAAGGGAAGGTTCAAAAAGTGGAAGTCTGGAAGGTGTTTTGGATGCCAGGGCACAGGTATGAA
GATTACCAGAAGGCAATTTGGACTGGGCATGATTCAACAAATGCAACACGCTCTGCTGACTGCAAAAGGAACA
GGCGAGGTCTTAGTGAGAGAGATAGATGCCCTCAATGCAAGGGAACAAGATTCTAAGAAAAGAAGGTGCG
TGGAGGTGCATGTGGAAGAGGGGATGCAGCAGGGTCAAGATTGTATTGGAAGGACAAGCTGATGAAGCTC
CTGATACAATCACAGGAGACATAGTTTTGTCTTGAAGTAAAGGGACATCCGAAGTTTCGGAGGGAGCGTGAT
GACCTCCACATTGAACACAATTTGAGCTTAACTGAGGCTCTCTGTGGCTTCCAGTTTAATGTACACATCTTGAT
GGAAGGCAACTATTGGTCAAATCGAACCCCGGCGAAGTCATCAAGCCAGGTCAACATAAAGCTATAAATGATG
AGGGAATGCCACAACATGGTAGGCCGTTTATGAAGGGACGCTATACATCAAGTTTAGTGTTGATTTCGGGA
TTCCGGTTTTCTTTCCCAAGCCAAAGCCTGGAATTAGAAAAGATATTACCTCAAAAGACAAGCAAGAACTTGT
CCCAAAAGGAGGTAGATGATTGTGAGGAGACCACCTGCATGATGTCAATATTGCAGAGGAGATGAGTCGAAA
GAAGCAACAATCCGTGAGGCATATGATGACGATGATGAAGATGATGAGCACTCGCAGCCTCGGGTGCAA
TGCGCTCAACAGTAGGAGCTCAGCTCGAATTTCCCGATCGTTCAAACATTTGGCAATAAAGTTTCTTAAGATT
GAATCCTGTTGCCGCTTTCGATGATTATCATATAATTTCTGTTGAATTACGTTAAGCATGTAATAATTAACATG
TAATGCATGACGTTATTTATGAGATGGGTTTTATGATTAGAGTCCCGCAATTATACATTTAATACGCGATAGAA
AACAAAATATAGCGCGCAAACTAGGATAAATTATCGCGCGCGGTGTATCTATGTTACTAGATCGAATTC

Figure 84

AAGCTTGCATGCCTGCAGGTCGACTCTAGAGGATCCCCGGGCTGGTCTGTACATTCATCTTGCCGCTTTGCATTAC
 TTGGCCACAAAGAGTAGAGAGAAGGAAGAGAAGAGCCAGACTTCAAGAAGCGACCTTGCAAGTGCCTCGAGGGT
 CAGAACTGTATATCATATCTATGTGAGAGAAAGGGGAACATTTGAGATGGAGTCCATTTACTTGAGGTATACTTATTA
 TTTTGATCAATAAATTTGTATACCTTATTTAGATCAATAAATTTGTCAATTAAGCTATAATCCAAAATAAATTACGATCAA
 ATATGCAAAATGTAGCCAGTACTTGTGTTAACTTGATGGCATCTCTGGTTTCTTTGGCAATCACATGCCTAAGAAAT
 AAATAGTATCATATGATTGTGTTTGGTCAGACTTCAGAGTCAGATGACTCTGTTTGGATAAAACAGCTTAATTAAGCGCT
 TATAGAATATCATATGATTGTGTTTGGTCAGACTTCAGAGCATCTCTGGTTTCTCTGGCAATCATATGCCTAAGAAATA
 AATAGTATCATATGATTGTGTTTGGTCAGACTTCAGAGTCAGATGACCCTGTTTGGGTAACAGCTTAATTAAGTGCTT
 ATAGAATAAGCGCTTATCATATAAGTGCTTTTGTACAGTTATTTCTATGAAAGTAGAAGAAATAGTCATATTGTTTTAATA
 TAAGCTATCCTGGAGAGCTTGTGGAATAACCAGAAAAGAACTTATGGACACGTCATGAGCTGTTTACATAAGATCTC
 CCTAACAGTCTCAAAAGTGTTTATGCCAGTAGATAAATTCAAATAAGTCAATCTAAACAGACCCTAAATCCATTATGGTA
 CCTATCATTTTAGCTTATCCATCTTTATTAAGAATGTCATGAGATAACATAATGATAACACATTATTTGACACAAATGG
 GCAGATCTAGCAATTTAACTCTGGAGTCTTCAAGACTGCTGTTCTTACGAAGTTCACGTCCCTGAATCATGTTCTCTGT
 ATGGAAGCCTGAAAGACCTCAAATTTCTAAAAGGTGGCGATAAATTGAAGGTTTACAAAATATACCCTGCGGGCTTGAC
 ACAGAGGCAAGCTCTTTATACCTCCAGTTCACCGGGGATGTTGATTTCAAGAGTCACTTGGAGAGCAATCCTTGTGC
 CAAGTTTGAAGTAATTTTGTGTAGCATATGTTGAGTACCTACAATTTACATGATCACCTAGCATTAGCTCTTTCACCT
 AACTGAGAGAATGAAGTTTATGAATGAGTATGACCATGGAGTCGGCATGGCTTTGTAATGCCTACCCTACTTTGGCC
 AACTCATCGGGGATTACATTAGAAAATATACATGACTTCAACCATACTTAACCCCTTTTGTAAAGATAACTGAATGT
 TCATATTTAATGTTGGGTTGTAGTGTGTTTACTTGATTATATCCAGACAGTTACAAGTTGGACAACAAGATTGTTGGGTCT
 GTACTGTTATTTATTTATTTTTTTTATAGCAGAAACACCTTATCTTTGTTTCTGTTTGAATGTAGAATGAAAATAAAGAA
 AGAAAATATAACATCATCGGCCGCGCTTGTCTAATTTCCGGCAGTTAGGATCCTCTCCGGTCACCGGAAAGTTTCAGT
 AGAAGAAACAAAACACCGTGACTAAAATGATACTATTATTTTATTTTATTTGTTTCTTTTCTTACCGGAACCTTTTAG
 AACGGATCCCAACTCGTTCCGGGGCCGCTACAACGAAACAAAAGAAGATATTTCTCTCTTCCAGAAATGTAAGTTT
 TCCTTTACAGATACCCATTACCATTTGATTGAGATGTGGTGACTAGAGATAAAGCATACTAATTTGACTCTTGAAAC
 CCATAAAGTTTATGTTATCCGTGTTCTGGACCAATCCACTTGGGGGCATAACCTGTGTCTATGTGTGGTTTGGTTTCCA
 TTCTGATTATCGCGGCACTTGAATTTAAATCTAGGAGGGGCAGACATTGAACAATCCCAATTTTAAATAACTTATG
 CAAGATTTTTTTTATTAATGAGATGATGTGTTTGTGACTGAGATTGAGTCATACATTTCACTAAGAAATGGTTCCCAAGTA
 CCAAATATCATGACCCAGTTGCAACATGACGTTCCGGAGTGGTCACTTTGATAGTTCAATTCATCTTGGCTTCTTA
 TTCTTTTATAATTTCTAATTTCTTGTGTAACTATTTCTATGATTTATTTTCTTTAAATTTACATGTCATTTATTTTGCC
 TCACTAACTCAATTTTGCATATAACAATGATAAGTGATTTTGACTCACAAAATTTACATCAAAATTCGACATCGTTTAT
 TATGTTTATTTGATGATTAAACAAATATAACAACTTTGCAACTAATTAACCACTGAATATAATTAACATAACTGTG
 AAAGTAGTTAACTCATTTTATTTATCATAGATCAATAAGAGAAATTAACGGTATATTAATCCCTTCAAAATAAAAAAAC
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 TCCACACATCTGAGCCACACAAAAACCAATCCACATCTTTATCACCATTCTATAAAAAATCACACTTTGTGAGTCTACA
 CTTTGATTCCCTTCAAACACATACAAAGAGAAGAGACTAATTAATTAATCATCTTGAGAGAAAATGTCCGGTAAAG
 GGAGAAGGACCCAGTATCGGTATCGATCTTGGTACCCTACTCTTTCGCTCGGAGTATGGCAACACGACCGTGTGTA
 GATCATTGCTAATGATCAAGGAACAGAACCCAGCCATCTTACGTTGCTTTCACCGACTCCGAGAGGTTGATCGGTGA
 CGCAGCTAAGAATCAGGTCCCATGAACCCCGTTAACACCGTTTTTCGACGCTAAGAGGTTGATCGGTCTGCTGTTTCTC
 TGACAGCTCTGTTGAGAGTGACATGAAATTTGTGGCCATTCAAGATTCAAGCCGGACCTGCCGATAAGCCAATGATCTA
 CGTGAATACAAGGTTGAAGAGAAAGAGTTCCGAGCTGAGGAGATTTCTCCATGGTTCTTATTAAGATGCGTGAGAT
 TGCTGAGGCTTACCTTGGTGTCAACAATCAAGAACGCGGTTGTTACCGTTCCAGCTTACTTCAACGACTCTCAGCGTCA
 GGCTACAAAGGATGCTGGTGTGATCGCTGTTTGAACGTTATGCGAATCATCAACGAGCCTACAGCCGCGCGCTATTG
 CCTACGGTCTTGACAAAAGGCTACCAGCGTTGGAGAGAAGAATGTTCTTATCTTCGATCTTGGTGGTGGCACTTTTG
 ATGCTCTCTCTTACCATTGAAGAGGGTATCTTTGAGGTGAAGGCAACTGCTGGTGACACCCATCTTGGTGGGGAAG
 ATTTTGACAACAGAATGGTTAACCACTTTGTCCAAGAGTTCAAGAGGAAGAGTAAGAAGGATATCACCGGTAACCCAA
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 ATTGACTCTCTATACGAGGGTATCGACTTCTACTCCACCATCACCCGTGCTAGATTGAGGAGCTCAACATGGATCTC
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 TCTATTAACCTGATGAGGCTGTTGCTACGGTGCTGCTGTCCAGGGAGCTATTCTCAGCGGTGAAGGAAACGAGAA
 GGTTCAGATCTTCTATTGCTCGATGTCATCTCTCTCCCTTGGTTTGGAAACTGCCGGTGGTGTGATGACCACTTTG
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 ATCCAGGTGTACGAAGGAGAGAGAGCCAGAACCAAGGACAACAACCTTCTTGGTAAATTTGAGCTCTCCGGAATTCC
 TCCAGCTCCTCGTGGTGTCCCCCAGATCACAGTCTGCTTTGACATTGATGCCAATGGTATCCTCAATGTCTCTGCTGA
 GGACAAGACCCCGACAGAAGAACAAGATCACCATCACCAGTACAGAGGTCGTTCTTCAAGGATGAGATTGAGA
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 CGAGAATACGCTTACAACATGAGGAACACCATCCAAGACGAGAAGATTGGTGAGAAGCTCCCGGCTGCAGACAAGA
 AGAAGATCGAGGATTCTATTGAGCAGGCGATTCAATGGCTCGAGGGTAACCAGTTGGCTGAGGCTGATGAGTTGGA
 GACAAGATGAAGGAATTGGAGAGCATCTGCAACCAATCATTGCCAAGATGTACCAAGGAGCTGGTGGTGAAGCCGG
 TGGTCCAGGTGCTCTGGTATGGACGATGATGCTCCACCTGCTTCAGGCGGTGCTGGACCTAAGATCGAGGAGGCT
 GACTAAGAGCTCAGCTCGTAATTTCCCGATCGTTAAACACATTTGGCAATAAAGTTTCTTAAGATTGAATCCTGTTGCCG
 GTCTTGCATGATTATCATATAATTTCTGTTGAATTACGTTAAGCATGTAATAATTAACATGTAATGCATGACGTTATTTA
 TGAGATGGGTTTTATGATTAGAGTCCCGCAATTATACATTTAATACGCGATAGAAAACAAAATATAGCGCGCAAACTA
 GGATAAATTATCGCGCGCGGTGTCATCTATGTTACTAGATCGAATTC

Figure 85A

AAGCTTGCATGCCTGCAGGTCGACTCTAGAGGATCCCCGGGCTGGTCTGTACATTCACTTGGCCGCTTTGCATTCA
CTTGGCCACAAAGAGTAGAGAGAAGGAAGAGAAGAGCCAGACTTCAAGAAGCGACCTTGAAGTGCCTCGAGGG
TCAGAACTGTATATCATATCTATGTGAGAGAAAGGGGAACATTTGAGATGGAGTCCATTTACTTGAGGTATACTTATT
ATTTTGATCAATAAATTTGTATACTTCTTATTTAGATCAATAAATTTGTCATTAGCTATAATCCAAAATAAATTACGATC
AAATATGCAAATGTTAGCCAGTACTTGTGTTAACTTGATGGCATCTCTTGGTTTCTTTGGCAATCACATGCCTAAGAA
ATAAATAGTATCATATGATTGTGTTTGGTCAGACTTCAGAGTCAGATGACTCTGTTTGGATAAACAGCTTAATTAAGCG
CTTATAGAATATCATATGATTGTGTTTGGTCAGACTTCAGAGTCAGATGACCCTGTTTGGGTAACAGCTTAATTAAGTG
CTTATAGAATAAGCGCTTATCATATAAGTGCTTTTGTACAGTTATTTCTATGAAAGTAGAAGAAATAGTCATATTGTTTT
AATATAAGCTATCCTGGAGAGCTTGTGGAATAAACCAGAAAAGAACTTATGGACACGTCATGAGCTGTTTACATAAGA
TCTCCCTAACAGTCTCAAAAGTGTATGCCAGTAGATAAATTCAAATAAGTCAATCTAACAGACCCTAAATCCATTA
TGGTACCTATCTTTAGCTTATTCATCTTTATTAAGAATGTCATGAGATAACATAATGATAACACATTATTTTGACAC
AAATGGGCAGATCTAGCAATTTAACTCTGGAGTCCTTCAAGACTGCTGTTCTTACGAAGTTCACGTCCTGAATCATG
TTCTGTATGGAAGCCTGAAAGACCTCAAATCTAAAGGTGGCGATAAATTGAAGGTTTACAAAATATACCCTGCGG
GCTTGACACAGAGGCAAGCTCTTATACCTTCCAGTTCACGGGGATGTTGATTTCAGAAGTCACITGGAGAGCAAT
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CTTTCACTTAACTGAGAGAATGAAGTTTTAGGAATGAGTATGACCATGGAGTCGGCATGGCTTTGTAATGCCCTACCCT
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CAAAATTCGACATCGTTTATTATGTTTATTGATGATTAACAAATATAACAACTTTGCAACTAATTAACCACCAACTGA
ATATAATTAATACTATACTGTGAAAGTAGTTAACTCAATTTTATATTTATAGATCAAAATAAGAGAAATAACGGTATATTA
ATCCCTCCAAAAAAGAAACCGGTATATTTACTAAAAATCTAAGCCACGTAGGAGGATAACAGGATCCCGTAGGAG
GATAACATCCAATCCAACCAATCACAACAATCCTGATGAGATAACCCACTTTAAGCCACGCATCTGTGGCACATCTA
CATTATCTAAATCACACATTCTTCCACACATCTGAGCCACACAAAAACCAATCCACATCTTTATACCCATTCTATAAAA
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AACTGCCGGTGGTGTCTATGACCACTTTGATCCCAAGGAACACCAACCATCCCAACCAAGAAGGAACAAGTCTTCTCCA
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Figure 85B

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 CTAGATCGAATTC

Figure 86

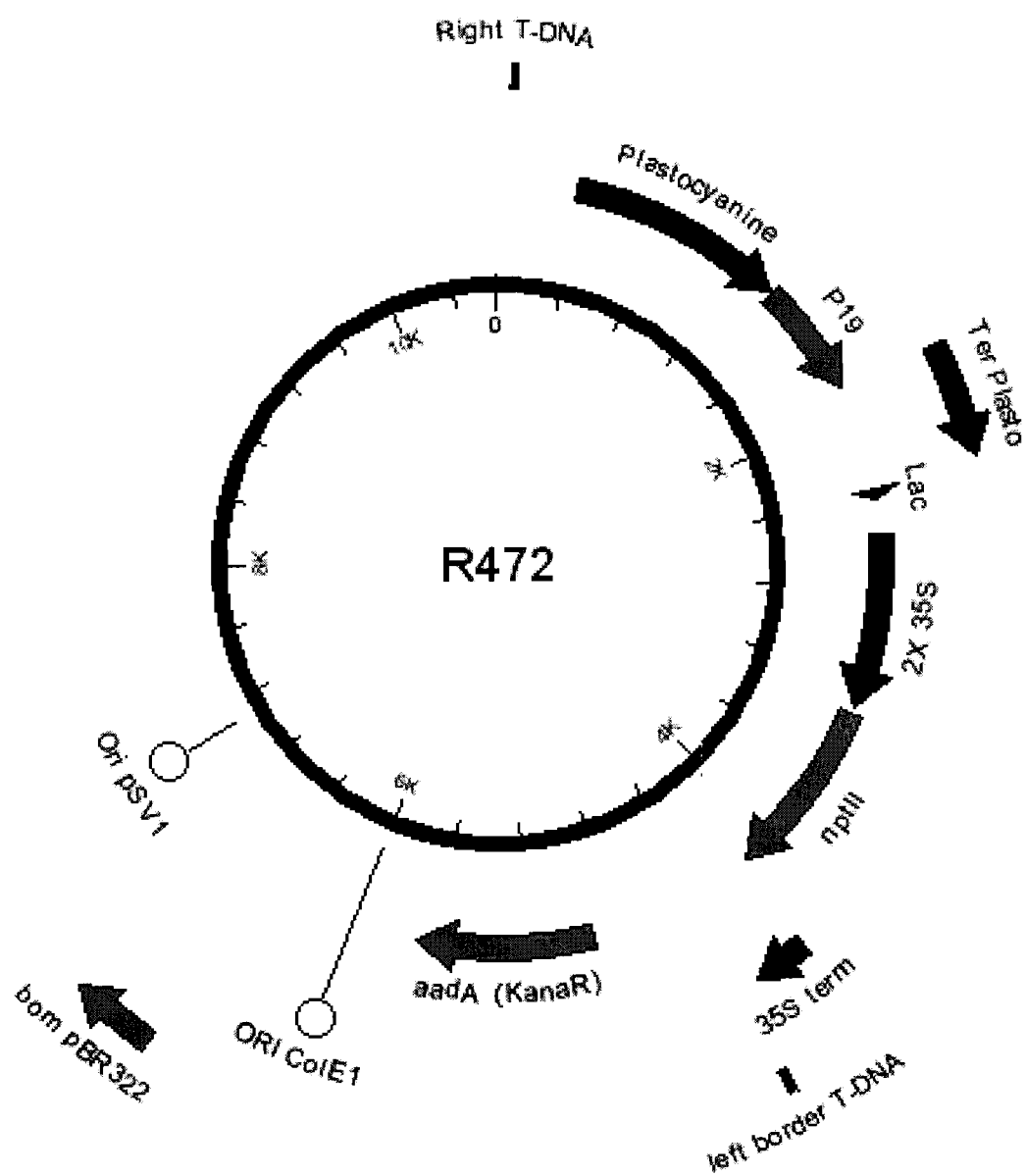
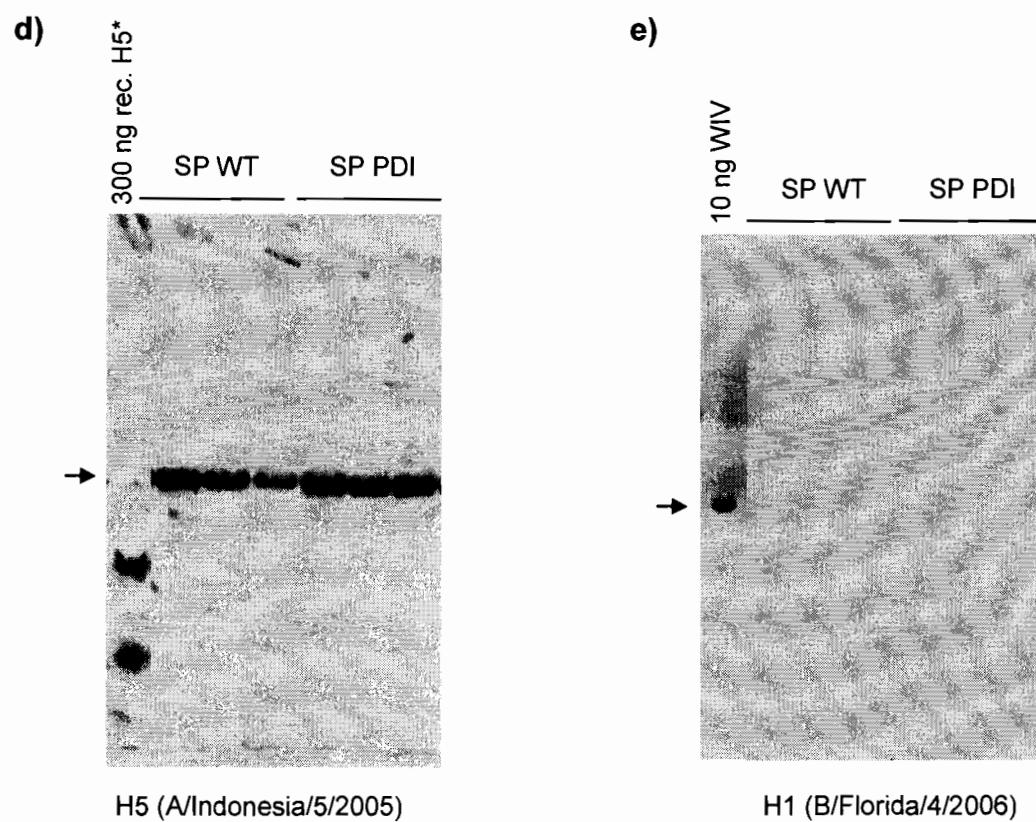
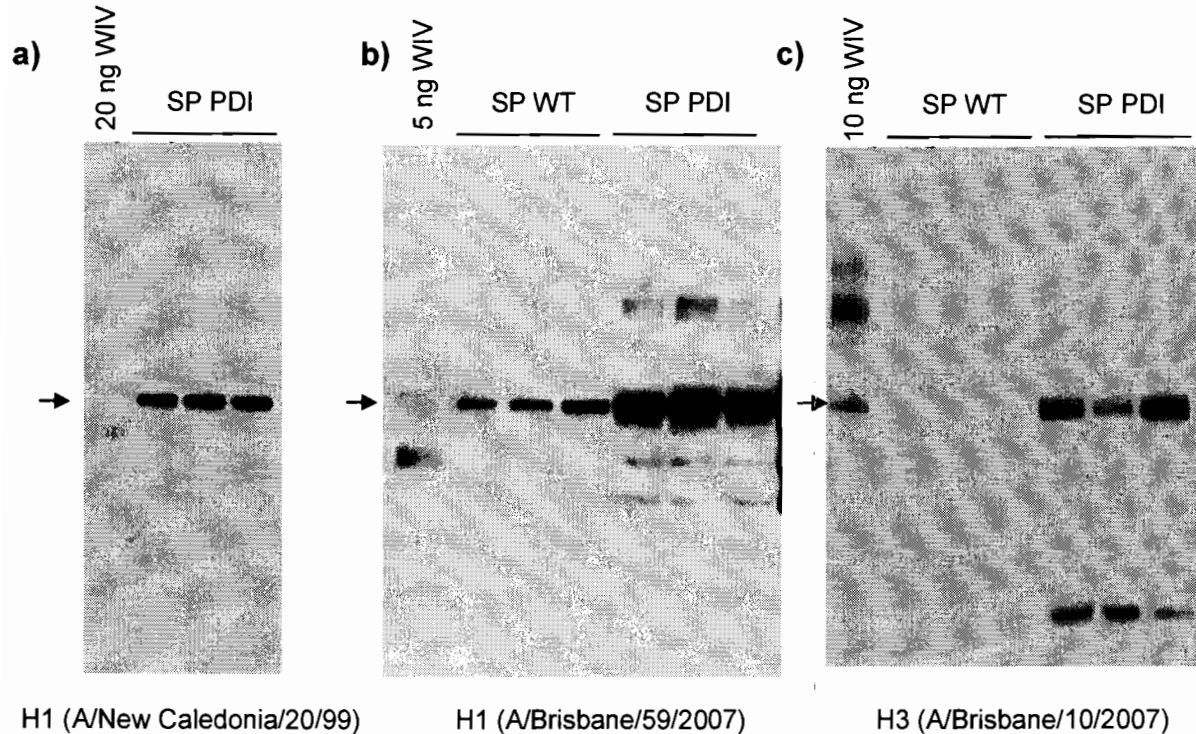


Fig. 87

* Recombinant H5 (A/Vietnam/1203/2004) (from Protein Science Corporation)

Fig. 88

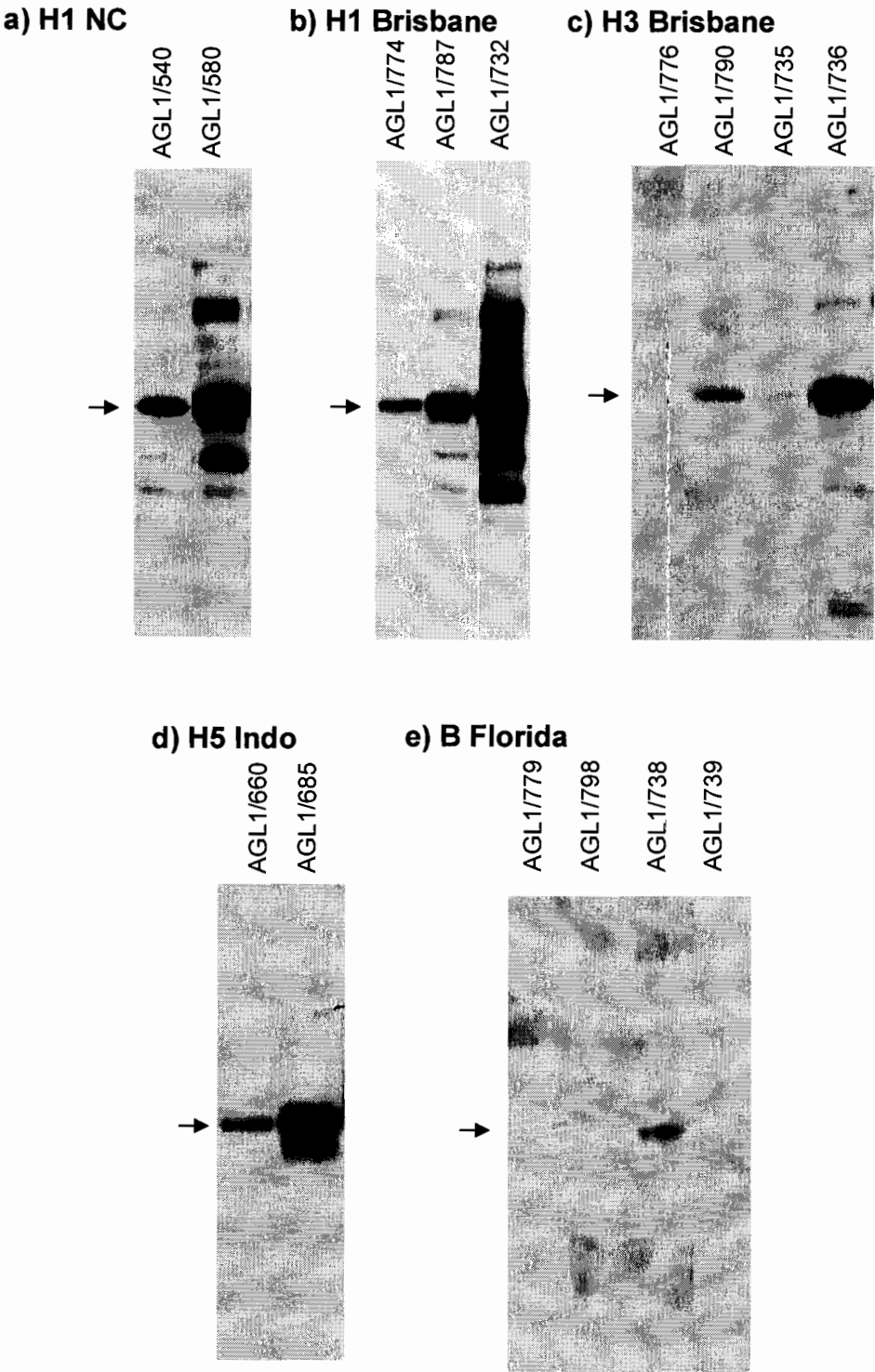


Fig. 89

