

A-2X35S/CPMV-HT/H5 Indonesia/NOS (Construct number 489)

Figure 1A

IF-H5A-I-05.s1+3c SEQ ID NO: 2

AAATTTGTCGGGCCCATGGAGAAAATAGTGCTTCTTCTTGC

Figure 1B

IF-H5dTm.r SEQ ID NO: 3

ACTAAAGAAAATAGGCCTTTAAATGCAAATTCTGCATTGTAACGATCCAT

Figure 1C

Schematic representation of construct 1191. SacII and StuI restriction enzyme sites used for plasmid linearization are annotated on the representation.

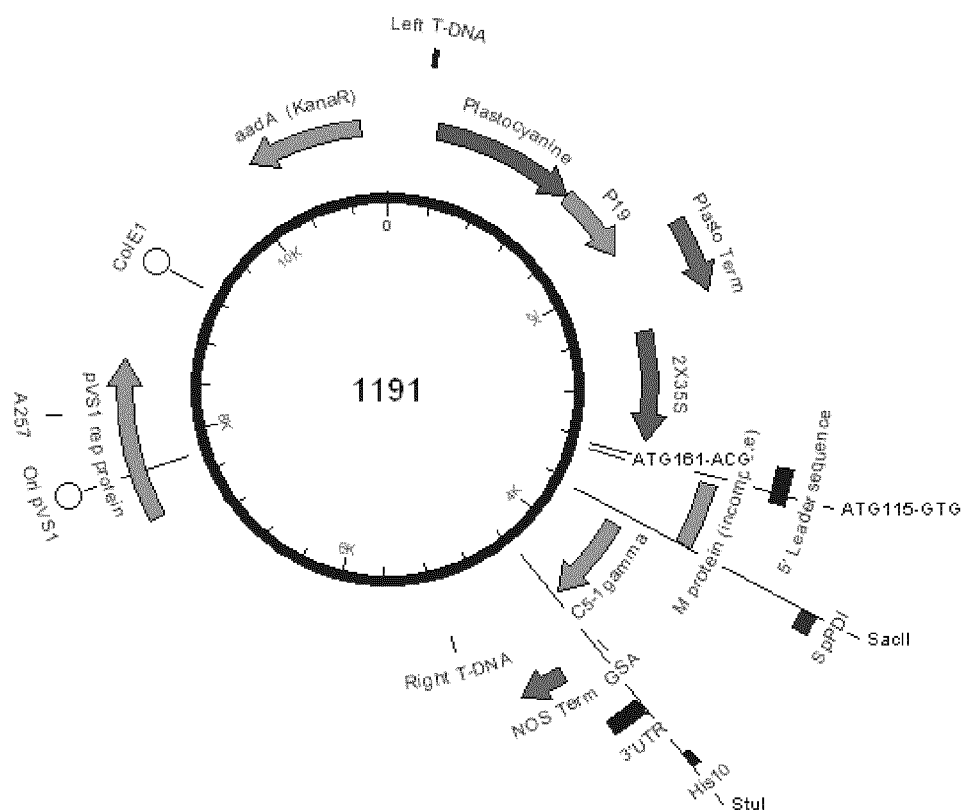


Figure 1D

Construct 1191 from left to right t-DNA borders (underlined). 2X35S/CPMV-HT/NOS with Plastocyanine-P19-Plastocyanine silencing inhibitor expression cassette (SEQ ID NO: 4)

TGGCAGGATATATTGTTGGTGTAAACAAATTGACGCTTAGACAACCTTAATAACACATTGCGGACGTTTTTA
 ATGTACTGAATTAACGCCGAATCCCGGGCTGGTATATTTATATGTTGTCAAATAACTCAAAAACCATAAA
 AGTTTAAAGTTAGCAAGTGTGTACATTTTTACTTGAACAAAAATATTCACCTACTACTGTTATAAATCATT
 TTAAACATTAGAGTAAAGAAATATGGATGATAAGAACAAGAGTAGTGATATTTTGACAACAATTTTGTG
 CAACATTTGAGAAAAATTTTGTGTTCTCTCTTTTCATTGGTCAAAAACAATAGAGAGAGAAAAAGGAAGA
 GGGAGAATAAAAAACATAATGTGAGTATGAGAGAGAAAGTTGTACAAAAGTTGTACCAAAATAGTTGTAC
 AAATATCATTGAGGAATTTGACAAAAGCTACACAAATAAGGGTTAATTGCTGTAAATAAATAAGGATGA
 CGCATTAGAGAGATGTACCATTAGAGAATTTTTGGCAAGTCATTA AAAAGAAAGAATAAATTATTTTTAA
 AATTAAGAGTTGAGTCATTTGATTAAACATGTGATTATTTAATGAATTGATGAAAAGAGTTGGATTAAAGT
 TGTATTAGTAATTAGAATTTGGTGTCAAATTTAATTTGACATTTGATCTTTTCTATATATTGCCCATAGA
 GTCAGTTAACTCATTTTTATATTTTCATAGATCAAATAAGAGAAATAACGGTATATTAATCCCTCCAAAAA
 AAAAAACGGTATATTTACTAAAAATCTAAGCCACGTAGGAGGATAACAGGATCCCGTAGGAGGATA
 ACATCCAATCCAACCAATCACAACAATCCTGATGAGATAACCCACTTTAAGCCCACGCATCTGTGGCACA
 TCTACATTATCTAAATCACACATTCTCCACACATCTGAGCCACACAAAAACCAATCCACATCTTTATCAC
 CCATTCTATAAAAAATCACACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGAGAAGAG
 ACTAATTAATTAATTAATCATCTTGAGAGAAAATGGAACGAGCTATACAAGGAAACGACGCTAGGGAAC
 AAGCTAACAGTGAACGTTGGGATGGAGGATCAGGAGGTACCACTTCTCCCTTCAAACCTCTGACGAAAG
 TCCGAGTTGGATGAGTGGCGGCTACATAACGATGAGACGAATTCGAATCAAGATAATCCCTTGGTTTC
 AAGGAAAGCTGGGGTTTCGGGAAAGTTGTATTTAAGAGATATCTCAGATACGACAGGACGGAAGCTTCA
 CTGCACAGAGTCTTGGATCTTGGACGGGAGATTGGTTAACTATGCAGCATCTCGATTTTTCGGTTTCGA
 CCAGATCGGATGTACCTATAGTATTCGGTTTCGAGGAGTTAGTATCACCGTTTCTGGAGGGTCGCGAACT
 CTTCAGCATCTCTGTGAGATGGCAATTCGGTCTAAGCAAGAACTGCTACAGCTTGCCCCAATCGAAGTGG
 AAAGTAATGTATCAAGAGGATGCCCTGAAGTACTCAAACCTTCGAAAAAGAAAGCGAGTAAGTTAAAA
 TGCTTCTCGTCTCCTATTTATAATATGGTTTGTATTGTTAATTTGTTCTTGTAGAAGAGCTTAATTAAT
 CGTTGTTGTTATGAAATACTATTTGTATGAGATGAACTGGTGTAAATGTAATTCATTTACATAAGTGGAGTC
 AGAATCAGAAATGTTTCTCCATAACTAAGTGGTAAATATAGCTCAAATATATGGTCAAGTT
 ACAACTAAAAATTGAACATCTTTTGCCACAACCTTTATAAGTGGTAAATATAGCTCAAATATATGGTCAAGTT
 CAATAGATTAATAATGGAATATCAGTTATCGAAATTCATTAACAATCAACTTAACGTTATTAATACTACTA
 ATTTATATCATCCCTTTGATAAATGATAGTACACCAATTAGGAAGGAGCATGCTCGCTCGCATGATTG
 TCGTTTCCCGCCTTCAGTTTGCAAGCTGCTCTAGCCGTGTAGCCAATACGCAAACCGCCTCTCCCCGCGCG
 TTGGGAATTACTAGCGCGTGTGACAAAGCTTGCATGCCGGTCAACATGGTGGAGCACGACACACTTGTCT
 ACTCAAAAAATATCAAAGATACAGTCTCAGAAGACCAAGGGCAATTGAGACTTTTCAACAAAGGGTAA
 TATCCGGAACCTCCTCGGATTCCATTGCCAGCTATCTGTCACTTTATTGTGAAGATAGTGGAAAAAGGA
 AGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAAAGGCCATCGTTGAAGATGCCTCTGCCGACAGT
 GGTCCCAAAGATGGACCCCAACACGAGGAGCATCGTGGA AAAAGAACGTTCCAAACACGTCTTCA
 AAGCAAGTGGATTGATGTGATAACATGGTGGAGCACGACACACTTGTCTACTCAAAAAATATCAAAGAT
 ACAGTCTCAGAAGACCAAGGGCAATTGAGACTTTTCAACAAAGGGTAAATATCCGGAACCTCCTCGGA
 TTCCATTGCCAGCTATCTGTCACTTTATTGTGAAGATAGTGGAAAAAGGAAGGTGGCTCCTACAAATGCC
 ATCATTGCGATAAAGGAAAGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAGAGTGGACCCC
 CACCCACGAGGAGCATCGTGGA AAAAGAACGTTCCAAACACGTCTTCAAGCAAGTGGATTGATGTG
 ATATCTCCACTGACGTAAGGGATGACGCACAATCCCACTATCCTTCGCAAGACCTTCTCTATATAAGG
 AAGTTCAATTTCAATTTGGAGAGGTATTAATCTTAATAGGTTTTGATAAAAAGCGAACGTGGGGAACCCG
 AACCAACCTTCTTCTAACTCTCTCTCATCTCTCTTAAAGCAAACCTCTCTCTTGTCTTTCTTGTGAGC
 GATCTTCAACGTTGTCAGATCGTGCTTCGGCACCAGTACAACGTTTTCTTCACTGAAGCGAAATCAAAG
 ATCTCTTTGTGGACACGTAGTGCGGCGCCATTAATAACGTGTACTTGTCTATTCTTGTGCGGTGTGGTCT
 TGGGAAAAGAAAGCTTGTCTGGAGGCTGCTGTTCAAGCCCATACATTACTTGTTACGATTCTGCTGACTTTC
 GGCGGGTGCAATATCTCTACTTCTGCTTGACGAGGTATTGTTGCCTGTACTTCTTCTTCTTCTGCTG

ATTGGTTCTATAAGAAATCTAGTATTTTCTTTGAAACAGAGTTTTCCCGTGGTTTTCGAACTGGAGAAAAG
 ATTGTTAAGCTTCTGTATATTCTGCCAAAATTTGTCGGGCCCGCGGATGGCGAAAAACGTTGCGATTTTCG
 GCTTATTGTTTTCTTCTTGTGTTGGTTCTTCTCAGATCTTCGCCTGCAGGCTCCTCAGCCAAAACGACA
 CCCCCATCTGTCTATCCACTGGCCCCCTGGATCTGCTGCCAAAATACTCCATGGTGACCCTGGGATGCCT
 GGTC AAGGGCTATTTCCCTGAGCCAGTGACAGTGACCTGGAACCTCTGGATCCCTGTCCAGCGGTGTGCAC
 ACCTTCCCAGCTGTCCTGCAGTCTGACCTCTACACTCTGAGCAGCTCAGTGACTGTCCCCCTCAGCACCTG
 GCCCAGCGAGACCGTCACCTGCAACGTTGCCACCCGCCAGCAGCACCAAGGTGGACAAGAAAAATTGT
 GCCCAGGGATTGTGGTTGTAAGCCTTGCAATGTACAGTCCCAGAAGTATCATCTGTCTTCATCTTCCCCC
 CAAAGCCCAAGGATGTGCTCACCATTACTCTGACTCCTAAGGTCACGTGTGTTGTGGTAGACATCAGCAA
 GGATGATCCCGAGGTCCAGTTCAGCTGGTTTGTAGATGATGTGGAGGTGCACACAGCTCAGACGCAACCC
 CGGGAGGAGCAGTTCAACAGCACTTTCCGCTCAGTCAGTGAACCTTCCCATCATGCACCAGGACTGGCTCA
 ATGGCAAGGAGCGATCGCTCACCATCACCATCACCATCACCATCACCATTAAAGGCCTATTTTCTTTAGTT
 TGAATTTACTGTTATTCGGTGTGCATTTCTATGTTTGGTGAGCGGTTTTCTGTGCTCAGAGTGTGTTATTT
 TATGTAATTTAATTTCTTTGTGAGCTCCTGTTTAGCAGGTCTGCCCTCAGCAAGGACACAAAAAGATTTT
 AATTTTATTA AAAAAAAAAAAAAAAAAAAGACCGGAATTCGATATCAAGCTTATCGACCTGCAGATCGTT
 CAAACATTGGCAATAAAGTTTCTTAAGATTGAATCCTGTTGCCGGTCTTGCGATGATTATCATATAATTT
 CTGTTGAATTACGTTAAGCATGTAATAATTAACATGTAATGCATGACGTTATTTATGAGATGGGTTTTAT
 GATTAGAGTCCC GCAATTATACATTTAATACGCGATAGAAAACAAAATATAGCGCGCAAACTAGGATAA
 ATTATCGCGCGCGGTGTCTATGTTACTAGATCTCTAGAGTCTCAAGCTTGGCGCGCCCACGTGACTAG
 TGGCACTGGCCGTCGTTTTACAACGTCGTGACTGGGAAAACCTGGCGTTACCCAATTAATCGCCTTGC
 AGCACATCCCCCTTTGCGCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTG
 CGCAGCCTGAATGGCGAATGCTAGAGCAGCTTGAGCTGGATCGATTGTCGTTTTCCCGCTTCAGTTTA
 AACTATCAGTGTTTGACAGGATATATTGGCGGGTAAACCTAAGAGAAAAAGAGCGTTTA

Figure 1E

Expression cassette number 489 from 2X35S promoter to NOS terminator. H5 from influenza A/Indonesia/5/2005 (H5N1) is underlined. SEQ ID NO: 5

GTCAACATGGTGGAGCACGACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAA
 AGGGCAATTGAGACTTTTCAACAAAGGGTAATATCCGGAAACCTCCTCGGATTCCATTGCCAGCTATCT
 GTCACCTTATTGTGAAGATAGTGGAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAA
 AGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATCG
 TGGAAAAAGAAGACGTTCCAACCACGTCTTCAAAGCAAGTGGAATTGATGTGATAACATGGTGGAGCACG
 ACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAAAGGGCAATTGAGACTTTTCA
 ACAAAGGGTAATATCCGGAAACCTCCTCGGATTCCATTGCCAGCTATCTGTCACTTTATTGTGAAGATA
 GTGGAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAAAGGCCATCGTTGAAGATGCC
 TCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATCGTGGAAAAAGAAGACGTTCCA
 ACCACGTCTTCAAAGCAAGTGGAATTGATGTGATATCTCCACTGACGTAAGGGATGACGCACAATCCCACT
 ATCCTTCGCAAGACCCTTCTCTATATAAGGAAGTTCATTTCAATTGGAGAGGTATTAATACTTAATAGG
 TTTTGATAAAAGCGAACGTGGGGAAACCCGAACCAACCTTCTTCTAACTCTCTCATCTCTTAAAG
 CAAACTTCTCTTGTCTTTCTTGCGTGAGCGATCTTCAACGTTGTGAGATCGTGCTTCGGCACCAGTACA
 ACGTTTTCTTCTCACTGAAGCGAAATCAAAGATCTCTTTGTGGACACGTAAGTGCAGGCGCCATTAAATAACG
 TGTACTTGTCTATTCTTGTGCGGTGTGGTCTTGGGAAAAGAAAGCTTGCTGGAGGCTGCTGTTACGCCCCA
 TACATTACTTGTACGATTCTGCTGACTTTCGGCGGGTGCAATATCTCTACTTCTGCTTGACGAGGTATTG
 TTGCCTGTACTTCTTCTTCTTCTTCTTGTGCTGATTGGTTCTATAAGAAATCTAGTATTTTCTTTGAAACAGA
 GTTTTCCCGTGGTTTTCGAACTTGGAGAAAGATTGTTAAGCTTCTGTATATTCTGCCAAAATTTGTCGGGC
 CCATGGAGAAAAATAGTGCTTCTTCTTGCAATAGTCAGTCTTGTTAAAAGTGATCAGATTTGCATTGGTTAC
 CATGCAACAATTCAACAGAGCAGGTTGACACAATCATGGAAAAAGAACGTTACTGTTACACATGCCCAA
 GACATACTGGAAAAAGACACACAACGGGAAGCTCTGCGATCTAGATGGAGTGAAGCCTCTAATTTTAAGA
 GATTGTAGTGTAGCTGGATGGCTCCTCGGGAACCAATGTGTGACGAATTCATCAATGTACCGGAATGGT
 CTTACATAGTGGAGAAGGCCAATCCAACCAATGACCTCTGTTACCCAGGAGTTTCAACGACTATGAAGA

ACTGAAACACCTATTGAGCAGAATAAACCATTTTGAGAAAAATTCAAATCATCCCCAAAAGTTCTTGGTCC
 GATCATGAAGCCTCATCAGGAGTTAGCTCAGCATGTCCATACCTGGGAAGTCCCTCCTTTTTAGAAATGT
 GGTATGGCTTATCAAAAAGAACAGTACATACCCAACAATAAAGAAAAGCTACAATAATACCAACCAAGA
 GGATCTTTTGGTACTGTGGGAATTCAACATCCTAATGATGCGGCAGAGCAGACAAGGCTATATCAAAAC
 CCAACCACCTATATTTCCATTGGGACATCAACACTAAACCAGAGATTGGTACCAAAAATAGCTACTAGAT
 CCAAAGTAAACGGGCAAAGTGGAAGGATGGAGTTCTTCTGGACAATTTTAAAACCTAATGATGCAATCA
 ACTTCGAGAGTAATGGAATTTTCATTGCTCCAGAATATGCATACAAAATTGTCAAGAAAAGGGGACTCAGC
 AATTATGAAAAGTGAATTGGAATATGGTAACTGCAACACCAAGTGTCAAACTCCAATGGGGGCGATAAA
 CTCTAGTATGCCATTCCACAACATACACCCTCTACCATCGGGGAATGCCCCAAATATGTGAAATCAAAC
 AGATTAGTCCTTGCAACAGGGCTCAGAAATAGCCCTCAAAGAGAGAGCAGAAGAAAAAGAGAGGACT
 ATTTGGAGCTATAGCAGGTTTATAGAGGGAGGATGGCAGGGAATGGTAGATGGTTGGTATGGGTACCA
 CCATAGCAATGAGCAGGGGAGTGGGTACGCTGCAGACAAAGAATCCAATCAAAGGCAATAGATGGAGT
 CACCAATAAGGTCAACTCAATCATTGACAAAATGAACACTCAGTTTGAGGCCGTTGGAAGGGAATTTAAT
 AACTTAGAAAAGGAGAATAGAGAATTTAAACAAGAAGATGGAAGACGGGTTTCTAGATGTCTGGACTTAT
 AATGCCGAACCTCTGGTTCTCATGAAAAATGAGAGAATCTAGACTTTTCATGACTCAAATGTTAAGAACC
 TCTACGACAAGGTCCGACTACAGCTTAGGGGATAATGCAAAGGAGCTGGGTAAACGTTGTTTCGAGTTCTA
 TCACAAATGTGATAATGAATGTATGGAAAAGTATAAGAAACGGAACGTACAATATCCGCAGTATTCAGA
 AGAAGCAAGATTAAGAAAGAGAGGAAATAAGTGGGGTAAAATTGGAATCAATAGGAACTTACCAATAC
 TGTCATTTATTCAACAGTGGCGAGTTCCTAGCACTGGCAATCATGATGGCTGGTCTATCTTTATGGATG
 TGCTCAATGGATCGTTACAATGCAGAATTTGCATTAAAGGCCTATTTCTTTAGTTGAATTTACTGTT
 ATTCGGTGTGCATTTCTATGTTTGGTGAGCGGTTTCTGTGCTCAGAGTGTGTTATTTTATGTAATTTAAT
 TTCTTTGTGAGTCCTGTTTAGCAGGTCGTCCTTCAGCAAGGACACAAAAAGATTTTAATTTTATTAATAA
 AAAAAAAAAAAAAAGACCGGAATTTCGATATCAAGCTTATCGACCTGCAGATCGTTCAAAACATTTGGCA
 ATAAAGTTTCTTAAGATTGAATCCTGTTGCCGGTCTTGCATGATTATCATATAATTTCTGTTGAATTACG
 TTAAGCATGTAATAATTAACATGTAATGCATGACGTTATTTATGAGATGGGTTTTTATGATTAGAGTCCC
 CAATTATACATTTAATACGCGATAGAAAACAAAATATAGCGCGAACTAGGATAAATTATCGCGCGCG
 GTGTCATCTATGTTACTAGAT

Figure 1F

Amino acid sequence of H5 from influenza A/Indonesia/5/2005 (H5N1) SEQ ID NO: 6

MEKIVLLLAIIVSLVKSDQICIGYHANNSTEQVDTIMEKNVTVTHAQDILEKTHNGKLCDL
 DGVKPLILRDCSVAGWLLGNPMCDEFINVPEWSYIVEKANPTNDLCYPGSFNDYEELKH
 LLSRINHFEEKIIPKSSWSDHEASSGVSSACPYLGSPSFFRNVWLIKKNSTYPTIKKSYN
 NTNQEDLLVLWGIHHPNDAAEQTRLYQNPTTYISIGTSTLNQRLVPKIATRISKVNGQSGR
 MEFFWTILKPNDAINFESNGNFIAPYAYKIVKKGDSAIMKSELEYGNCNTKCQTPMGAI
 NSSMPFHNHPLTIGECPKYVKS NRLVLATGLRNSPQRESRRKKRGLFGAIAAGFIEGGWQ
 GMVDGWYGYHHSNEQSGSYAADKESTQKAIDGVTNKVNSIIDKMNTQFEAVGREFNN
 LERRIENLNKKMEDGFLDVWTYNAELLVLMENERTLDFHDSNVKNLYDKVRLQLRDN
 AKELGNGCFEFYHKCDNECMESIRNGTYNYPQYSEEARLKREEISGVKLESIGTYQILSIY
 STVASSLALAIMMAGLSLWMCNGLSLQCRICI

Figure 1G nucleotide sequence encoding H5 from influenza A/Indonesia/5/2005 (H5N1) SEQ ID NO: 42)

ATGGAGAAAATAGTGCTTCTTCTTGCAATAGTCAGTCTTGTTAAAAGTGATCAGATTTGCATTGGTTACCA
TGCAAAACAATTCAACAGAGCAGGTTGACACAATCATGGAAAAGAACGTTACTGTTACACATGCCCAAGA
CATACTGGAAAAGACACACAACGGGAAGCTCTGCGATCTAGATGGAGTGAAGCCTCTAATTTTAAGAGA
TTGTAGTGTAGCTGGATGGCTCCTCGGGAACCAATGTGTGACGAATTCATCAATGTACCGGAATGGTCT
TACATAGTGGAGAAGGCCAATCCAACCAATGACCTCTGTTACCCAGGGAGTTTCAACGACTATGAAGAA
CTGAAACACCTATTGAGCAGAATAAACCATTTTGAGAAAATTCAAATCATCCCCAAAAGTTCTTGGTCCG
ATCATGAAGCCTCATCAGGAGTTAGCTCAGCATGTCCATACCTGGGAAGTCCCTCTTTTTTAGAAATGTG
GTATGGCTTATCAAAAAGAACAGTACATACCCAACAATAAAGAAAAGCTACAATAATACCAACCAAGAG
GATCTTTTGGTACTGTGGGGAATTCACCATCCTAATGATGCGGCAGAGCAGACAAGGCTATATCAAAACC
CAACCACCTATATTTCCATTGGGACATCAACACTAAACCAGAGATTGGTACCAAAAATAGCTACTAGATC
CAAAGTAAACGGGCAAAAGTGGAAGGATGGAGTTCTTCTGGACAATTTTAAACCTAATGATGCAATCAA
CTTCGAGAGTAATGGAAATTTCAATTGCTCCAGAATATGCATACAAAATTGTCAAGAAAGGGGACTCAGCA
ATTATGAAAAGTGAATTGGAATATGGTAACTGCAACACCAAGTGTCAAACTCCAATGGGGGCGATAAAC
TCTAGTATGCCATTCCACAACATACACCCTCTCACCATCGGGGAATGCCCCAAATATGTGAAATCAAACA
GATTAGTCCTTGCAACAGGGCTCAGAAATAGCCCTCAAAGAGAGAGCAGAAGAAAAAAGAGAGGACTA
TTTGGAGCTATAGCAGGTTTATAGAGGGAGGATGGCAGGGAATGGTAGATGGTTGGTATGGGTACCAC
CATAGCAATGAGCAGGGGAGTGGGTACGCTGCAGACAAAAGAAATCCACTCAAAGGCAATAGATGGAGTC
ACCAATAAGGTCAACTCAATCATTGACAAAATGAACACTCAGTTTGAGGCCGTTGGAAGGGAATTTAATA
ACTTAGAAAAGGAGAATAGAGAATTTAAACAAGAAGATGGAAGACGGGTTTCTAGATGTCTGGACTTATA
ATGCCGAACCTTCTGGTTCTCATGGAAAATGAGAGAATCTAGACTTTTATGACTCAAATGTTAAGAACCT
CTACGACAAGGTCCGACTACAGCTTAGGGATAATGCAAAGGAGCTGGGTAACGGTTGTTTCGAGTTCTAT
CACAAATGTGATAATGAATGTATGGAAAAGTATAAGAAACGGAACGTACAACATATCCGCAGTATTCAGAA
GAAGCAAGATTAAGGAGAGGAAATAAGTGGGGTAAAATTGGAATCAATAGGAACTTACCAAATACT
GTCAATTTATTCAACAGTGGCGAGTTCCTAGCACTGGCAATCATGATGGCTGGTCTATCTTTATGGATGT
GCTCCAATGGATCGTTACAATGCAGAAATTTGCATTTAA

B-2X35S/CPMV HT/M2 New Caledonia/NOS (Construct number 1261)

Figure 2A

IF-S1-M1+M2ANC.c (SEQ ID NO:7)

AAATTTGTCGGGCCCATGAGTCTTCTAACCGAGGTCGAAACG

Figure 2B

IF-S1-4-M2ANC.r (SEQ ID NO: 8)

ACTAAAGAAAATAGGCCTTTACTCCAGCTCTATGCTGACAAAA

Figure 2C

Synthesized M2 gene (corresponding to nt 1-26 joined to 715-982 from Genbank accession number DQ508860) (SEQ ID NO: 9)

ATGAGTCTTCTAACCGAGGTCGAAACGCCTATCAGAAACGAATGGGGGTGCAGATGCAACGATTCAAGT
GATCCTCTTGTGTGTGCCGCAAGTATAATTGGGATTGTGCACCTGATATTGTGGATTATTGATCGCCTTTT
TCCAAAAGCATTTATCGTATCTTTAAACACGGTTAAAAAGAGGGCCTTCTACGGAAGGAGTACCAGAGT
CTATGAGGGAAGAATATCGAGAGGAACAGCAGAATGCTGTGGATGCTGACGATGGTCATTTTGTGAGCA
TAGAGCTGGAGTAA

Figure 2D

Expression cassette number 1261 from 2X35S promoter to NOS terminator. M2 from influenza A/New Caledonia/20/1999 (H1N1) is underlined. (SEQ ID NO: 10)

GTCAACATGGTGGAGCACGACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAA
AGGGCAATTGAGACTTTTCAACAAAGGGTAATATCCGGAAACCTCCTCGGATTCCATTGCCAGCTATCT
GTCACTTTATTGTGAAGATAGTGGAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAA
AGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATCG
TGGAAGAAAGAACGTTCCAACACGCTCTCAAAGCAAGTGGATTGATGTGATAACATGGTGGAGCACG
ACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAAAGGGCAATTGAGACTTTTCA
ACAAAGGGTAATATCCGGAAACCTCCTCGGATTCCATTGCCAGCTATCTGTCACTTTATTGTGAAGATA
GTGGAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAAAGGCCATCGTTGAAGATGCC
TCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATCGTGGAAGAAAGAACGTTCCA
ACCACGCTTTCAAAGCAAGTGGATTGATGTGATATCTCCACTGACGTAAGGGATGACGCACAATCCCACT
ATCCTTCGCAAGACCCTTCTCTATATAAGGAAGTTCATTTTCATTGGAGAGGTATTAATAATCTTAATAGG
TTTTGATAAAGCGAACGTGGGGAAACCCGAACCAACCTTCTCTAAACTCTCTCTCATCTCTCTTAAAG
CAAACCTCTCTCTTGTCTTTCTTGCCTGAGCGATCTTCAACGTTGTCAGATCGTGCTTCGGCACCAGTACA
ACGTTTTCTTCTACTGAAGCGAAATCAAAGATCTCTTGTGGACACGTAGTGCGGCGCCATTAAATAACG
TGTAATTGTCCTATTCTTGTGGTGTGGTCTTGGGAAAAGAAAGCTTGCTGGAGGCTGCTGTTCAGCCCCA

TACATTACTTGTTACGATTCTGCTGACTTTCGGCGGGTGCAATATCTCTACTTCTGCTTGACGAGGTATTG
TTGCCTGTACTTCTTTCTTCTTCTTCTTCTGCTGATTGGTTCTATAAGAAATCTAGTATTTTCTTTGAAACAGA
GTTTTCCCGTGGTTTTTCGAACCTGGAGAAAGATTGTTAAGCTTCTGTATATTCTGCCCAAATTTGTCGGGC
CCATGAGTCTTCTAACCGAGGTCGAAACGCCTATCAGAAACGAATGGGGGTGCAGATGCAACGATTCAA
GTGATCCTCTTGTTGTTGCCGCAAGTATAATTGGGATTGTGCACCTGATATTGTGGATTATTGATCGCCTT
TTTTCCAAAAGCATTATCGTATCTTTAAACACGGTTTAAAAAGAGGGCCTTCTACGGAAGGAGTACCAG
AGTCTATGAGGGAAGAATATCGAGAGGAACAGCAGAATGCTGTGGATGCTGACGATGGTCATTTTGTC
GCATAGAGCTGGAGTAAAGGCCTATTTTCTTTAGTTTGAATTTACTGTTATTTCGGTGTGCATTTCTATGTTT
GGTGAGCGGTTTTCTGTGCTCAGAGTGTGTTATTTTATGTAATTTAATTTCTTTGTGAGCTCCTGTTTAGC
AGGTCGTCCCTTCAGCAAGGACACAAAAAGATTTTAATTTTATTAATAAAAAAAAAAAAAAAAAAGACCGGG
AATTCGATATCAAGCTTATCGACCTGCAGATCGTTCAAACATTTGGCAATAAAGTTTCTTAAGATTGAATC
CTGTTGCCGGTCTTGCGATGATTATCATATAATTTCTGTTGAATTACGTTAAGCATGTAATAATTAACATG
TAATGCATGACGTTATTTATGAGATGGGTTTTATGATTAGAGTCCCGCAATTATACATTTAATACGCGAT
AGAAAACAAAATATAGCGCGCAAACTAGGATAAATTATCGCGCGCGGTGTCATCTATGTTACTAGAT

Figure 2E

Amino acid sequence of M2 from influenza A/New Caledonia/20/1999 (H1N1) (SEQ ID NO: 11)

MSLLTEVETPIRNEWGCRCONDSSDPLVVAASIIIGIVHLILWIIDRLFSKSIYRIFKHGLKRG
STEGVPESMREEYREEQQNAVDADDGHFVSIELE

C-2X35S/CPMV-HT/M2 Puerto Rico/NOS (Construct number 859)

Figure 3A

Synthesized M2 gene (corresponding to nt 26-51 joined to nt 740-1007 from Genebank accession number EF467824) (SEQ ID NO: 12)

ATGAGTCTTCTAACCGAGGTGCGAAACGCCTATCAGAAACGAATGGGGGTGCAGATGCAACGGTTCAAGT
GATCCTCTCACTATTGCCGCAAATATCATTGGGATCTTGCACTTGACATTGTGGATTCTTGATCGTCTTTT
TTCAAATGCATTTACCGTCGCTTTAAATACGGACTGAAAGGAGGGCCTTCTACGGAAGGAGTGCCAAAGT
CTATGAGGGAAGAAATATCGAAAGGAACAGCAGAGTGTGTGGATGCTGACGATGGTCATTTTGTGAGCA
TAGAGCTGGAGTAA

Figure 3B

Expression cassette number 859 from 2X35S promoter to NOS terminator. M2 from Influenza A/Puerto Rico/8/1934 (H1N1) is underlined. (SEQ ID NO: 13)

GTCAACATGGTGGAGCAGCAGACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAA
AGGGCAATTGAGACTTTTCAACAAAGGTAATATCCGGAAACCTCCTCGGATTCCATTGCCAGCTATCT
GTCATTTATTGTGAAGATAGTGGAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAA
AGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGATGGACCCCAACCCACGAGGAGCATCG
TGGAAGAAAGAACGTTCCAACACGCTTCAAAGCAAGTGGATTGATGTGATAACATGGTGGAGCAGC
ACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAAAGGGCAATTGAGACTTTTCA
ACAAAGGGTAATATCCGGAAACCTCCTCGGATTCCATTGCCAGCTATCTGTCACTTTATTGTGAAGATA
GTGGAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAAGGCCATCGTTGAAGATGCC
TCTGCCGACAGTGGTCCCAAAGATGGACCCCAACCCACGAGGAGCATCGTGGAAGAAAGACGTTCCA
ACCACGCTTCAAAGCAAGTGGATTGATGTGATATCTCCACTGACGTAAGGGATGACGCACAATCCCACT
ATCCTTCGCAAGACCCTTCTCTATATAAGGAAGTTCATTTTCATTGGAGAGGTATTAATCTTAATAGG
TTTTGATAAAGCGAACGTGGGGAAACCCGAACCAACCTTCTTCTAACTCTCTCTCATCTCTCTTAAAG
CAAACCTCTCTCTTGTCTTTCTTGCCTGAGCGATCTTCAACGTTGTCAGATCGTGCTTCGGCACCAGTACA
ACGTTTTCTTTCACTGAAGCGAAATCAAAGATCTCTTTGTGGACACGTAGTGCGGCGCCATTAAATAACG
TGTAATTGTCCTATTCTTGTCTGGTGTGGTCTTGGGAAAGAAAGCTTGCTGGAGGCTGCTGTTTACGCCCCA
TACATTACTTGTACGATTCTGCTGACTTTCGGCGGGTGCAATATCTCTACTTCTGCTTGACGAGGTATTG
TTGCTGTACTTCTTCTTCTTCTTCTTCTGCTGATTGGTCTATAAGAAATCTAGTATTTTCTTTGAAACAGA
GTTTCCCCTGGTTCGAACTTGGAGAAAGATTGTTAAGCTTCTGTATATTCTGCCCCAAATTTGTGCGGC
CCATGAGTCTTCTAACCGAGGTGCGAAACGCCTATCAGAAACGAATGGGGGTGCAGATGCAACGGTTCAA
GTGATCCTCTCACTATTGCCGCAAATATCATTGGGATCTTGCACTTGACATTGTGGATTCTTGATCGTCTTT
TTTTCAAATGCATTTACCGTCGCTTTAAATACGGACTGAAAGGAGGGCCTTCTACGGAAGGAGTGCCAAA
GTCTATGAGGGAAGAAATATCGAAAGGAACAGCAGAGTGTGTGGATGCTGACGATGGTCATTTTGTGAG
CATAGAGCTGGAGTAAAGGCCTATTTCTTTAGTTGAATTTACTGTTATTCGGTGTGCATTTCTATGTTTG
GTGAGCGGTTTTCTGTGCTCAGAGTGTGTTTATTTATGTAATTTAATTTCTTTGTGAGCTCCTGTTTAGCA
GGTCGTCCTTCAGCAAGGACACAAAAAGATTTTAATTTATTAAGGATTTTAAAGATTGAATCC
ATTCGATATCAAGCTTATCGACCTGCAGATCGTTCAAACATTTGGCAATAAAGTTTCTTAAGATTGAATCC
TGTTGCCGGTCTTGCGATGATTATCATATAATTTCTGTTGAATTACGTTAAGCATGTAATAATTAACATG
AATGCATGACGTTATTTATGAGATGGGTTTTATGATTAGAGTCCCGCAATTATACATTTAATACGCGATA
GAAACAAAATATAGCGCGCAAACTAGGATAAATTATCGCGCGCGGTGTCATCTATGTTACTAGAT

Figure 3C

Amino acid sequence of M2 from influenza A/Puerto Rico/8/1934 (H1N1) (SEQ ID NO:14)

MSLLTEVETPIRNEWGCRCNGSSDPLTIAANIIGILHLTLWILDRLFFKCIYRRFKYGLKGG
PSTEGVPKSMREEYRKEQQSAVDADDGHFVSIELE

D-2X35S/CPMV-HT/PDISP/H1 California/NOS (Construct number 484)

Figure 4A

IF-H1A-C-09.s2+4c (SEQ ID NO: 15)

TCTCAGATCTTCGCCGACACATTATGTATAGGTTATCATGCGAACA

Figure 4B

IF-H1A-C-09.s1-4r (SEQ ID NO: 16)

ACTAAAGAAAATAGGCCTTTAAATACATATTCTACACTGTAGAGACCCA

Figure 4C

Synthesized H1 gene (Genbank accession number FJ966974) (SEQ ID NO: 17)

ATGAAGGCAATACTAGTAGTTCTGCTATATACATTTGCAACCGCAAATGCAGACACATTATGTATAGGTT
ATCATGCGAACAATTCAACAGACACTGTAGACACAGTACTAGAAAAGAATGTAACAGTAACACACTCTG
TTAACCTTCTAGAAGACAAGCATAACGGGAAACTATGCAAACTAAGAGGGGTAGCCCCATTGCATTTGG
GTAAATGTAACATTGCTGGCTGGATCCTGGGAAATCCAGAGTGTGAATCACTCTCCACAGCAAGCTCATG
GTCTTACATTGTGGAACACCTAGTTCAGACAATGGAACGTGTTACCCAGGAGATTTTCATCGATTATGAG
GAGCTAAGAGAGCAATTGAGCTCAGTGTATCATTTGAAAGGTTTGAGATATTCCCCAAGACAAGTTCAT
GGCCCAATCATGACTCGAACAAGGTGTAACGGCAGCATGTCCTCATGCTGGAGCAAAAAGCTTCTACA
AAAATTTAATATGGCTAGTTAAAAAAGGAAATTCATACCCAAAGCTCAGCAAAATCCTACATTAATGATAA
AGGGAAAGAAGTCCTCGTGCTATGGGGCATTACCATCCATCTACTAGTGCTGACCAACAAAGTCTCTAT
CAGAATGCAGATGCATATGTTTTGTGGGGTCATCAAGATACAGCAAGAAGTTCAAGCCGGAAATAGCA
ATAAGACCCAAAGTGAGGGATCAAGAAGGGAGAATGAATATTACTGGACACTAGTAGAGCCGGGAGA
CAAAATAACATTCGAAGCAACTGGAATCTAGTGGTACCGAGATATGCATTGCGAATGGAAAGAAATGC
TGGATCTGGTATTATCATTTCAGATACACAGTCCACGATTGCAATACAACCTTGTCAAACACCCAAGGGT
GCTATAAACACAGCCTCCCATTTCAGAATATACATCCGATCACAATTGGAAAATGTCCAAAATATGTAA
AAAGCACAAAATTGAGACTGGCCACAGGATTGAGGAATATCCCGTCTATTCAATCTAGAGGCCTATTGG
GGCCATTGCCGGTTTCATTGAAGGGGGGTGGACAGGGATGGTAGATGGATGGTACGGTTATCACCATCA
AAATGAGCAGGGGTCAGGATATGCAGCCGACCTGAAGAGCACACAGAATGCCATTGACGAGATTACTAA
CAAAGTAAATTCTGTTATTGAAAAGATGAATACACAGTTCACAGCAGTAGGTAAAGAGTTCAACCACTG
GAAAAAGAATAGAGAATTTAAATAAAAAAGTTGATGATGGTTTCTGGACATTGGACTTACAATGCC
GAACTGTTGGTTCTATTGAAAAATGAAAGAACTTTGGACTACCAAGATTCAAATGTGAAGAACTTATATG
AAAAGGTAAGAAGCCAGCTAAAAAACAATGCCAAGGAAATTGGAAACGGCTGCTTTGAATTTACCACA
AATGCGATAACACGTGCATGGAAAGTGTCAAAAATGGGACTTATGACTACCAAAAAATACTCAGAGGAAG
CAAAATTAACAGAGAAGAAATAGATGGGGTAAAGCTGGAATCAACAAGGATTTACCAGATTTTGGCGA
TCTATTCAACTGTCGCCAGTTCATTGGTACTGGTAGTCTCCCTGGGGGCAATCAGTTTCTGGATGTGCTCT
AATGGGTCTCTACAGTGTAGAATATGTATTAA

Figure 4D

Schematic representation of construct 1192. SacII and StuI restriction enzyme sites used for plasmid linearization are annotated on the representation.

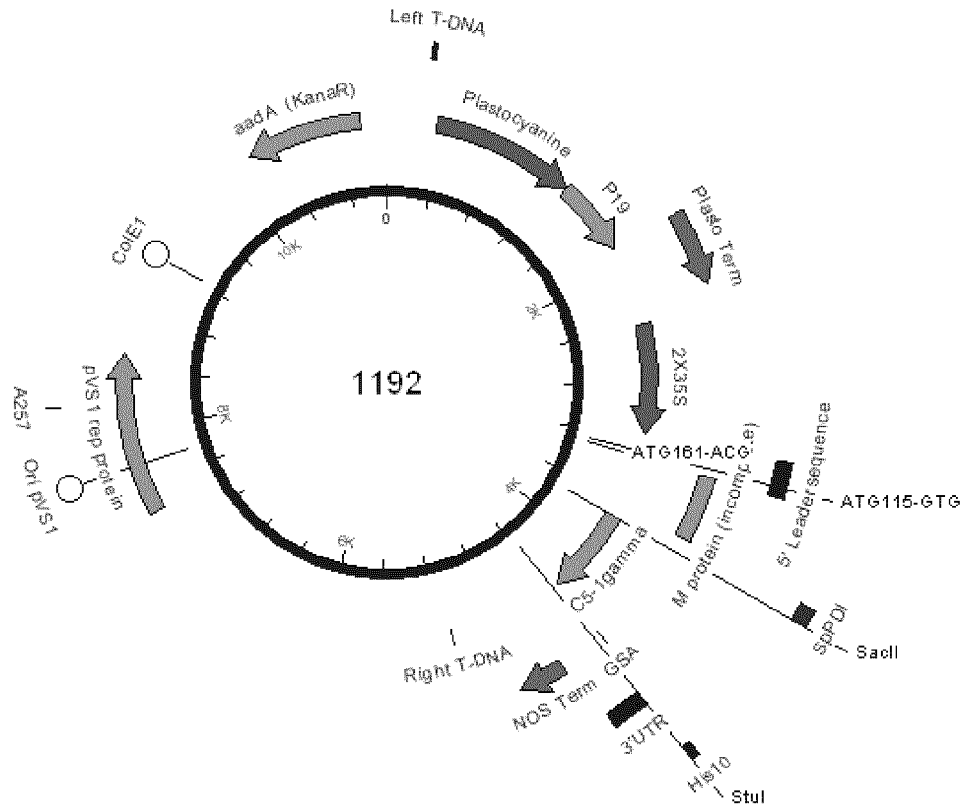


Figure 4E

Construct 1192 from left to right t-DNA borders (underlined). 2X35S/CPMV-HT/PDISP/NOS with Plastocyanine-P19-Plastocyanine silencing inhibitor expression cassette (SEQ ID NO: 18)

TGGCAGGATATATTGTGGTGTAAACAAATTGACGCTTAGACAACCTTAATAACACATTGCGGACGTTTTTA
ATGTACTGAATTAACGCCGAATCCCGGGCTGGTATATTATATGTTGTCAAATAACTCAAAAACCATAAA
AGTTTAAAGTTAGCAAGTGTGTACATTTTTACTTGAACAAAAATATTCACCTACTACTGTTATAAATCATT
TTAAACATTAGAGTAAAGAAATATGGATGATAAGAACAAGAGTAGTGATATTTTGACAACAATTTTGTG
CAACATTTGAGAAAAATTTTGTGTTCTCTCTTTTCATTGGTCAAAAAACAATAGAGAGAGAAAAAGGAAGA
GGGAGAATAAAAAACATAATGTGAGTATGAGAGAGAAAGTTGTACAAAAGTTGTACCAAAATAGTTGTAC
AAATATCATTGAGGAATTTGACAAAAGCTACACAAATAAGGGTTAATTGCTGTAAATAAATAAGGATGA
CGCATTAGAGAGATGTACCATTAGAGAATTTTGGCAAGTCATTAAGAAAGAAAGAAATAAATTATTTTAA
AATTAAAAAGTTGAGTCATTTGATTAAACATGTGATTATTTAATGAATTGATGAAAGAGTTGGATTAAAGT
TGTATTAGTAATTAGAATTTGGTGTCAAATTTAATTTGACATTTGATCTTTTCTATATATTGCCCATAGA
GTCAGTTAACTCATTTTATATTTTCATAGATCAAATAAGAGAAATAACGGTATATTAATCCCTCCAAAAA
AAAAAACGGTATATTTACTAAAAAATCTAAGCCACGTAGGAGGATAACAGGATCCCCGTAGGAGGATA

ACATCCAATCCAACCAATCACACAATCCTGATGAGATAACCCACTTTAAGCCCACGCATCTGTGGCACA
TCTACATTATCTAAATCACACATTCTCCACACATCTGAGCCACACAAAAACCAATCCACATCTTTATCAC
CCATTCTATAAAAAATCACACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGAGAAGAG
ACTAATTAATTAATTAATCATCTTGAGAGAAAATGGAACGAGCTATACAAGGAAAACGACGCTAGGGAAC
AAGCTAACAGTGAACGTTGGGATGGAGGATCAGGAGGTACCACTTCTCCCTTCAAACCTCTGACGAAAG
TCCGAGTTGGACTGAGTGGCGGCTACATAACGATGAGACGAATTCGAATCAAGATAATCCCTTGGTTTC
AAGGAAAGCTGGGGTTTCGGGAAAAGTTGTATTTAAGAGATATCTCAGATACGACAGGACGGAAGCTTCA
CTGCACAGAGTCCTTGGATCTTGGACGGGAGATTGGTTAACTATGCAGCATCTCGATTTTTCGGTTTCGA
CCAGATCGGATGTACCTATAGTATTCGGTTTTCGAGGAGTTAGTATCACCGTTTCTGGAGGGTCGCGAACT
CTTCAGCATCTCTGTGAGATGGCAATTCGGTCTAAGCAAGAACTGCTACAGCTTGCCCCAATCGAAGTGG
AAAGTAATGTATCAAGAGGATGCCCTGAAGGTACTCAAACCTTCGAAAAAGAAAGCGAGTAAGTTAAAA
TGCTTCTCGTCTCCTATTTATAATATGGTTTTGTTATTGTTAATTTGTTCTTGTAAGAGCTTAATTAAT
CGTTGTTGTTATGAAATACTATTTGTATGAGATGAACTGGTGAATGTAATTCATTTACATAAGTGGAGTC
AGAATCAGAAATGTTTCTCCATAACTAAGTACATGAAGACCTGCCGCGTACAATTGTCTTATATTTGA
ACAATAAAATGAACATCTTTTGCCACAACCTTTATAAGTGGTTAATATAGCTCAAATATATGGTCAAGTT
CAATAGATTAATAATGGAATATCAGTTATCGAAATTCATTAACAATCAACTTAACGTTATTAAGTACTA
ATTTTATATCATCCCTTTGATAAATGATAGTACACCAATTAGGAAGGAGCATGCTCGCCTAGGAGATTG
TCGTTTTCCGCGCTCAGTTTGCAAGCTGCTCTAGCCGTGTAGCCAATACGCAAACCGCCTCTCCCCGCGCG
TTGGGAATTACTAGCGCGTGTGACAAGCTTGCATGCCGTCAACATGGTGGAGCACGACACACTTGTCT
ACTCCAAAAATCAAAAGATACAGTCTCAGAAGACCAAAGGGCAATTGAGACTTTTCAACAAAGGGTAA
TATCCGGAACCTCCTCGGATTCCATTGCCAGCTATCTGTCACCTTATTGTGAAGATAGTGGAAAAAGGA
AGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAAAAGGCCATCGTTGAAGATGCCTCTGCCGACAGT
GGTCCCAAGATGGACCCCCACCCACGAGGAGCATCGTGAAAAAGAAGACGTTCCAACCACGTCTTCA
AAGCAAGTGGATTGATGTGATAACATGGTGGAGCACGACACACTTGTCTACTCCAAAAATATCAAAGAT
ACAGTCTCAGAAGACCAAAGGGCAATTGAGACTTTTCAACAAAGGGTAATATCCGGAACCTCCTCGGA
TTCCATTGCCAGCTATCTGTCACCTTATTGTGAAGATAGTGGAAAAGGAAGGTGGCTCCTACAAATGCC
ATCATTGCGATAAAGGAAAAGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAGATGGACCCC
CACCCACGAGGAGCATCGTGAAAAAGAAGACGTTCCAACCACGTCTTCAAAGCAAGTGGATTGATGTG
ATATCTCCACTGACGTAAGGGATGACGCACAATCCCACTATCCTTCGCAAGACCTTCTCTATATAAGG
AAGTTCAATTCATTTGGAGAGGTATTAATCTTAATAGGTTTTGATAAAAGCGAACGTGGGGAACCCG
AACCAACCTTCTTCTAACTCTCTCATCTCTCTTAAAGCAAACCTCTCTCTTGTCTTTTGGCTGAGC
GATCTTCAACGTTGTCAGATCGTTCGGCACCAGTACAACGTTTTCTTCACTGAAGCGAAATCAAAG
ATCTCTTTGTGGACACGTAGTGCGGCGCCATTAATAACGTGTACTTGTCTATTCTTGTGCGGTGTGGTCT
TGGGAAAAGAAAGCTTGTGAGGGCTGCTGTTTCAAGCCCATACATTACTTGTACGATTCTGCTGACTTTC
GGCGGGTGAATATCTCTACTTCTGCTTGACGAGGTATTGTTGCCTGTACTTCTTCTTCTTCTTGTGCTG
ATTGGTTCTATAAGAAATCTAGTATTTTCTTGAACAGAGTTTTCCCGTGGTTTTCGAACTTGGAGAAAG
ATTGTTAAGCTTCTGTATATTCTGCCAAAATTTGTCGGGCCATGGCGAAAAACGTTGCGATTTTCGGCTT
ATTGTTTTCTCTTCTTGTGTTGGTTTCTTCTCAGATCTTCGCCGCGGCTCCTCAGCCAAAACGACACCCCA
TCTGTCTATCCACTGGCCCCCTGGATCTGCTGCCCAAACTAACTCCATGGTGACCCTGGGATGCCTGGTCAA
GGGCTATTTCCCTGAGCCAGTGACAGTGACCTGGAACCTTGATCCCTGTCCAGCGGTGTGCACACCTTC
CCAGCTGTCCTGCAGTCTGACCTCTACACTCTGAGCAGCTCAGTGACTGTCCCCTCCAGCACCTGGCCCA
GCGAGACCGTCACTGCAACGTTGCCACCCGCGCCAGCAGCACCAAGGTGGACAAGAAAATTGTGCCCA
GGGATTGTGGTTGTAAGCCTTGCAATATGTACAGTCCAGAAAGTATCATCTGTCTTCACTTCCCCCAAG
CCCAAGGATGTGCTCACCATTACTCTGACTCCTAAGGTCACGTGTGTTGTGGTAGACATCAGCAAGGATG
ATCCCGAGGTCCAGTTCAGCTGGTTTGTAGATGATGTGGAGGTGCACACAGCTCAGACGCAACCCCGGGA
GGAGCAGTTCAACAGCACTTTCCGCTCAGTCACTGAACCTCCCATCATGCACCAGGACTGGCTCAATGGC
AAGGAGCGATCGCTCACCATCACCATCACCATCACCATCACCATTAAAGGCCTATTTCTTTAGTTTGAAT
TACTGTTATTCGGTGTGCATTTCTATGTTTGGTGAGCGGTTTTCTGTGCTCAGAGTGTGTTTATTTATGT
AATTTAATTTCTTTGTGAGCTCCTGTTAGCAGGTGCTCCCTTCAGCAAGGACACAAAAAGATTTAATTT
TATTAATAAAAAAAAAAAAAAAAAAGACCGGGAATTCGATATCAAGCTTATCGACCTGCAGATCGTTCAAAC
ATTTGGCAATAAAGTTTCTTAAGATTGAATCCTGTTGCCGGTCTTGCAGTATTATCATATAATTTCTGTT
GAATTACGTTAAGCATGTAATAATTAACATGTAATGCATGACGTTATTTATGAGATGGGTTTTATGATTA
GAGTCCCGCAATTATACATTTAATACGCGATAGAAAACAAAATATAGCGCGCAAACTAGGATAAATTTAT
CGCGCGGGTGTCTATGTTACTAGATCTCTAGAGTCTCAAGCTTGGCGCGCCACGTAAGTGGC

ACTGGCCGTCGTTTTACAACGTCGTGACTGGGAAAACCCCTGGCGTTACCCAACCTAATCGCCTTGCAGCA
 CATCCCCCTTTCCGCGAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGCGCA
 GCCTGAATGGCGAATGCTAGAGCAGCTTGAGCTTGATCAGATTGTCGTTTCCCGCCTTCAGTTTAAACT
 ATCAGTGTGTTGACAGGATATATTGGCGGGTAAACCTAAGAGAAAAGAGCGTTTA

Figure 4F

Expression cassette number 484 from 2X35S promoter to NOS terminator. PDISP/H1 from influenza A/California/7/2009 (H1N1) is underlined. (SEQ ID NO: 19)

GTCAACATGGTGGAGCAGCAGACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAA
 AGGGCAATTGAGACTTTTCAACAAAGGGTAATATCCGGAAACCTCCTCGGATTCCATTGCCAGCTATCT
 GTCACCTTATTGTGAAGATAGTGGAAAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAAGGAA
 AGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATCG
 TGGAAAAAGAAGACGTTCCAACCACGTCTTCAAAGCAAGTGGATTGATGTGATAACATGGTGGAGCAGC
 ACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAAAGGGCAATTGAGACTTTTCA
 ACAAAGGGTAATATCCGGAAACCTCCTCGGATTCCATTGCCAGCTATCTGTCACCTTATTGTGAAGATA
 GTGGAAAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAAGGAAAAGGCCATCGTTGAAGATGCC
 TCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATCGTGGAAAAAGAAGACGTTCCA
 ACCACGTCTTCAAAGCAAGTGGATTGATGTGATATCTCCACTGACGTAAGGGATGACGCACAATCCCCT
 ATCCTTCGCAAGACCTTCTCTATATAAGGAAGTTCATTTTCATTGAGAGGTTATTAATCTTAATAGG
 TTTTGATAAAAAGCGAACGTGGGGGAAACCCGAACCAAAACCTTCTCTAAACTCTCTCATCTCTCTTAAAG
 CAAACTTCTCTCTTGTCTTTCTTGCGTGAGCGATCTTCAACGTTGTCAGATCGTGCTTCGGCACCAGTACA
 ACGTTTTCTTCACTGAAGCGAAATCAAAGATCTCTTTGTGGACACGTAGTGCGGCGCCATTAAATAACG
 TGTACTTGTCTATTCTTGTGCGGTGTGGTCTTGGGAAAAGAAAGCTTGCTGGAGGCTGCTGTTACGCCCCA
 TACATTACTTGTACGATTCTGCTGACTTTCGGCGGGTGCAATATCTCTACTTCTGCTTGACGAGGTATTG
 TTGCTGTACTTCTTCTTCTTCTTCTGCTGATTGGTCTATAAGAAATCTAGTATTTCTTTGAAACAGA
 GTTTTCCCGTGGTTTTGCAACTTGGAGAAAAGATTGTTAAGCTTCTGTATATTCTGCCCAAATTTGTCGGGC
 CCATGGCGGAAAAACGTTGCGATTTCGGCTTATTGTTTTCTCTTCTTGTGTTGGTTCCTTCTCAGATCTTCG
 CCGACACATTATGTATAGGTTATCATGCGAACAATTCAACAGACACTGTAGACACAGTACTAGAAAAAGA
ATGTAACAGTAACACACTCTGTAAACCTTCTAGAAGACAAGCATAACGGGAAACTATGCAACTAAGAG
GGGTAGCCCCATTGCAATTTGGGTAAATGTAACATTGCTGGCTGGATCCTGGGAAATCCAGAGTGTGAATC
ACTCTCCACAGCAAGCTCATGGTCTACATTGTGGAAACACCTAGTTCAGACAATGGAAACGTGTTACCCA
GGAGATTCATCGATTATGAGGAGCTAAGAGAGCAATTGAGCTCAGTGTGCATCTTTGAAAGGTTTGAGA
TATTCCTCAAGACAAGTTCATGGCCCAATCATGACTCGAACAAGGTGTAACGGCAGCATGTCCTCATGC
TGGAGCAAAAAGCTTCTACAAAAATTTAATATGGCTAGTTAAAAAAGGAAATTCATACCCAAAGCTCAG
CAAATCCTACATTAATGATAAAGGGGAAAGAAAGTCTCGTGCTATGGGGCATTACCATCCATCTACTAGT
GCTGACCAACAAAGTCTCTATCAGAATGCAGATGCATATGTTTTGTGGGGTCATCAAGATACAGCAAGA
AGTTCAAGCCGGAATAGCAATAAGACCCAAAGTGAGGGATCAAGAAGGGAGAATGAACTATTACTGG
ACACTAGTAGAGCCGGGAGACAAAAATAACATTTCGAAGCAACTGGAAATCTAGTGGTACCGAGATATGCA
TTCGCAATGGAAGAAATGCTGGATCTGGTATTATCATTTCAGATACACCAGTCCACGATTGCAATACAA
CTTGTCAAACACCCAAGGGTGCTATAAACACCAGCCTCCCATTTCAGAATATACATCCGATCACAATTGG
AAAAATGTCCAAAAATATGTAAAAAGCACAAAAATTGAGACTGGCCACAGGATTGAGGAATATCCCGTCTAT
TCAATCTAGAGGCCTATTTGGGGCCATTGCCGTTTCATTGAAGGGGGGTGGACAGGGATGGTAGATGGA
TGGTACGGTTATCACCATCAAAATGAGCAGGGGTGAGGATATGCAGCCGACCTGAAGAGCACACAGAAT
GCCATTGACGAGATTACTAACAAGTAAATTTCTGTTATTGAAAAAGATGAATACACAGTTTCACAGCAGTAG
GTAAAGAGTTCAACCACCTGGAAAAAAGAATAGAGAATTTAAATAAAAAAGTTGATGATGGTTTCCTGG
ACATTTGGACTTACAATGCCGAACCTGTTGGTCTATTGGAAAAATGAAAGAATTTGGACTACCACGATT
AAATGTGAAGAACTTATATGAAAAGGTAAAGAGCCAGCTAAAAACAATGCCAAGGAAATTTGGAACG
GCTGCTTTGAATTTTACCACAAATGCGATAACACGTGCATGGAAAGTGTCAAAAAATGGGACTTATGACTA
CCCCAAATACTCAGAGGAAGCAAAATTAACAGAGAAGAAATAGATGGGGTAAAGCTGGAATCAACAA
GGATTTACCAGATTTTGGCGATCTATTCAACTGTCGCCAGTTCATTGGTACTGGTAGTCTCCCTGGGGCA

ATCAGTTTCTGGATGTGCTCTAATGGGTCTCTACAGTGTAGAATATGTATTTAAAGGCCTATTTTCTTTAG
TTTGAATTTACTGTTATTCGGTGTGCATTTCTATGTTTGGTGAGCGGTTTTCTGTGCTCAGAGTGTGTTTAT
TTTATGTAATTTAATTTCTTTGTGAGCTCCTGTTTAGCAGGTCGTCCCTTCAGCAAGGACACAAAAAGATT
TTAATTTTATTAAAAAAGACCGGGAATTCGATATCAAGCTTATCGACCTGCAGATCGT
TCAAACATTTGGCAATAAAGTTTCTTAAGATTGAATCCTGTTGCCGGTCTTGCGATGATTATCATATAATT
TCTGTTGAATTACGTTAAGCATGTAATAATTAACATGTAATGCATGACGTTATTTATGAGATGGGTTTTTA
TGATTAGAGTCCCGCAATTATACATTTAATACGCGATAGAAAAACAAATATAGCGCGCAAACTAGGATA
AATTATCGCGCGCGGTGTCATCTATGTTACTAGAT

Figure 4G

Amino acid sequence of PDISP-H1 from influenza A/California/7/2009 (H1N1) (SEQ ID NO: 20)

MAKNVAIFGLLFSLVLVPSQIFADTLCIGYHANNSTDTVDTVLEKNVTVTHSVNLLEDK
HNGKLCKLRGVAPLHLGKCNIAGWILGNPECESLSTASSWSYIVETPSSDNGTCYPGDFI
DYEELREQLSSVSSFERFEIFPKTSSWPNHDSNKGVTAAACPHAGAKSFYKNLIWL VKKGN
SYPKLSKSYINDKGKEVLVLWGIHPSTSDQQLYQNADAYVFGSSRYSKKFKEIAI
RPKVRDQEGRMNYYWTLVEPGDKITFEATGNLVVPRYAFAMERNAGSGIIISDTPVHDC
NTTCQTPKGAINSLPFQNIHPITIGKCPKYVKSTKLRLATGLRNIPSIQSRGLFGAIAGFIE
GGWTGMVDGWYGYHHQNEQSGYAADLKSTQNAIDEITNKVNSVIEKMNTQFTAVGK
EFNHLEKRIENLNKKVDDGFLDIWTYNAELLVLENERLTDYHDSNVKNLYEKVRSQK
NNAKEIGNGCFEFYHKCDNTCMESVKNGTYDYPKYSEEAKLNREEIDGVKLESTRIYQIL
AIYSTVASSLVLVSLGAISFWMCSNGSLQCRICI

E-2X35S/CPMV-HT/PDISP/H3 Perth/NOS (Construct number 1019)

Figure 5A

IF-S2+S4-H3 Per.c (SEQ ID NO: 21)

TCTCAGATCTTCGCCCAAAAACCTTCCTGGAAATGACAACA

Figure 5B

IF-S1a4-H3 Per.r (SEQ ID NO: 22)

ACTAAAGAAAATAGGCCTTCAAATGCAAATGTTGCACCTAATGTT

Figure 5C

Synthesized H3 gene (corresponding to nt 26-1726 from Genbank accession number GQ293081)
(SEQ ID NO: 23)

ATGAAGACTATCATTGCTTTGAGCTACATTCTATGTCTGGTTTTTCGCTCAAAAACCTTCCTGGAAATGACAA
CAGCACGGCAACGCTGTGCCTTGGGCACCATGCAGTACCAAACGGAACGATAGTGAAAAACAATCACGAA
TGACCAAATTGAAGTTACTAATGCTACTGAGCTGGTTCAGAGTTCCTCAACAGGTGAAATATGCGACAGT
CCTCATCAGATCCTTGATGGAAAAAACTGCACACTAATAGATGCTCTATTGGGAGACCCCTCAGTGTGATG
GCTTCCAAAATAAGAAATGGGACCTTTTTGTTGAACGCAGCAAAGCCTACAGCAACTGTTACCCTTATGA
TGTGCCGGATTATGCCTCCCTTAGGTCAGTGTGCCTCATCCGGCACACTGGAGTTTAAACAATGAAAAGCT
TCAATTGGACTGGAGTCACTCAAAAACGGAACAAGCTCTGCTTGCTGATAAGGAGATCTAAAAACAGTTTCTT
TAGTAGATTGAATTGGTTGACCCACTTAACTTCAAATACCCAGCATTGAACGTGACTATGCCAAACAAT
GAACAATTTGACAAATTGTACATTTGGGGGGTTCACCACCCGGGTACGGACAAAGACCAAATCTTCCTGT
ATGCTCAAGCATCAGGAAGAATCACAGTCTCTACCAAAGAAGCCAACAAACCGTAAGCCCGAATATCG
GATCTAGACCCAGAGTAAGGAATATCCCTAGCAGAATAAGCATCTATTGGACAATAGTAAACCGGGAG
ACATACTTTTGATTAACAGCACAGGGAATCTAATTGCTCCTAGGGGTTACTTCAAATACGAAGTGGGAA
AAGCTCAATAATGAGATCAGATGCACCCATTGGCAAATGCAATTCTGAATGCATCACTCCAAATGGAAGC
ATTCCCAATGACAAACCATTCCAAAATGTAAACAGGATCACATACGGGGCCTGTCCAGATATGTTAAGC
AAAACACTCTGAAATTGGCAACAGGGATGCGAAATGTACCAGAGAAACAACTAGAGGCATATTTGGCG
CAATCGCGGGTTTCATAGAAAATGGTTGGGAGGGAATGGTGGATGGTTGGTACGGTTTCAGGCATCAAA
ATTCTGAGGGAAGAGGACAAGCAGCAGATCTCAAAAGCACTCAAGCAGCAATCGATCAAAATCAATGGGA
AGCTGAATAGATTGATCGGGAAAACCAACGAGAAATTCCATCAGATTGAAAAAGAATTCTCAGAAGTCG
AAGGGAGAATTACAGGACCTTGAGAAATATGTTGAGGACACTAAAATAGATCTCTGGTCATACAACGCGG
AGCTTCTTGTTGCCCTGGAGAACCAACATAACAATTGATCTAACTGACTCAGAAATGAACAAACTGTTTGA
AAAAACAAAGAAGCAACTGAGGGAAAAATGCTGAGGATATGGGCAATGGTTGTTTCAAAATATACCACAA
ATGTGACAATGCCTGCATAGGATCAATCAGAAATGGAACCTTATGACCACGATGTATACAGAGATGAAGC
ATTAACAACCGGTTTCAGATCAAGGGAGTTGAGCTGAAGTCAGGGTACAAAGATTGGATCCTATGGATT
TCCTTTGCCATATCATGTTTTTGTCTTTGTGTTGCTTTGTTGGGGTTCATCATGTGGGCCTGCCAAAAAGGC
AACATTAGGTGCAACATTTGCATTTGA

Figure 5D

Expression cassette number 1019 from 2X35S promoter to NOS terminator. PDISP/H3 from influenza A/Perth/16/2009 (H3N2) is underlined. (SEQ ID NO: 24)

GTCAACATGGTGGAGCAGCACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAA
AGGGCAATTGAGACTTTTCAACAAAGGTAATATCCGGAACCTCCTCGGATTCCATTGCCAGCTATCT
GTCACCTTATTGTGAAGATAGTGGAAAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAA
AGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATCG
TGGAAGAAAGAAGACGTTCCAACCACGTCTTCAAAGCAAGTGGATTGATGTGATAACATGGTGGAGCACG
ACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAAAGGGCAATTGAGACTTTTCA
ACAAAGGGTAATATCCGGAACCTCCTCGGATTCCATTGCCAGCTATCTGTCACTTTATTGTGAAGATA
GTGGAAGAAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAAAGGCCATCGTTGAAGATGCC
TCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATCGTGGAAAAAGAAAGACGTTCCA
ACCAAGCTTTCAAAGCAAGTGGATTGATGTGATATCTCCACTGACGTAAGGGATGACGCACAAATCCCACT
ATCCTTCGCAAGACCCTTCTCTATATAAGGAAGTTCATTTTCATTTGGAGAGGTATTAATAATCTTAATAGG
TTTTGATAAAGCGAACGTGGGGAAACCCGAACCAAACCTTCTTCTAACTCTCTCTCATCTCTCTTAAAG
CAAACCTCTCTCTTGTCTTTCTTGTGCGTGAGCGATCTTCAACGTTGTCAGATCGTGCTTCGGCACCAGTACA
ACGTTTTCTTTCACTGAAGCGAAATCAAAGATCTCTTTGTGGACACGTAGTGCGGCGCCATTAAATAACG
TGTACTTGTCTATTCTTGTGCGGTGGTCTTGGGAAAAGAAAGCTTGCTGGAGGCTGCTGTTCAAGCCCCA
TACATTACTTGTACGATTCTGCTGACTTTCGGCGGGTGCAATATCTCTACTTCTGCTTGACGAGGTATTG
TTGCTGTACTTCTTCTTCTTCTTCTTGTGCTGATTGGTCTATAAGAAATCTAGTATTTTCTTTGAAACAGA
GTTTTCCCGTGGTTTTCGAACTTGGAGAAAGATTGTTAAGCTTCTGTATATTCTGCCCAAATTTGTCCGGC
CCTATGGCGAAAAACGTTGCGATTTCGGCTTATTGTTTTCTTCTTGTGTTGGTTCCTTCTCAGATCTTCG
CCAAAAAATCTCTGGAAATGACAACAGCACGGCAACGCTGTGCCTTGGGCACCATGCAGTACCAAACG
GAACGATAGTGAACAATCACGAATGACCAAATTGAAGTTACTAATGCTACTGAGCTGGTTCAGAGTTC
CTCAACAGGTGAAATATGCGACAGTCTCATCAGATCCTTGATGGAAAAAATGCACACTAATAGATGCT
CTATTGGGAGACCCTCAGTGTGATGGCTTCCAAATAAGAAATGGGACCTTTTTGTTGAACGCAGCAAAG
CCTACAGCAACTGTTACCCTTATGATGTGCCGATTATGCCTCCCTTAGGTCAGTGTGCTCATCCGGC
ACACTGGAGTTTAACAATGAAAGCTTCAATTGGACTGGAGTCACTCAAAACGGAACAAGCTCTGCTTGCA
TAAGGAGATCTAAAAACAGTTTCTTTAGTAGATTGAATTGGTTGACCCACTTAAACTTCAAATACCCAGC
ATTGAACGTGACTATGCCAAACAATGAACAATTTGACAAATTGTACATTTGGGGGGTTCCACCACCCGGGT
ACGGACAAAGACCAAACTTCTCTGTATGCTCAAGCATCAGGAAGAATCACAGTCTTACCAAAAGAAGC
CAACAAACCGTAAGCCGAATATCGGATCTAGACCCAGAGTAAGGAATATCCCTAGCAGAAATAAGCATC
TATTGGACAATAGTAAACCGGGAGACATACTTTTGATTAAACAGCACAGGGAATCTAATTGCTCTTAGGG
GTTACTTCAAAATGAAAGTGGGAAAAGCTCAATTAATGAGATCAGATGCACCCATTGGCAATGCAATT
CTGAATGCATCACTCCAAATGGAAGCATTCCCAATGACAAACCATTCCAAAATGTAAACAGGATCACATA
CGGGGCTGTCCAGATATGTTAAGCAAAACACTCTGAAATTGGCAACAGGGATGCGAAATGTACCAGA
GAAACAACTAGAGGCATATTTGGCGCAATCGCGGGTTTCATAGAAAATGGTTGGGAGGGAATGGTGGG
TGGTTGGTACGGTTTCAGGCATCAAAATCTGAGGGAAGAGGACAAGCAGCAGATCTCAAAAGCACTCA
AGCAGCAATCGATCAAAATCAATGGGAAGCTGAATAGATTGATCGGGAAAACCAACGAGAAATCCATCA
GATTGAAAAAGAAATCTCAGAAGTCGAAGGGGAAATTCAGGACCTTGAGAAATATGTTGAGGACACTAA
AATAGATCTCTGGTCATACACGCGGAGCTTCTTGTGCTTGGGAGAACCAACATACAAATTGATCTAACT
GACTCAGAAATGAACAACTGTTTGAAAAACAAAGCAACTGAGGGAAAATGCTGAGGATATGGG
CAATGGTTGTTTCAAAATATACCACAAATGTGACAAATGCCCTGCATAGGATCAATCAGAAATGGAACCTAT
GACCAGATGTATACAGAGATGAAGCATTAAACAACCGGTTTCAGATCAAGGGAGTTGAGCTGAAGTCA
GGGTACAAAGATTGGATCCTATGGATTTCCTTTGCCATATCATGTTTTTTGCTTTGTGTTGCTTTGTTGGG
TTCATCATGTGGGCTGCCAAAAAGGCAACATTAGGTGCAACATTTGCATTTGAAGGCCTATTTTCTTTAG
TTTGAATTTACTGTTATTTCGGTGTGCATTTCTATGTTTGGTGAGCGGTTTTCTGTGCTCAGAGTGTGTTAT
TTTATGTAATTTAATTTCTTTGTGAGCTCCTGTTAGCAGGTGCTCCCTTCAGCAAGGACACAAAAAGATT
TTAATTTTATTAATAAAAAAAAAAAAAAAAAAGACCGGAATTCGATATCAAGCTTATCGACCTGCAGATCGT
TCAAACATTTGGCAATAAAGTTCTTAAGATTGAATCCTGTTGCCGGTCTTGCGATGATTATCATATAATT
TCTGTTGAATTACGTTAAGCATGTAATAATTAACATGTAATGCATGACGTTATTTATGAGATGGGTTTTTA

TGATTAGAGTCCCGCAATTATACATTTAATACGCGATAGAAAAACAAAATATAGCGCGCAAAGTAGGATA
AATTATCGCGCGGGTGTCATCTATGTTACTAGAT

Figure 5E

Amino acid sequence of PDISP/H3 from influenza A/Perth/16/2009 (H3N2) (SEQ ID NO: 25)

MAKNVAIFGLLFSLLVLVPSQIFAQKLPGNDNSTATLCLGHHAVPNGTIVKTITNDQIEVT
NATELVQSSSTGEICDSPHQILDGKNCTLIDALLGDPQCDGFQNKKWDLFVERSKAYSNC
YPYDVPDYASLRSLVASSGTLEFNNEFNWTGVTQNGTSSACIRRSKNSFFSRLNWLTHL
NFKYPALNVTMPNNEQFDKLYIWGVHHPGTDKDQIFLYAQASGRITVSTKRSQQTVSPNI
GSRPRVRNIPSRISIWIVKPGDILLINSTGNLIAPRGYFKIRSGKSSIMRSDAPIGKCNSEC
ITPNGSIPNDKPFQNVNRITYGACPRYVKQNTLKLATGMRNVPEKQTRGIFGAIAGFIENG
WEGMVDGWYGFRHQNSEGRGQAADLKSTQAAIDQINGKLNRLIGKTNEKFHQIEKEFS
EVEGRIQDLEKYVEDTKIDLWSYNAELLVALENQHTIDLTDSMNKLFKTKKQLRENA
EDMGNGCFKIYHKCDNACIGSIRNGTYDHDVYRDEALNNRFQIKGVELKSGYKDWILWI
SFAISCFLLCVALLGFIMWACQKGNIRCNICI

F-2X35S/CPMV-HT/PDISP/HA B Brisbane/NOS (Construct number 1029)

Figure 6A

IF-S2+S4-B Bris.c (SEQ ID NO: 26)

TCTCAGATCTTCGCCGATCGAATCTGCACTGGAATAACAT

Figure 6B

IF-S1a4-B Bris.r (SEQ ID NO: 27)

ACTAAAGAAAATAGGCCTTTATAGACAGATGGAGCAAGAAACA

Figure 6C

Synthesized HA B Brisbane gene (corresponding to nt 34-1791 from Genbank accession number FJ766840) (SEQ ID NO: 28)

ATGAAGGCAATAATTGTACTACTCATGGTAGTAACATCCAATGCAGATCGAATCTGCACTGGAATAACAT
CGTCAAACTCACCACATGTCGTCAAAAAGTCTACTCAAGGGGAGGTCAATGTGACTGGTGTAAATACCACT
GACAACAACACCCACCAAATCTCATTTTGCAAATCTCAAAGGAACAGAAAACAGGGGGAACTATGCCC
AAAATGCCTCAACTGCACAGATCTGGACGTAGCCTTGGGCAGACCAAATGCACGGGGAAAATACCTC
GGCAAGAGTTTCAATACTCCATGAAGTCAGACCTGTTACATCTGGGTGCTTTCCTATAATGCACGACAGA
ACAAAAATTAGACAGCTGCCTAACCTTCTCCGAGGATACGAACATATCAGGTTATCAACCCATAACGTTA
TCAATGCAGAAAAATGCACCAGGAGGACCCTACAAAATTGGAACCTCAGGGTCTTGCCCTAACATTACCA
ATGGAAACGGATTTTTCGCAACAATGGCTTGGGCCGTCCCAAAAAACGACAAAAACAAACAGCAACAA
ATCCATTAACAATAGAAGTACCATACATTTGTACAGAAGGAGAAGACCAAATTACCGTTTGGGGTTCCA
CTCTGACAACGAGACCCAAATGGCAAAGCTCTATGGGGACTCAAAGCCCCAGAAAGTTCACCTCATCTGCC
AACGGAGTGACCACACATTACGTTTCACAGATTGGTGGCTTCCCAAATCAAACAGAAGACGGAGGACTA
CCACAAAGTGGTAGAATTGTTGTTGATTACATGGTGCAAAAAATCTGGGAAAAACAGGAACAATTACCTATC
AAAGGGGTATTTTATTGCCTCAAAAAGGTGTGGTGCGCAAGTGGCAGGAGCAAGGTAATAAAAGGATCCT
TGCCTTTAATTGGAGAAGCAGATTGCCTCCACGAAAAATACGGTGGATTAAACAAAAGCAAGCCTTACTA
CACAGGGGAACATGCAAAGGCCATAGGAAATTGCCCAATATGGGTGAAAACACCCTTGAAGCTGGCCAA
TGGAACCAATATAGACCTCCTGCAAACTATTAAAGGAAAGGGTTTCTTCGGAGCTATTGCTGGTTTC
TTAGAAAGGAGGATGGGAAGGAATGATTGCAGGTTGGCAGGATACACATCCCATGGGGCACATGGAGTA
GCGGTGGCAGCAGACCTTAAGAGCACTCAAGAGGCCATAAAACAAGATAACAAAAAATCTCAACTCTTTG
AGTGAGCTGGAAGTAAAGAATCTTCAAAGACTAAGCGGTGCCATGGATGAACTCCACAACGAAATACTA
GAACTAGATGAGAAAGTGGATGATCTCAGAGCTGATACAATAAGCTCACAAATAGAACTCGCAGTCCTG
CTTTCCAATGAAGGAATAATAAACAGTGAAGATGAACATCTCTTGGCGCTTGAAAGAAAGCTGAAGAAA
ATGCTGGGCCCCCTCTGCTGTAGAGATAGGGAATGGATGCTTTGAAACCAAAACACAAGTGCAACCAGACC
TGCTCGACAGAATAGCTGCTGGTACCTTTGATGCAAGGAGAAATTTCTCTCCCCACCTTTGATTCACTGAA
TATTACTGCTGCATCTTTAAATGACGATGGATTGGATAATCATACTATACTGCTTTACTACTCAACTGCTG
CCTCCAGTTTGGCTGTAACACTGATGATAGCTATCTTTGTTGTTTATATGGTCTCCAGAGACAATGTTTCTT
GCTCCATCTGTCTATAA

Figure 6D

Expression cassette number 1029 from 2X35S promoter to NOS terminator. PDISP/HA from influenza B/Brisbane/60/2008 is underlined. (SEQ ID NO: 29)

GTCAACATGGTGGAGCAGACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAA
 AGGGCAATTGAGACTTTTCAACAAAGGTAATATCCGAAACCTCCTCGGATTCCATTGCCAGCTATCT
 GTCACCTTATTGTGAAGATAGTGGAAAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAA
 AGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGATGGACCCCAACCCACGAGGAGCATCG
 TGGAAAAAGAAGACGTTCCAACCACGTCTTCAAAGCAAGTGGATTGATGTGATAACATGGTGGAGCACG
 ACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAAAGGGCAATTGAGACTTTTCA
 ACAAAGGGTAATATCCGAAACCTCCTCGGATTCCATTGCCAGCTATCTGTCACTTTATTGTGAAGATA
 GTGGAAAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAAAGGCCATCGTTGAAGATGCC
 TCTGCCGACAGTGGTCCCAAAGATGGACCCCAACCCACGAGGAGCATCGTGGAAAAAGAAGACGTTCCA
 ACCACGCTTTCAAAGCAAGTGGATTGATGTGATATCTCCACTGACGTAAGGGATGACGCACAAATCCCACT
 ATCCTTCGCAAGACCCTTCCTCTATATAAGGAAGTTCATTTCAATTTGGAGAGGTATTAATAATCTTAATAGG
 TTTTGATAAAAGCGAACGTGGGGAAACCCGAACCAAACTTCTTCTAACTCTCTCTCATCTCTCTTAAAG
 CAAACTCTCTCTTGTCTTTCTTGTGCTGAGCGATCTTCAACGTTGTCAGATCGTGCTTCGGCACCAGTACA
 ACGTTTTCTTTCCTGAAGCGAAATCAAAGATCTCTTTGTGGACACGTAGTGGCGGCCATTAAATAACG
 TGTACTTGTCTATTCTTGTGCGGTGGTCTTGGGAAAAGAAAGCTTGTCTGGAGGCTGCTGTTCAAGCCCCA
 TACATTACTTGTACGATTCTGCTGACTTTCGGCGGGTGAATATCTCTACTTCTGCTTGACGAGGTATTG
 TTGCTGTACTTCTTCTTCTTCTTCTTGTGCTGATTGGTCTATAAGAAATCTAGTATTTTCTTTGAAACAGA
 GTTTTCCCGTGGTTTTGCAACTTGGAGAAAGATTGTTAAGCTTCTGTATATTCTGCCCAAATTTGTCTGGGC
 CCATGGCGAAAAACGTTGCGATTTTCGGCTTATTGTTTTCTTCTTCTTGTGTTGGTTCCTTCTCAGATCTTCG
 CCGATCGAATCTGCACTGGAATAACATCGTCAAACTCACCACATGTCTGTCAAAACTGCTACTCAAGGGGA
 GGTCAATGTGACTGGTGAATACCACTGACAACAACCCACCAAAATCTCATTTTGCAAATCTCAAAGGA
 ACAGAAACCAGGGGAAACTATGCCCAAATGCCTCAACTGCACAGATCTGGACGTAGCCTTGGGCAGA
 CCAAAATGCACGGGGAAAAATACCCTCGGCAAGAGTTTCAATACTCCATGAAGTCAGACCTGTTACATCTG
 GGTGCTTCTCTATAATGCACGACAGAACAAAAATTAGACAGCTGCCTAACCTTCTCCGAGGATACGAACA
 TATCAGGTTATCAACCCATAACGTTATCAATGCAGAAAAATGCACCAGGAGGACCCTACAAAATTGGAAC
 CTCAGGGTCTTGGCCTAACATTACCAATGGAACCGATTTCGCAACAATGGCTTGGGCGCGTCCCAAAA
 AACGACAAAAACAAAACAGCAACAAATCCATTAAACAATAGAAGTACCATACATTTGTACAGAAGGAGAA
 GACCAAAATTACCGTTTGGGGGTTCCTCTGACAACGAGACCCAAATGGCAAAGCTCTATGGGGACTCAA
 AGCCCCAGAAAGTTCACCTCATCTGCCAACGGAGTGACCACACATTACGTTTCACAGATTGGTGGCTTCCC
 AAATCAAAACAGAAGACGGAGGACTACCACAAAGTGGTAGAATTGTTGTTGATTACATGGTGCAGAAAAATC
 TGGGAAAACAGGAACAATTACCTATCAAAAGGGGTATTTATTGCTCAAAAGGTGTGGTGCAGGAGATG
 CAGGAGCAAGGTAATAAAAGGATCCTTGCTTAAATTGGAGAAGCAGATTGCCTCCACGAAAAATACGG
 TGGATTAACAAAAGCAAGCCTTACTACACAGGGGAACATGCAAAGGCCATAGGAAATTGCCCAATATG
 GGTGAAAACACCCTTGAAGCTGGCCAATGGAACCAAAATATAGACCTCCTGCAAACTATTAAGGAAAG
 GGGTTTCTTCGGAGCTATTGCTGGTTTCTTAGAAGGAGGATGGGAAGGAATGATTGCAGGTTGGCACGGA
 TACACATCCCATGGGGCACATGGAGTAGCGGTGGCAGCAGACCTTAAGAGCACTCAAGAGGCCATAAAC
 AAGATAACAAAAATCTCAACTCTTGAGTGAGCTGGAAGTAAAGAATCTTCAAAGACTAAGCGGTGCC
 ATGGATGAACTCCACAACGAAATACTAGAACTAGATGAGAAAGTGGATGATCTCAGAGCTGATACAATA
 AGCTCACAAATAGAACTCGCAGTCCTGCTTTCCAATGAAGGAATAATAAACAGTGAAGATGAACATCTCT
 TGGCGCTTGAAAGAAAGCTGAAGAAAAATGCTGGGCCCTCTGCTGTAGAGATAGGGAATGGATGCTTTG
 AAACCAAAACAGGAAGTGAACCCAGACCTGTCTCGACAGAATAGCTGCTGGTACCTTTGATGCGAGAGAAT
 TTCTCTCCCCACCTTTGATTCACCTGAATATTACTGCTGCATCTTTAAATGACGATGGATTGGATAATCAT
 ACTATACTGCTTTACTACTCAACTGCTGCCCTCCAGTTTGGCTGTAACACTGATGATAGCTATCTTTGTTGTT
 TATATGGTCTCCAGAGACAATGTTTCTTGCTCCATCTGTCTATAAAGGCCTATTTTCTTTAGTTTGAATTTA
 CTGTTATTCGGTGTGCATTTCTATGTTTGGTGAGCGTTTCTGTGCTCAGAGTGTGTTTATTTTATGTAAT
 TTAATTTCTTTGTGAGCTCCTGTTTAGCAGGTCGTCCCTTCAGCAAGGACACAAAAAGATTTTAATTTTAT
 TAAAAAAGAAAAAAGACCGGGAATTCGATATCAAGCTTATCGACCTGCAGATCGTTCAACATT
 TGGCAATAAAGTTTCTTAAGATTGAATCCTGTTGCCGCTTTCGATGATTATCATATAATTTCTGTTGAA
 TTACGTTAAGCATGTAATAATTAACATGTAATGCATGACGTTATTTATGAGATGGGTTTTTATGATTAGAG

TCCCGCAATTATACATTTAATACGCGATAGAAAACAAAATATAGCGCGCAAAGTAGGATAAATTATCGCG
CGCGGTGTCATCTATGTTACTAGAT

Figure 6E,

Amino acid sequence of PDISP/HA from influenza B/Brisbane/60/2008 SEQ ID NO: 30

MAKNVAIFGLLFSLVLVPSQIFADRICTGITSSNSPHVVKATQGEVNVTVIPLTTTPTK
SHFANLKGTTETRGKLCPKCLNCTDLVALGRPCTGKIPSARVSILHEVRPVTSGCFPI
HDRTKIRQLPNLLRGYEHIRLSTHNVINAENAPGGPYKIGTSGSCPNTNGNGFFATMAW
AVPKNDKNKTATNPLTIEVPYICTEGEDQITVWGFHSDNETQMAKLYGDSKPQKFTSSA
NGVTTHYVSQIGGFNPQTEDGGLPQSGRIVVDYMVQKSGKTGTITYQRGILLPQKFWCA
SGRSKVIKGSPLIGEADCLHEKYGGLNKSHPYYTGEHAKAIGNCPIWVKTPCLKLANGTK
YRPPAKLLKERGFFGAIAGFLEGGWEGMIAAGWHGYTSHGAHGVAVAADLKSTQEAINK
ITKNLNSLSELEVKNLQRLSGAMDELHNEILELDEKVDDLADRTISSQIELAVLLSNEGII
SEDEHLLALERKLLKMLGPSAVEIGNGCFETKHKCNQTCLDRIAAGTFDAGEFSLPTFDS
LNITAASLNDDGLDNHTILLYYSTAASSLAVTLMIAIFVYVMVSRDNVSCSICL

G-2X35S/CPMV-HT/PDISP/HA B Brisbane/NOS into BeYDV+Replicase amplification system
(Construct number 1008)

Figure 6F

Schematic representation of construct 1194. SacII and StuI restriction enzyme sites used for plasmid linearization are annotated on the representation.

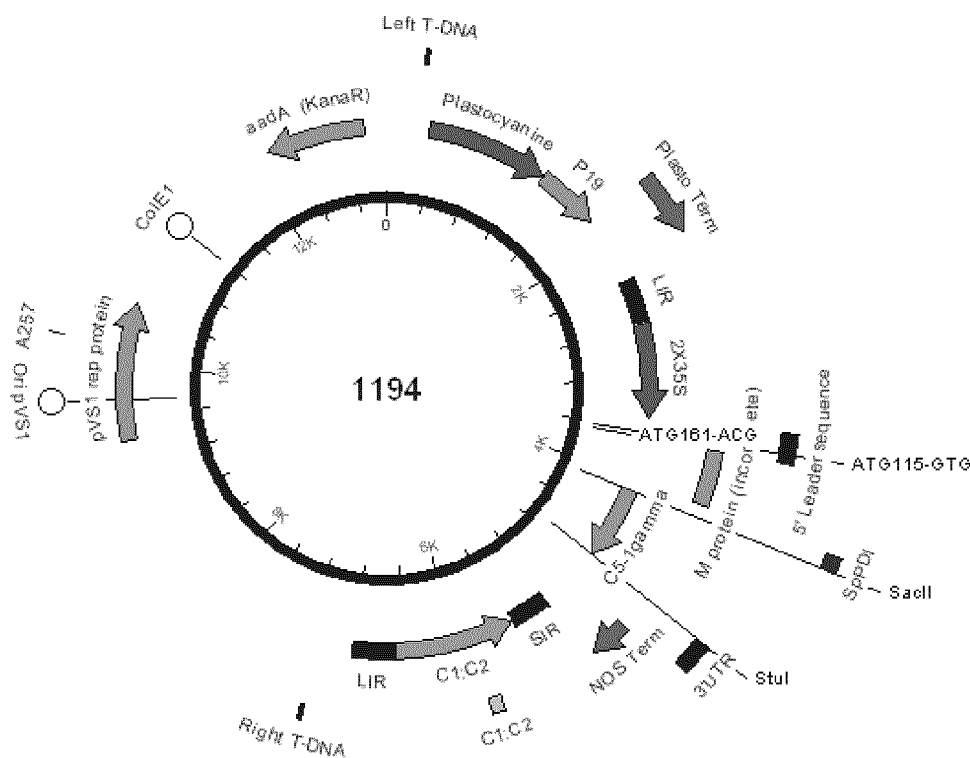


Figure 6G

Construct 1194 from left to right t-DNA borders (underlined). 2X35S/CPMV-HT/PDISP/NOS into BeYDV+Replicase amplification system with Plastocyanine-P19-Plastocyanine silencing inhibitor expression cassette (SEQ ID NO: 31)

TGGCAGGATATATTGTGGTGTAAACAAATTGACGCTTAGACAACCTTAATAACACATTGCGGACGTTTTTA
 ATGTACTGAATTAACGCCGAATCCCGGGCTGGTATATTTATATGTTGTCAAATAAATCAAAAACCATAAA
 AGTTTAAAGTTAGCAAGTGTGTACATTTTACTTGAACAAAAATATTCACCTACTACTGTTATAAATCATT
 TTAACATTAGAGTAAAGAAATATGGATGATAAGAACAAGAGTAGTGATATTTTGACAACAATTTTGTG
 CAACATTTGAGAAAAATTTGTGTTCTCTCTTTTCATTGGTCAAAAACAATAGAGAGAGAAAAAGGAAGA
 GGGAGAATAAAAAACATAATGTGAGTATGAGAGAGAAAAGTTGTACAAAAAGTTGTACCAAAAATAGTTGTAC
 AAATATCATTGAGGAATTTGACAAAAGCTACACAAATAAGGGTTAATTGCTGTAAATAAATAAGGATGA

CGCATTAGAGAGATGTACCATTAGAGAATTTTTGGCAAGTCATTA AAAAGAAAGAATAAATTATTTTAA
AATTA AAAAGTTGAGTCATTTGATTAAACATGTGATTATTTAATGAATTGATGAAAAGAGTTGGATTAAAGT
TGTATTAGTAATTAGAATTTGGTGTCAAATTTAATTTGACATTTGATCTTTTCTATATATTGCCCATAGA
GTCAGTTAACTCATTTTTATATTTTCATAGATCAAATAAGAGAAATAACGGTATATTAATCCCTCCAAAA
AAAAAACCGGTATATTTACTAAAAATCTAAGCCACGTAGGAGGATAACAGGATCCCGTAGGAGGATA
ACATCCAATCCAACCAATCACAACAATCCTGATGAGATAACCCACTTTAAGCCCACGCATCTGTGGCACA
TCTACATTATCTAAATCACACATTCTCCACACATCTGAGCCACACAAAAACCAATCCACATCTTTATCAC
CCATTCTATAAAAAATCACACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGAGAAGAG
ACTAATTAATTAATTAATCATCTTGAGAGAAAATGGAACGAGCTATACAAGGAAACGACGCTAGGGAAC
AAGCTAACAGTGAACGTTGGGATGGAGGATCAGGAGGTACCACTTCTCCCTTCAAACCTCTGACGAAAG
TCCGAGTTGGACTGAGTGGCGGCTACATAACGATGAGACGAATTCGAATCAAGATAATCCCTTGGTTTC
AAGGAAAGCTGGGGTTTCGGGAAAGTTGTATTTAAGAGATATCTCAGATACGACAGGACGGAAGCTTCA
CTGCACAGAGTCTTGGATCTTGACGAGGAGATTGCGTTAACTATGCAGCATCTCGATTTTTCGGTTTCGA
CCAGATCGGATGTACCTATAGTATTCGGTTTCGAGGAGTTAGTATCACCGTTTCTGGAGGGTCGCGAACT
CTTCAGCATCTCTGTGAGATGGCAATTCGGTCTAAGCAAGAACTGCTACAGCTTGCCCCAATCGAAGTGG
AAAGTAATGTATCAAGAGGATGCCCTGAAGTACTCAAACCTTCGAAAAAGAAAGCGAGTAAGTTAAAA
TGCTTCTCGTCTCCTATTTATAATATGGTTTGTATTGTTAATTTGTTCTTGTAAGAGCTTAATTAAT
CGTTGTTGTTATGAAATACTATTTGTATGAGATGAACTGGTGAATGTAATTCATTTACATAAGTGGAGTC
AGAATCAGAATGTTTCTCCATAACTAAGTACATGAAGACCTGCCGCTACAATTTGCTTATATTTGA
ACAATAAAAATTGAACATCTTTTGCCACAACCTTTATAAGTGGTTAATATAGCTCAAATATATGGTCAAGTT
CAATAGATTAATAATGGAAATATCAGTTATCGAAATTCATTAACAATCAACTTAACGTTATTAATACTACTA
ATTTATATCATCCCTTTGATAAATGATAGTACACCAATTAGGAAGGAGCATGCTCGCCTAGGAGATTG
TCGTTTCCCGCCTTCAGTTTGCAAGCTGCTCTAGCCGTGTAGCCAATACGAAAACCGCCTCTCCCCGCGG
TTGGGAATTACTAGCGCGTGTGACACGCGTGGCGCGCCCTAGCAGAAAGCATGTTGTTGTGACTCCGAG
GGGTTGCCCTCAAACCTCTATCTTATAACCGCGTGGAGGCATGGAGGCAAGGGCATTTTGGTAATTTAAGT
AGTTAGTGGAAAATGACGTCATTTACTTAAAGACGAAGTCTTGCGACAAGGGGGGCCACGCCGAATTTT
AATATTACCGCGTGGCCCCACCTTATCGCGAGTGTCTTAGCACGAGCGGTCCAGATTTAAAGTAGAAAA
GTTCCCGCCCACTAGGGTTAAAGGTGTTACACTATAAAAGCATATACGATGTGATGGTATTTGATAAAG
CGTATATTGTATCAGGTATTTCCGTCGGATACGAATTATTCGTACAAGCTTCTTAAGCCGGTCAACATGGT
GGAGCACGACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAAAGGGCAATTGA
GACTTTTCAACAAAAGGGTAATATCCGGAACCTCCTCGGATTCCATTGCCAGCTATCTGTCACTTTATTG
TGAAGATAGTGGAAGGAAGGTGGCTCCTCAAAATGACCAATGCGCATATTGCGATAAAGGAAAGGCCATCTG
AAGATGCCTCTGCCGACAGTGGTCCCAAAGATGGACCCCAACCCACGAGGAGCATCGTGGAAAAAGAAG
ACGTTCCAACACGTCCTCAAAGCAAGTGGATTGATGTGATAACATGGTGGAGCACGACACACTTGTCTA
CTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAAAGGGCAATTGAGACTTTTCAACAAAAGGGTAAT
ATCCGGAACCTCCTCGGATTCCATTGCCAGCTATCTGTCACTTTATTGTGAAGATAGTGAAAAAGGAA
GGTGGCTCTACAAATGCCATCATTGCGATAAAGGAAAGGCCATCGTTGAAGATGCCTCTGCCGACAGTG
GTCCCAAAGATGGACCCCAACCCACGAGGAGCATCGTGGAAAAAGAAGACGTTCCAACACGTCCTCAA
AGCAAGTGGATTGATGTGATATCTCCACTGACGTAAGGGATGACGCACAATCCCACTATCCTTCGCAAGA
CCCTTCTCTATATAAGGAAGTTCATTTCAATTTGGAGAGGTATTAATACTTAATAGGTTTTGATAAAGC
GAACGTGGGGAAACCCGAACCAACCTTCTTCTAACTCTCTCTCATCTCTCTTAAAGCAAACCTTCTCT
TGCTTTTCTTGGGTGAGCGATCTTCAACGTTGTGAGATCGTGTTCGGCACCAGTACAACGTTTTCTTTCA
CTGAAGCGAAATCAAAGATCTCTTTGTGGACACGTAAGTGGCGGCCATTAAATAACGTGTACTTGTCTTA
TTCTTGTGGTGTGGTCTTGGGAAAAGAAAGCTTGTGGAGGCTGCTGTTAGCCCCATACATTACTTGT
ACGATTCTGTGACTTTCCGCGGGTGAATATCTCTACTTCTGCTTGACGAGGTATTGTTGCCTGTACTTC
TTTCTTCTTCTTCTGCTGATTGGTTCTATAAGAAATCTAGTATTTTCTTTGAAACAGAGTTTTCCCGTGGT
TTTGAACCTTGGAGAAAGATTGTTAAGCTTCTGTATATTCTGCCCAAATTTGTGGGGCCCATGGCGAAAA
ACGTTGCGATTTTCGGCTTATTGTTTTCTCTTCTTGTGTTGGTTCCCTTCTCAGATCTCGCCGCGGCTCCTC
AGCCAAAACGACACCCCATCTGTCTATCCACTGGCCCCGTGGATCTGCTGCCCCAACTAACTCCATGGTG
ACCTTGGGATGCCTGGTCAAGGGCTATTTCCCTGAGCCAGTGACAGTGACCTGGAACCTTGATCCCTGT
CCAGCGGTGTGCACACCTTCCAGCTGTCTGACGTCTGACCTCTACACTCTGAGCAGCTCAGTGACTGT
CCCTCCAGCACCTGGCCAGCGAGACCGTCACCTGCAACGTTGCCCACCCGGCCAGCAGACCAAGGTG
GACAAGAAAATTGTGCCAGGGATTGTGGTTGTAAGCCTTGCAATGTACAGTCCAGAAAGTATCATCTG
TCTTCATCTTCCCCCAAAGCCCAAGGATGTGCTCAACATTACTCTGACTCCTAAGGTCACGTGTGTTGTG

GTAGACATCAGCAAGGATGATCCCGAGGTCCAGTTCAGCTGGTTGTAGATGATGTGGAGGTGCACACA
GCTCAGACGCAACCCCGGGAGGAGCAGTTCAACAGCACTTTCCGCTCAGTCAGTGAACCTCCCATCATGC
ACCAGGACTGGCTCAATGGCAAGGAAGGCCTATTTTCTTTAGTTTGAATTTACTGTTATTCGGTGTGCATT
TCTATGTTTGGTGAGCGGTTTTCTGTGCTCAGAGTGTGTTATTTTATGTAATTTAATTTCTTTGTGAGCTC
CTGTTTAGCAGGTCTGCCCTTCAGCAAGGACACAAAAAGATTTTAATTTTATTAATAAAAAAAAAAAAAAAAAA
AGACCGGGAATTCGATATCAAGCTTATCGACCTGCAGATCGTTCAAACATTTGGCAATAAAGTTTCTTAA
GATTGAATCCTGTTGCCGGTCTTGCGATGATTATCATATAATTTCTGTTGAATTACGTTAAGCATGTAATA
ATTAACATGTAATGCATGACGTTATTTATGAGATGGGTTTTATGATTAGAGTCCCGCAATTATACATTTA
ATACGCGATAGAAAAACAAATATAGCGCGCAAACTAGGATAAATTATCGCGCGCGGTGTCATCTATGTT
ACTAGATCTCTAGAGTCTCAAGCTTGGCGCGGGGTACCGAGCTCGAATTCCGAGTGACTTCAAGTCAGT
TGGAAATCAATAAAAAATGATTATTTTATGAATATATTTCATTGTGCAAGTAGATAGAAATTACATATGTTAC
ATAACACACGAAATAAAACAAAAAACACAATCCAAAACAAACACCCCAAAACAAATAACACTATATAT
ATCCTCGTATGAGGAGAGGCACGTTCAAGTACTCGACGATTCCCGAGCAAAAAAGTCTCCCCGTACAC
ATATAGTGGGTGACGCAATTATCTTCAAAGTAATCCTTCTGTTGACTTGTGATTGATAACATCCAGTCTTC
GTCAGGATTGCAAAGAATTATAGAAGGGATCCACCTTTTATTTCTTCTTTTCCATATTTAGGGTTGA
CAGTGAATCAGACTGGCAACCTATTAATTGCTTCCACAATGGGACGAACTGAAGGGGATGTCGTCGAT
GATATTATAGGTGGCGTGTTCATCGTAGTTGGTGAAAGTCGATGGTCCCGTTCAGTAGTTGTGTGCGCCGA
GACTTCTAGCCCAGGTGGTCTTTCCGGTACGAGTTGGTCCGCAGATGTAGAGGCTGGGGTGTCTGACCCC
AGTCCTTCCCTCATCCTGGTTAGATCGGCCATCCACTCAAGGTCAGATTGTGCTTGATCGTAGGAGACAG
GATGTATGAAAGTGTAGGCATCGATGCTTACATGATATAGGTGCGTCTCTCTCCAGTTGTGCAGATCTTCG
TGGCAGCGGAGATCTGATTCTGTGAAGGGCGACACGTACTGCTCAGGTTGTGGAGGAAATAATTTGTTGG
CTGAATATTCCAGCCATTGAAGCTTTGTTGCCATTTCATGAGGGAATTCTTCTTTGATCATGTCAAGATAC
TCCTCCTTAGACGTTGCAGTCTGGATAATAGTTCGCCATCGTGCCTCAGATTTGCGAGGAGAGACCTTAT
GATCTCGGAAATCTCCTCTGGTTTTAATATCTCCGTCCTTTGATATGTAATCAAGGACTTGTTTAGAGTTTC
TAGCTGGCTGGATATTAGGGTGATTTCTTCAAAATCGAAAAAGAAGGATCCCTAATACAAGGTTTTTT
ATCAAGCTGGATAAGAGCATGATAGTGGGTAGTGCCATCTTGATGAAGCTCAGAAGCAACACCAAGGAA
GAAAAATAAGAAAAGGTGTGAGTTTCTCCAGAGAACTGGAATAAATCATCTCTTTGAGATGAGCACTTG
GGGTAGGTAAGGAAAACATATTTAGATTGGAGTCTGAAGTTCTTGCTAGCAGAAGGCATGTTGTTGTGAC
TCCGAGGGGTTGCCTCAAACCTCTATCTTATAACCGGCGTGGAGGCATGGAGGCAAGGGCATTTTGGTAAT
TTAAGTAGTTAGTGGAATAAGACGTCATTTACTTAAAGACGAAGTCTTGCGACAAGGGGGGCCACGCC
GAATTTTAATATTACCGGCGTGGCCCCACCTTATCGCGAGTGCTTTAGCACGAGCGGTCCAGATTTAAAG
TAGAAAAGTTCCCGCCCACTAGGGTTAAAGGTGTTACACTATAAAAGCATATACGATGTGATGGTATTT
GATGGAGCGTATATTGTATCAGGTATTTCCGTCGGATACGAATTATTCGTACGGCCGGCCACTAGTGGCA
CTGGCCGTCGTTTTACAACGTCGTGACTGGGAAAACCTGGCGTTACCCAACCTAATCGCCTTGCAGCAC
ATCCCCCTTTCCGAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGCGCAG
CCTGAATGGCGAATGCTAGAGCAGCTTGAGCTTGGATCAGATTGTCGTTTCCCGCCTTCAGTTTAAACTAT
CAGTGTGTGACAGGATATATTGGCGGTAACCTAAGAGAAAAGAGCGTTTA

Figure 6H

Expression cassette number 1008 from BeYDV left LIR to BeYDV right LIR. PDISP/HA from influenza B/Brisbane/60/2008 is underlined. (SEQ ID NO: 32)

CTAGCAGAAGGCATGTTGTTGTGACTCCGAGGGGTTGCCTCAAACCTCTATCTTATAACCGGCGTGGAGGC
ATGGAGGCAAGGGCATTTTGGTAATTTAAGTAGTTAGTGGAATAAGACGTCATTTACTTAAAGACGAAGT
CTTGCGACAAGGGGGGCCACGCCGAATTTAATATTACCGGCGTGGCCCCACCTTATCGCGAGTGCTTT
AGCACGAGCGGTCCAGATTTAAAGTAGAAAAGTTCCCGCCCACTAGGGTTAAAGGTGTTACACTATAA
AAGCATATACGATGTGATGGTATTTGATAAAGCGTATATTGTATCAGGTATTTCCGTCGGATACGAATTA
TTCGTACAAGCTTCTTAAGCCGGTCAACATGGTGGAGCACGACACACTTGTCTACTCCAAAAATATCAAA
GATACAGTCTCAGAAGACCAAAGGGCAATTGAGACTTTTTCAACAAAGGGTAATATCCGGAAACCTCCTC
GGATTCCATTGCCAGCTATCTGTCACTTTATTGTGAAGATAGTGGAAAAGGAAGGTGGCTCCTACAAAT
GCCATCATTGCGATAAAGGAAAGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGATGGAC

CCCCCCCACGAGGAGCATCGTGGAAAAAGAAGACGTTCCAACCACGTCTTCAAAGCAAGTGGATTGAT
GTGATAACATGGTGGAGCAGACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACC
AAAGGGCAATTGAGACTTTTTCAACAAAGGGTAATATCCGGAAACCTCCTCGGATTCCATTGCCAGCTAT
CTGTCACTTTATTGTGAAGATAGTGGAAAAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGA
AAGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATC
GTGGAAAAAGAAGACGTTCCAACCACGTCTTCAAAGCAAGTGGATTGATGTGATATCTCCACTGACGTAA
GGGATGACGCACAATCCCCTATCCTTCGCAAGACCCTTCCTCTATATAAGGAAGTTCATTTTCATTGGAG
AGGTATTAATACTTAATAGGTTTTGATAAAAGCGAACGTGGGGAAACCCGAACCAACCTTCTTCTAAA
CTCTCTCTCATCTCTCTTAAAGCAAACCTCTCTCTTGTCTTTCTTGGCTGAGCGATCTTCAACGTTGTCAGA
TCGTGCTTCGGCACCAGTACAACGTTTTCTTCTCACTGAAGCGAAATCAAAGATCTCTTTGTGGACACGTAG
TGCGGCGCCATTAAATAACGTGTACTTGTCTTATTCTTGTGCGGTGGTCTTGGGAAAAAGAAAGCTTGCTG
GAGGCTGCTGTTAGCCCCATACATTACTTGTACGATTCTGCTGACTTTTGGCGGGTGCAATATCTCTAC
TTCTGCTTGACGAGGTATTGTTGCCTGTACTTCTTTCTTCTTCTTCTTGTGATTGGTTCTATAAGAAATCT
AGTATTTTCTTTGAAACAGAGTTTTCCCGTGGTTTTTCGAACTTGGAGAAAGATTGTTAAGCTTCTGTATAT
TCTGCCAAATTTGTGGGCCCCATGGCGAAAAACGTTGCGATTTCGGCTTATTGTTTTCTTCTTGTGTT
GGTTCCTTCTCAGATCTTCGCCGATCGAATCTGCACTGGAATAACATCGTCAAACCTCACCACATGTCGTCA
AACTGCTACTCAAGGGGAGGTCAATGTGACTGGTGTAAATACCACTGACAACAACACCCACCAAAATCTC
ATTTTGCAAAATCTCAAAGGAACAGAAACAGGGGGAAACTATGCCCAAAATGCCCTCAACTGCACAGATC
TGGACGTAGCCTTGGGCAGACCAAAATGCACGGGGAAAAATACCCTCGGCAAGAGTTTCAATACTCCATG
AAGTCAGACCTGTTACATCTGGGTGCTTTCTTATAATGCACGACAGAAACAAAAATTAGACAGCTGCCTAA
CCTTCTCCGAGGATACGAACATATCAGGTTTATCAACCCATAACGTTTCAATGCAGAAAAATGCACACGGA
GGACCCCTACAAAATTGGAACCTCAGGGTCTTGCCCTAACATTACCAATGGAAACGGATTTCGCAACAA
TGGCTTGGGCGCTCCCAAAAAACGACAAAAACAAAAACAGCAACAAATCCATTAACAATAGAAGTACCAT
ACATTTGTACAGAAGGAGAAGACCAAAATTACCGTTTGGGGGTTCCACTCTGACAACGAGACCCAAATGG
CAAAGCTCTATGGGGACTCAAAGCCCCAGAAAGTTCACCTCATCTGCCAACGGAGTGACCACACATTACGT
TTCACAGATTGGTGGCTTCCCAAAATCAAACAGAAGACGGAGGACTACCACAAAGTGGTAGAATTGTTGTT
GATTACATGGTGCAAAAATCTGGGAAAAACAGGAACAATTACCTATCAAAGGGGTATTTTATTGCTCAAA
AGGTGTGGTGGCGCAAGTGGCAGGAGCAAGGTAATAAAAGGATCCTTGCCCTTAATTGGAGAAGCAGATT
GCCTCCACGAAAAATACGGTGGATTAAACAAAAAGCAAGCCTTACTACACAGGGGAACATGCAAAAGGCCA
TAGGAAATTGCCCAATATGGGTGAAAAACCCCTTGAAGCTGGCCAATGGAACCAAAATATAGACCTCCTG
CAAACTATTAAAGGAAAGGGGTTTCTTCGGAGCTATTGCTGGTTTCTTAGAAGGAGGATGGGAAGGAA
TGATTGCAGGTTGGCAGGATACACATCCCATGGGGCAGATGGAGTAGCGGTGGCAGCAGACCTTAAGA
GCACTCAAGAGGCCATAAAACAAGATAACAAAAAATCTCAACTCTTTGAGTGAGCTGGAAGTAAAGAATC
TTCAAAAGACTAAGCGGTGCCATGGATGAACTCCACAACGAAATACTAGAACTAGATGAGAAAAGTGGATG
ATCTCAGAGCTGATACAATAAGCTCACAAATAGAACTCGCAGTCTGCTTTCCAATGAAGGAATAATAAA
CAGTGAAGATGAACATCTCTTGGCGCTTGAAGAAAAGCTGAAGAAAATGCTGGGCCCCCTCTGCTGTAGA
GATAGGGAATGGATGCTTTGAAACCAAAACACAAGTGAACACAGACCTGTCTCGACAGAATAGCTGCTGG
TACCTTTGATGCAGGAGAATTTCTCTCCCCACCTTTGATTCACTGAATATTACTGCTGCATCTTTAAATG
ACGATGGATTGGATAATCATACTATACTGCTTTACTACTCAACTGCTGCCTCCAGTTTGGCTGTAAACACTG
ATGATAGCTATCTTTGTTGTTTATATGGTCTCCAGAGACAATGTTTCTTGCTCCATCTGTCTATAAAGGCC
ATTTCTTTAGTTTGAATTTACTGTTATTCGGTGTGCATTTCTATGTTTGGTGAGCGGTTTTCTGTGCTCAG
AGTGTGTTTATTTATGTAATTTAATTTCTTTGTGAGCTCCTGTTTAGCAGGTCGTCCCTTCAGCAAGGACA
CAAAAAGATTTTAAATTTATTAATAAAAAAAAAAAAAAAAAAAGACCGGAATTCGATATCAAGCTTATCGAC
CTGCAGATCGTTCAAACATTTGGCAATAAAGTTTCTTAAGATTGAATCCTGTTGCCGGTCTTGCGATGATT
ATCATATAATTTCTGTTGAATTACGTTAAGCATGTAATAATTAACATGTAATGCATGACGTTATTTATGAG
ATGGGTTTTTATGATTAGAGTCCCGCAATTATACATTTAATACGCGATAGAAAACAAAAATAGCGCGCA
AACTAGGATAAATTATCGCGCGCGGTGTCATCTATGTTACTAGATCTCTAGAGTCTCAAGCTTGGCGCGG
GGTACCGAGCTCGAATTCCGAGTGTACTTCAAGTCAGTTGGAAATCAATAAAATGATTATTTATGAATA
TATTTCAATTGTGCAAGTAGATAGAAATTACATATGTTACATAACACACGAAATAAAACAAAAAACACAAT
CCAAAACAAACACCCCAAAACAAAAATAACACTATATATCCTCGTATGAGGAGAGGCACGTTTCAGTGAC
TCGACGATTCCCGAGCAAAAAAAGTCTCCCCGTACACATATAGTGGGTGACGCAATTATCTTCAAAGTA
ATCCTTCTGTTGACTTGTCAATTGATAACATCCAGTCTTCGTCAGGATTGCAAGAATTATAGAAGGGATCC
CACCTTTTATTTTCTTCTTTTCCATATTTAGGGTTGACAGTGAATCAGACTGGCAACCTATTAATTGCT
TCCCAATGGGACGAACTTGAAGGGGATGTCGTGATGATATTATAGGTGGCGTGTTTCATCGTAGTTGGT

GAAGTCGATGGTCCCGTTCCAGTAGTTGTGTCGCCCCGAGACTTCTAGCCCAGGTGGTCTTTCCGGTACGA
GTTGGTCCGCAGATGTAGAGGCTGGGGTGTCTGACCCAGTCCTTCCCTCATCCTGGTTAGATCGGCCATC
CACTCAAGGTCAGATTGTGCTTGATCGTAGGAGACAGGATGTATGAAAGTGTAGGCATCGATGCTTACAT
GATATAGGTGCGTCTCTCTCCAGTTGTGCAGATCTTCGTGGCAGCGGAGATCTGATTCTGTGAAGGGCGA
CACGTACTGCTCAGGTTGTGGAGGAAATAATTTGTTGGCTGAATATTCCAGCCATTGAAGCTTTGTTGCCC
ATTCATGAGGGAATTCTTCTTTGATCATGTCAAGATACTCCTCCTTAGACGTTGCAGTCTGGATAATAGTT
CGCCATCGTGCGTCAGATTTGCGAGGAGAGACCTTATGATCTCGGAAATCTCCTCTGGTTTTAATATCTCC
GTCTTTGATATGTAATCAAGGACTTGTTTAGAGTTTCTAGCTGGCTGGATATTAGGGTGATTTCTTCAA
AATCGAAAAAGAAGGATCCCTAATACAAGGTTTTTTATCAAGCTGGATAAGAGCATGATAGTGGGTAG
TGCCATCTTGATGAAGCTCAGAAGCAACACCAAGGAAGAAAAATAAGAAAAGGTGTGAGTTTCTCCAGA
GAAACTGGAATAAATCATCTCTTTGAGATGAGCACTTGGGGTAGGTAAGGAAAAACATATTTAGATTGGA
GTCTGAAGTTCTTGCTAGCAGAAGGCATGTTGTTGTGACTCCGAGGGGTTGCCTCAAACTCTATCTTATAA
CCGGCGTGGAGGCATGGAGGCAAGGGCATTGTTGTAATTTAAGTAGTTAGTGAAAAATGACGTCATTTAC
TTAAAGACGAAGTCTTGCGACAAGGGGGGCCACGCCGAATTTAATATTACGGCGTGGCCCCACCTTA
TCGCGAGTGCTTTAGCACGAGCGGTCCAGATTTAAAGTAGAAAAAGTTCCCGCCCACTAGGGTTAAAGGTG
TTCACACTATAAAAGCATATACGATGTGATGGTATTTGATGGAGCGTATATTGTATCAGGTATTTCCGTCG
GATACGAATTATTCGTAC

H-2X35S/CPMV-HT/PDISP/HA B Brisbane/H5 Indonesia transmembrane domain and cytoplasmic tail (H5Indo TMCT)/NOS into BeYDV+Replicase amplification system (Construct number 1009)

Figure 7A

dTmH5I-B Bris.r (SEQ ID NO: 33)

TTGACAGTATTTGGTAATTATCCAATCCATCGTCATTTAAAGATGCAGCA

Figure 7B

B Bris-dTmH5I.c (SEQ ID NO: 34)

CATCTTTAAATGACGATGGATTGGATAATTACCAAATACTGTCAATTTAT

Figure 7C

IF-S1aS4-dTmH5I.r (SEQ ID NO: 35)

ACTAAAGAAAATAGGCCTTTAAATGCAAATTCTGCATTGTAACGATCCAT

Figure 7D,

Expression cassette number 1009 from BeYDV left LIR to BeYDV right LIR. PDISP/HA B Brisbane/H5Indo TMCT is underlined. SEQ ID NO:36

CTAGCAGAAAGGCATGTTGTTGTGACTCCGAGGGGTTGCCTCAAACCTCTATCTTATAACCGGCGTGGAGGC
ATGGAGGCAAGGGCATTTTGGTAATTTAAGTAGTTAGTGGAATGACGTCATTTACTTAAAGACGAAGT
CTTGCGACAAGGGGGGCCACGCCGAATTTAATATTACCGGCGTGGCCCCACCTTATCGCGAGTGCTTT
AGCACGAGCGGTCCAGATTTAAAGTAGAAAAAGTTCGCCGCGTAAAGGTGTTTCACTATAA
AAGCATATACGATGTGATGGTATTTGATAAAGCGTATATTGTATCAGGTATTTCCGTCGGATACGAATTA
TTCGTACAAGCTTCTTAAGCCGGTCAACATGGTGGAGCACGACACACTTGTCTACTCCAAAAATATCAAA
GATACAGTCTCAGAAGACCAAGGGCAATTGAGACTTTTCAACAAAGGGTAATATCCGGAACCTCCTC
GGATTCCATTGCCAGCTATCTGTCACTTTATTGTGAAGATAGTGGAAGGAAGGTGGCTCCTACAAAT
GCCATCATTGCGATAAAGGAAAGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAGATGGAC
CCCCACCCACGAGGAGCATCGTGGAAGAAAGACGTTCCAACCACGTCTTCAAGCAAGTGGATTGAT
GTGATAACATGGTGGAGCACGACACACTTGTCTACTCCAAAAATATCAAGATACAGTCTCAGAAGACC
AAAGGGCAATTGAGACTTTTCAACAAAGGGTAATATCCGGAACCTCCTCGGATTCCATTGCCAGCTAT
CTGTCACTTTATTGTGAAGATAGTGGAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGA
AAGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAGATGGACCCCAAGGAGGAGCATC
GTGGAAGAAAGACGTTCCAACCACGTCTTCAAGCAAGTGGATTGATGTGATATCTCCACTGACGTAA
GGGATGACGCACAATCCCACTATCCTTCGCAAGACCCTTCTCTATATAAGGAAGTTCATTTATTGGAG
AGGTATTAAATCTTAATAGGTTTTGATAAAGCGAACGTGGGGAAACCCGAACCAACCTTCTCTAA

CTCTCTCTCATCTCTCTTAAAGCAAACCTCTCTCTTGTCTTTCTTGGCTGAGCGATCTTCAACGTTGTCAGATCGTGCTTCGGCACCAGTACAACGTTTTCTTTCACTGAAGCGAAATCAAAGATCTCTTTGTGGACACGCTGTGCGGCGCCATTAAATAACGTGTACTTGTCTATTCTTGTCTGGTGTGGTCTTGGGAAAAGAAAGCTTGCTGGAGGCTGCTGTTAGCCCCATACATTACTTGTACGATTCTGCTGACTTTCGGCGGGTGCAATATCTCTACTTCTGCTTGACGAGGTATTGTTGCCTGTACTTCTTTCTTCTTCTTCTTCTGCTGATTGGTCTATAAGAAATCTAGTATTTCTTTGAAACAGAGTTTTCCCGTGGTTTTCGAACTTGGAGAAAAGATTGTTAAGCTTCTGTATATCTGCCCCAAATTTGTGCGGGCCATGGCGAAAAACGTTGCGATTTTCGGCTTATTGTTTTCTTCTTCTTGTGTTGGTTCCTTCTCAGATCTTCGCCGATCGAATCTGCACTGGAATAACATCGTCAAACTCACCACATGTCGTCAAACTGCTACTCAAGGGGAGGTCAATGTGACTGGTGTAAATACCACTGACAACAACACCCACCAAATCTCATTTTCAAACTCTCAAAGGAACAGAAACAGGGGGAACTATGCCCAAAATGCCTCAACTGCACAGATCTGGACGTAGCCTTGGGCAGACCAAAATGCACGGGAAAAATACCCTCGGCAAGAGTTTCAATATCTCCATGAAGTCAGACCTGTTACATCTGGGTGCTTTCCCTATAATGCACGACAGAAACAAAAATTAGACAGCTGCCTAACCTTCTCCGAGGATACGAACATATCAGGTTATCAACCCATAACGTTATCAATGCAGAAAAATGCACCAGGAGGACCCTACAAAATTGGAACCTCAGGGTCTTGCCCTAACATTACCAATGGAAACGGATTTTTCGCAACAAATGGCTTGGGCGTCCCAAAAAACGACAAAAACAGCAACAAATCCATTAACAATAGAAGTACCATACATTGTACAGAAGGAGAAGACCAAATTACCGTTTGGGGGTTCCACTCTGACAACGAGACCCAAATGCCAAAGCTCTATGGGGACTCAAAGCCCCAGAGTTACCTCATCTGCCAACGGAGTGACCACACATTACGTTTCACAGATTGGTGGCTTCCCAAAATCAAACAGAAAGACGGAGGACTACCACAAAAGTGGTAGAATTGTTGTTGATTACATGGTGCAAAAATCTGGGAAAACAGGAACAATTACCTATCAAAGGGGTATTTATTGCCTCAAAAGGTGTGGTGCGCAAGTGGCAGGAGCAAGGTAATAAAAGGATCCTTGCTTTAATTGGAGAAGCAGATTGCCTCCACGAAAAATACGGTGGATTAAACAAAAGCAAGCCTTACTACACAGGGGAACATGCAAAAGGCCATAGGAAAATTGCCCAATATGGGTGAAAAACACCTTGAAGCTGGCCAATGGAAACCAAAATATAGACCTCCTGCAAACTATTAAAGGAAAGGGGTTTCTTCGGAGCTATTGCTGGTTTCTTAGAAGGAGGATGGGAAGGAAATGATTGCAGGTTGGCACGGATACACATCCCATGGGGCACATGGAGTAGCGGTGGCAGCAGACCTTAAGAGCACTCAAGAGGCCATAAACAAGATAACAAAAATCTCAACTCTTTGAGTGAGCTGGAAGTAAAGAATCTTCAAAGACTAAGCGGTGCCATGGATGAACTCCACAACGAAATACTAGAACTAGATGAGAAAGTGGATGATCTCAGAGCTGATACAATAAGCTCACAAATAGAACTCGCAGTCCTGCTTTCCAATGAAGGAATAATAAACAGTGAAGATGAACATCTCTTGGCGCTTGAAAGAAAGCTGAAGAAAATGCTGGGCCCCCTCTGCTGTAGAGATAGGGAATGGATGCTTTGAAACCAACACAAGTGCAACCAGACCTGTCTCGACAGAATAGCTGCTGGTACCTTTGATGCAGGAGAATTTCTCTCCCCACCTTTGATTCACTGAATATTACTGCTGCATCTTTAAATGACGATGGATTGGATAATTACCAAATCTGTCAATTTATTCAACAGTGGCGAGTTCCCTAGCACTGGCAATCATGATGGCTGGTCTATCTTTATGGATGTGCTCCAATGGATCGTTACAATGCAGAATTTGCATTTAAAGGCTATTTTCTTTTGAATTTACTGTTATTTCGGTGTGCATTTCTATGTTTGGTGAGCGGTTTTCTGTGCTCAGAGTGTGTTATTTATGTAATTTAATTTCTTTGTGAGCTCCTGTTTAGCAGGTGCTCCCTTCAGCAAGGACACAAAAAGATTTTAATTTTATTAATAAAAAAAAAAAAAAAAAAGACCGGAATTCGATATCAAGCTTATCGACCTGCAGATCGTTCAAACATTTGGCAATAAAGTTTCTTAAGATTGAATCCTGTTGCCGGTCTTGCGATGATTATCATATAATTTCTGTTGAATTACGTTAAGCATGTAATAATTAACATGTAATGCATGACGTTATTTATGAGATGGGTTTTATGATTAGAGTCCCGCAATTATACATTTAATACGCGATAGAAAACAAAAATATAGCGCGCAAACCTAGGATAAATTATCGCGCGCGGTGTCATCTATGTTACTAGATCTCTAGAGTCTCAAGCTTGGCGCGGGGTACCGAGCTCGAATTCAGAGTGTACTTCAAGTCAGTTGGAAATCAATAAAATGATTATTTTATGATATATTTTCTATTGTGCAAGTAGATAGAAATTACATATGTTACATAACACACGAAATAAACAAAAAACACAAATCCAAAAACAAACCCCCAAACAAAAATAACACTATATATCCTCGTATGAGGAGAGGCACGTTCACTGACTCGACGATTCCCGAGCAAAAAAGTCTCCCCGTACACATATAGTGGGTGACGCAATTATCTTCAAGTAATCCTTCTGTTGACTTGTCAATTGATAACATCCAGTCTTCGTCAGGATTGCAAAGAATTATAGAAGGATATCCACCTTTTATTTTCTTCTTTTCCATATTTAGGGTTGACAGTGAAATCAGACTGGCAACCTATTAATTGCTTCCACAATGGGACGAACTGAAGGGGATGTCGTCGATGATATTATAGGTGGCGTGTTCATCGTAGTTGGTGAAGTCGATGGTCCCGTCCAGTAGTTGTGTCGCCCCGAGACTTCTAGCCCAGGTGGTCTTTCCGGTACGAGTTGGTCCCGCAGATGTAGAGGCTGGGGTGTCTGACCCAGTCCTTCCCTCATCCTGGTTAGATCGGCATCCACTCAAGGTCAGATTGTGCTTGATCGTAGGAGACAGGATGTATGAAAGTGTAGGCATCGATGCTTACATGATATAGGTGCGTCTCTCTCCAGTTGTGCAGATCTTCGTGGCAGCGGAGATCTGATTCTGTGAAGGGCGACACGTAAGTCTCAGGTTGTGGAGGAAATAATTTGTTGGCTGAATATTCAGCCATTGAAGCTTTGTGCCCATTCATGAGGGAATTTCTTCTTTGATCATGTCAAGATACTCCTCCTTAGACGTTGCAGTCTGGATAATAGTTCCCATCGTGCCTCAGATTTGCGAGGAGACCTTATGATCTCGGAAATCTCCTCTGGTTTTAATATCTCCGTCTTTGATATGTAATCAAGGACTTGTTTAGAGTTCTAGCTGGCTGGATATTAGGGTGATTTCC

TTCAAAATCGAAAAAAGAAGGATCCCTAATACAAGGTTTTTTATCAAGCTGGATAAGAGCATGATAGTG
GGTAGTGCCATCTTGATGAAGCTCAGAAGCAACACCAAGGAAGAAAATAAGAAAAGGTGTGAGTTTCTC
CCAGAGAAACTGGAATAAATCATCTCTTTGAGATGAGCACTTGGGGTAGGTAAGGAAAACATATTTAGA
TTGGAGTCTGAAGTTCTTGCTAGCAGAAGGCATGTTGTTGTGACTCCGAGGGGTTGCCTCAAACCTCTATCT
TATAACCGGCGTGGAGGCATGGAGGCAAGGGCATTGTTGTAATTTAAGTAGTTAGTGGAAAATGACGTC
ATTTACTTAAAGACGAAGTCTTGCGACAAGGGGGGGCCACGCCGAATTTTAATATTACCGGCGTGGCCCC
ACCTTATCGCGAGTGCTTTAGCACGAGCGGTCCAGATTAAAGTAGAAAAAGTTCCCGCCCACTAGGGTTA
AAGGTGTTCACTATAAAAGCATATACGATGTGATGGTATTTGATGGAGCGTATATTGTATCAGGTATT
TCCGTCGGATACGAATTATTCGTAC

Figure 7E,

Amino acid sequence of PDISP/HA B Brisbane/H5Indo TMCT (SEQ ID NO: 37)

MAKNVAIFGLLFSLVLVPSQIFADRICTGITSSNSPHVVKATATQGEVNVTVGVIPLTTTPTK
SHFANLKGTTETRGKLCPKCLNCTDLDVALGRPCKTGKIPSARVSILHEVRPVTSGCFPIM
HDRTKIRQLPNLLRGYEHIRLSTHNVINAENAPGGPYKIGTSGSCPNTNNGNGFFATMAW
AVPKNDKNKTATNPLTIEVPYICTEGEDQITVWGFHSDNETQMAKLYGDSKPQKFTSSA
NGVTTHYVSQIGGFNPQTEDGGLPQSGRIVVDYMVQKSGKTGTITYQRGILLPQKVWCA
SGRSKVIKGSPLIGEADCLHEKYGGLNKSHPYYTGEHAKAIGNCPIWVKTPCLKLANGTK
YRPPAKLLKERGFFGAIAGFLEGGWEGMIAGWHGYTSHGAHGVAVAADLKSTQEAINK
ITKNLNSLSELEVKNLQRLSGAMDELHNEILELDEKVDDLADTISSQIELAVLLSNEGHIIN
SEDEHLLALERKLLKMLGPSAVEIGNGCFETKHKCNQTCLDRIAAGTFDAGEFSLPTFDS
LNITAASLNDDGLDNYQILSIYSTVASSLALAIMMAGLSLWMCSNGSLQCRICI

I-2X35S/CPMV-HT/PDISP/HA B Brisbane with deleted proteolytic loop/NOS into BeYDV+Replicase amplification system (Construct number 1059)

Figure 8A,

1039+1059.r (SEQ ID NO: 38)

CTTCCCATCCTCCACCAGGAGGTCTATATTTGGTTCCATTGGCCAGCTTCAA

Figure 8B

1039+1059.c (SEQ ID NO: 39)

CAAATATAGACCTCCTGGTGGAGGATGGGAAGGAATGATTGCAGGTTGGCAC

Figure 8C,

Expression cassette number 1059 from BeYDV left LIR to BeYDV right LIR. PDISP/HA from influenza B/Brisbane/60/2008 with deleted proteolytic loop is underlined. (SEQ ID NO: 40)

CTAGCAGAAGGCATGTTGTTGTGACTCCGAGGGGTTGCCTCAAACCTCTATCTTATAACCGGCGTGGAGGC
ATGGAGGCAAGGGCATTTTGGTAATTTAAGTAGTTAGTGGAATAATGACGTCATTTACTTAAAGACGAAGT
CTTGCAGACAAGGGGGGGCCACGCCGAATTTTAATATTACCGGCGTGGCCCCACCTTATCGCGAGTGCTTT
AGCACGAGCGGTCCAGATTTAAAGTAGAAAAGTTCCCGCCACTAGGGTTAAAGGTGTTTACACTATAA
AAGCATATACGATGTGATGGTATTTGATAAAGCGTATATTGTATCAGGTATTTCCGTCGGATACGAATTA
TTCGTACAAGCTTCTTAAGCCGGTCAACATGGTGGAGCACGACACACTTGTCTACTCCAAAAATATCAAA
GATACAGTCTCAGAAGACCAAAGGGCAATTGAGACTTTTCAACAAAGGGTAATATCCGGAAACCTCCTC
GGATTCATTGCCCAGCTATCTGTCACTTTATTGTGAAGATAGTGGAAGGAAGGTGGCTCCTACAAAT
GCCATCATTGCGATAAAGGAAAGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGATGGAC
CCCCACCCACGAGGAGCATCGTGGAAAAAGAAGACGTTCCAACACGCTCTCAAAGCAAGTGGATTGAT
GTGATAACATGGTGGAGCACGACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACC
AAAGGGCAATTGAGACTTTTCAACAAAGGGTAATATCCGGAAACCTCCTCGGATTCCATTGCCAGCTAT
CTGTCACTTTATTGTGAAGATAGTGGAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGA
AAGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATC
GTGGAAAAAGAAGACGTTCCAACACGCTCTCAAAGCAAGTGGATTGATGTGATATCTCCACTGACGTAA
GGGATGACGCACAAATCCCACTATCCTTCGCAAGACCCTTCCTCTATATAAGGAAGTTCATTTCAATTTGGAG
AGGTATTAATACTTAATAGGTTTGTATAAAGCGAACGTTGGGGAACCCGAACCAACCTTCTTCTAAA
CTCTCTCTCATCTCTCTTAAAGCAAACCTCTCTCTTGTCTTTCTTGGCGTGAGCGATCTTCAACGTTGTGAGA
TCGTGCTTCGGCACCAGTACAACGTTTTCTTTCACTGAAGCGAAATCAAAGATCTCTTTGTGGACACGTAG
TGCGGCGCCATTAAATAACGTGTACTTGTCTATTCTTGTGCGGTGTGGTCTTGGGAAAAGAAAGCTTGCTG
GAGGCTGCTGTTAGCCCCATACATTACTTGTACGATTCTGCTGACTTTCGGCGGGTGAATATCTCTAC
TTCTGCTTGACGAGGTATTGTTGCCTGTACTTCTTTCTTCTTCTTCTGCTGATTGGTCTATAAGAAATCT
AGTATTTTCTTTGAAACAGAGTTTCCCGTGGTTTTCGAACTTGGAGAAAGATTGTTAAGCTTCTGTATAT
TCTGCCCAAATTTGTGCGGGCCATGGCGAAAAACGTTGCGATTTTCGGCTTATTGTTTTCTTCTTGTGTT
GGTTCCTTCTCAGATCTTCGCCGATCGAATCTGCACTGGAATAACATCGTCAAACTCACCACATGTCGTCA
AACTGCTACTCAAGGGGAGGTCAATGTGACTGGTGTAAATACCACTGACAACAACCCACCAAAATCTC
ATTTTGCAAATCTCAAAGGAACAGAAACCAGGGGGAACTATGCCCAAAATGCCTCAACTGCACAGATC

TGGACGTAGCCTTGGGCAGACCAAAATGCACGGGGAAAAATACCCTCGGCAAGAGTTTCAATACTCCATG
AAGTCAGACCTGTTACATCTGGGTGCTTTCTTATAATGCACGACAGAACAAAAATTAGACAGCTGCCTAA
CCTTCTCCGAGGATACGAACATATCAGGTTATCAACCCATAACGTTATCAATGCAGAAAAATGCACCAGGA
GGACCCTACAAAATTGGAACCTCAGGGTCTTGCCCTAACATTACCAATGGAAACGGATTTTTCGCAACAA
TGGCTTGGGCGGTCCCAAAAAACGACAAAAACAAAAACAGCAACAAATCCATTAACAATAGAAGTACCAT
ACATTTGTACAGAAGGAGAAGACCAAATTACCGTTTGGGGGTTCCACTCTGACAACGAGACCCAAATGG
CAAAGCTCTATGGGGACTCAAAGCCCCAGAAGTTACCTCATCTGCCAACGGAGTGACCACACATTACGT
TTACACAGATTGGTGGCTTCCCAAAATCAAACAGAAGACGGAGGACTACCACAAAAGTGGTAGAATTGTTGTT
GATTACATGGTGCAAAAATCTGGGAAAAACAGGAACAATTACCTATCAAAGGGGTATTTTATTGCCTCAAA
AGGTGTGGTGCAGCAAGTGGCAGGAGCAAGGTAATAAAAGGATCCTTGCCTTAATTGGAGAAGCAGATT
GCCTCCACGAAAAAATACGGTGGATTAAACAAAAGCAAGCCTTACTACACAGGGGAACATGCAAAAGGCCA
TAGGAAATTGCCCAATATGGGTGAAAAACACCCTTGAAGCTGGCCAAATGGAAACCAAAATATAGACCTCCTG
GTGGAGGATGGGAAGGAATGATTGCAGGTTGGCACGGATACACATCCCATGGGGCACATGGAGTAGCGG
TGGCAGCAGACCTTAAGAGCACTCAAGAGGCCATAAACAAAGATAACAAAAAATCTCAACTCTTTGAGTG
AGCTGGAAGTAAAGAATCTTCAAAGACTAAGCGGTGCCATGGATGAAGTCCACAACGAAATACTAGAAC
TAGATGAGAAAGTGGATGATCTCAGAGCTGATACAATAAGCTCACAAATAGAACTCGCAGTCCTGCTTTC
CAATGAAGGAATAATAAACAGTGAAGATGAACATCTCTTGGCGCTTGAAGAAAAAGCTGAAGAAAAATGCT
GGGCCCCCTCTGCTGTAGAGATAGGGAATGGATGCTTTGAAACCAAAACACAAGTGCAACCAGACCTGTCTC
GACAGAATAGCTGCTGGTACCTTTGATGCAGGAGAATTTCTCTCCCCACCTTTGATTCACTGAATATTAC
TGCTGCATCTTTAAATGACGATGGATTGGATAATCATACTATACTGCTTTACTACTCAACTGCTGCCTCCA
GTTTGGCTGTAACACTGATGATAGCTATCTTTGTTGTTTATATGGTCTCCAGAGACAATGTTTCTTGCTCC
ATCTGTCTATAAAGGCCTATTTTCTTTAGTTTGAATTTACTGTTATTTCGGTGTGCATTTCTATGTTTGGTGA
GCGGTTTTCTGTGCTCAGAGTGTGTTTATTTTATGTAATTTAATTTCTTTGTGAGCTCCTGTTTAGCAGGTC
GTCCCTTCAGCAAGGACACAAAAAGATTTTAATTTTATTAAGGAGGAGGAGGAGGAGGAGGAGGAGGAGG
GATATCAAGCTTATCGACCTGCAGATCGTTCAAACATTTGGCAATAAAGTTTCTTAAGATTGAATCCTGTT
GCCGGTCTTGCGATGATTATCATATAATTTCTGTTGAATTACGTTAAGCATGTAATAATTAACATGTAATG
CATGACGTATTTATGAGATGGGTTTTTATGATTAGAGTCCCGCAATTATACATTTAATACGCGATAGAAA
ACAAAATATAGCGCGCAAACTAGGATAAATTATCGCGCGCGGTGTCATCTATGTTACTAGATCTCTAGAG
TCTCAAGCTTGGCGCGGGGTACCGAGCTCGAATTCCGAGTGTACTTCAAGTCAGTTGGAAAATCAATAAAA
TGATTATTTTATGAATATATTTTATTGTGCAAGTAGATAGAAATTACATATGTTACATAACACACGAAATA
AACAAAAACACAATCCAAAAACAAACACCCCAAAACAAAATAACACTATATATATCTCGTATGAGGAG
AGGCACGTTACGTGACTCGACGATTCCCGAGCAAAAAAAGTCTCCCGTCACACATATGTTGGGTGACG
CAATTATCTTCAAAGTAATCCTTCTGTTGACTTGTGATTGATAACATCCAGTCTTCGTCAGGATTGCAAAG
AATTATAGAAGGGATCCCACCTTTTATTTTCTTCTTTTTCATATTTAGGGTTGACAGTGAAATCAGACT
GGCAACCTATTAATTGCTTCCACAATGGGACGAACTTGAAGGGGATGTCGTCGATGATATTATAGGTGGC
GTGTTATCGTAGTTGGTGAAGTCGATGGTCCCGTTCAGTAGTTGTGTCGCCCCGAGACTTCTAGCCCAGG
TGGTCTTCCGGTACGAGTTGGTCCGCAGATGTAGAGGCTGGGGTGTCTGACCCAGTCCTTCCCTCATCC
TGGTTAGATCGGCCATCCACTCAAGGTCAGATTGTGCTTGATCGTAGGAGACAGGATGTATGAAAAGTGTA
GGCATCGATGCTTACATGATATAGGTGCGTCTCTCTCCAGTTGTGCAGATCTTCGTGGCAGCGGAGATCT
GATTCTGTGAAGGGCGACACGTACTGCTCAGGTTGTGGAGGAAATAATTTGTTGGCTGAATATTCCAGCC
ATTGAAGCTTTGTTGCCATTATGAGGGAATTTCTTCTTTGATCATGTCAAGATACTCCTCCTTAGACGTT
GCAGTCTGGATAATAGTTCCGCATCGTGCCTCAGATTTGCGAGGAGAGACCTTATGATCTCGGAAATCTC
CTCTGGTTTTAATATCTCCGTCTTTGATATGTAATCAAGGACTTGTTTAGAGTTCTAGCTGGCTGGATAT
TAGGGTGATTTCTTCAAATCGAAAAAAGAAGGATCCCTAATACAAGGTTTTTTATCAAGCTGGATAAG
AGCATGATAGTGGGTAGTGCCATCTTGATGAAGCTCAGAAGCAACACCAAGGAAGAAAAATAAGAAAAAG
GTGTGAGTTTCTCCAGAGAACTGGAATAAATCATCTCTTTGAGATGAGCACTTGGGGTAGGTAAGGAA
AACATATTTAGATTGGAGTCTGAAGTTCTTGCTAGCAGAAAGCATGTTGTTGTGACTCCGAGGGGTTGCC
TCAAACCTATCTTATAACCGGCGTGAGGCATGGAGGCAAGGGCATTTTGGTAATTTAAGTAGTTAGTG
GAAAAATGACGTCATTTACTTAAAGACGAAGTCTTGCGACAAGGGGGGGCCACGCCGAATTTTAATATTAC
CGGCGTGGCCCCACCTTATCGCGAGTGCTTTAGCACGAGCGGTCCAGATTTAAAGTAGAAAAAGTTCCCGC
CCACTAGGGTTAAAGGTGTTCACTATAAAAGCATATACGATGTGATGGTATTTGATGGAGCGTATATT
GTATCAGGTATTTCCGTCGGATACGAATTATTCGTAC

Figure 8D

Amino acid sequence of PDISP/HA from influenza B/Brisbane/60/2008 with deleted proteolytic loop (SEQ ID NO: 41)

MAKNVAIFGLLFSLLVLVPSQIFADRICTGITSSNSPHVVKATQGEVNVTVGIPLTTTPTK
SHFANLKGTETRGKLCPKCLNCTDLVALGRPKCTGKIPSARVSILHEVRPVTSGCFPIM
HDRTKIRQLPNLLRGYEHIRLSTHNVINAENAPGGPYKIGTSGSCPNTNGNGFFATMAW
AVPKNDKKNKTATNPLTIEVPYICTEGEDQITVWGFHSDNETQMAKLYGDSKPQKFTSSA
NGVTTHYVVSQIGGFPNQTEDGGLPQSGRIVVDYMVQKSGKTGTITYQRGILLPQKVVCA
SGRSKVIKGSPLIGEADCLHEKYGGLNKSPPYYTGEHAKAIGNCPIWVKTPCLKLANGTK
YRPPGGGWEGMIAGWHGYTSHGAHGVAVAADLKSTQEAINKITKNLNSLSELEVKNLQ
RLSGAMDELHNEILELDEKVDDLRADTISSQIELAVLLSNEGIIINSEDEHLLALERKLLKKM
LGPSAVEIGNGCFETKHKCNQTCLDRIAAGTFDAGEFSLPTFDSL NITAASLNDDGLDNH
TILLYSTAASSLAVTLMIAIFVVMVSRDNVSCSICL

Figure 8E nucleotide sequence of PDISP/HA from influenza B/Brisbane/60/2008 with deleted proteolytic loop (SEQ ID NO: 43)

ATGGCGAAAAACGTTGCGATTTTCGGCTTATTGTTTTCTTCTTGTGTTGGTTCCTTCTCAGATCTTCGCC
GATCGAATCTGCACTGGAATAACATCGTCAAACTCACCACATGTCGTCAAACTGCTACTCAAGGGGAGG
TCAATGTGACTGGTGTAAATACCACTGACAACAACACCCACCAAACTCATTTCGAAAATCTCAAAGGAAC
AGAAACCAGGGGGAACTATGCCAAAAATGCCTCAACTGCACAGATCTGGACGTAGCCTTGGGCAGACC
AAAATGCACGGGGAAAAATACCTCGGCAAGAGTTTCAATACTCCATGAAGTCAGACCTGTTACATCTGGG
TGCTTTCCTATAATGCACGACAGAACAAAAATTAGACAGCTGCCTAACCTTCTCCGAGGATACGAACATA
TCAGGTTATCAACCCATAACGTTATCAATGCAGAAAATGCACCAGGAGGACCCTACAAAATTGGAACCTC
AGGGTCTTGCCCTAACATTACCAATGGAAACGGATTTTTCGCAACAATGGCTTGGGCCGTCCCAAAAAAC
GACAAAAACAAAACAGCAACAAATCCATTAACAATAGAAGTACCATAACATTTGTACAGAAGGAGAAGAC
CAAATTACCGTTTGGGGGTTCCTCTGACAACGAGACCCAAATGGCAAAGCTCTATGGGGACTCAAAGC
CCCAGAAAGTTCACCTCATCTGCCAACGGAGTGACCACACATTACGTTTCACAGATTGGTGGCTTCCCAA
TCAAACAGAAAGACGGAGGACTACCACAAAGTGGTAGAATTGTTGTTGATTACATGGTGCAAAAATCTGG
GAAAACAGGAACAATTACCTATCAAAGGGGTATTTTATTGCCTCAAAAAGGTGTGGTGCGCAAGTGGCAG
GAGCAAGGTAATAAAAAGGATCCTTGCCCTTAATTGGAGAAGCAGATTGCCTCCACGAAAAATACGGTGG
ATTAACAAAAAGCAAGCCTTACTACACAGGGGAACATGCAAAGGCCATAGGAAATTGCCCAATATGGGT
GAAAACACCCTTGAAAGCTGGCCAATGGAACCAATATAGACCTCCTGGTGGAGGATGGGAAGGAATGAT
TGCAGGTTGGCAGGATACACATCCCATGGGGCACATGGAGTAGCGGTGGCAGCAGACCTTAAGAGCAC
TCAAGAGGCCATAAAACAAGATAACAAAAATCTCAACTCTTTGAGTGAGCTGGAAGTAAAGAATCTTCA
AAGACTAAGCGGTGCCATGGATGAACTCCACAACGAAATACTAGAACTAGATGAGAAAGTGATGATCT
CAGAGCTGATACAATAAGCTCACAATAAGAACTCGCAGTCCTGCTTCCAATGAAGGAATAATAAACAG
TGAAGATGAACATCTCTTGCGCTTGAAAGAAAGCTGAAGAAAATGCTGGGCCCTCTGCTGTAGAGAT
AGGGAATGGATGCTTTGAAACCAAACACAAGTGCAACCAGACCTGTCTCGACAGAATAGCTGCTGGTAC
CTTTGATGCAGGAGAATTTCTCTCCCCACCTTTGATTCCTGAATATTACTGCTGCATCTTTAAATGACG
ATGGATTGGATAATCATACTATACTGCTTTACTACTCAACTGCTGCCTCCAGTTTGGCTGTAAACACTGATG
ATAGCTATCTTTGTTGTTTATATGGTCTCCAGAGACAATGTTTCTTGCTCCATCTGTCTATAA

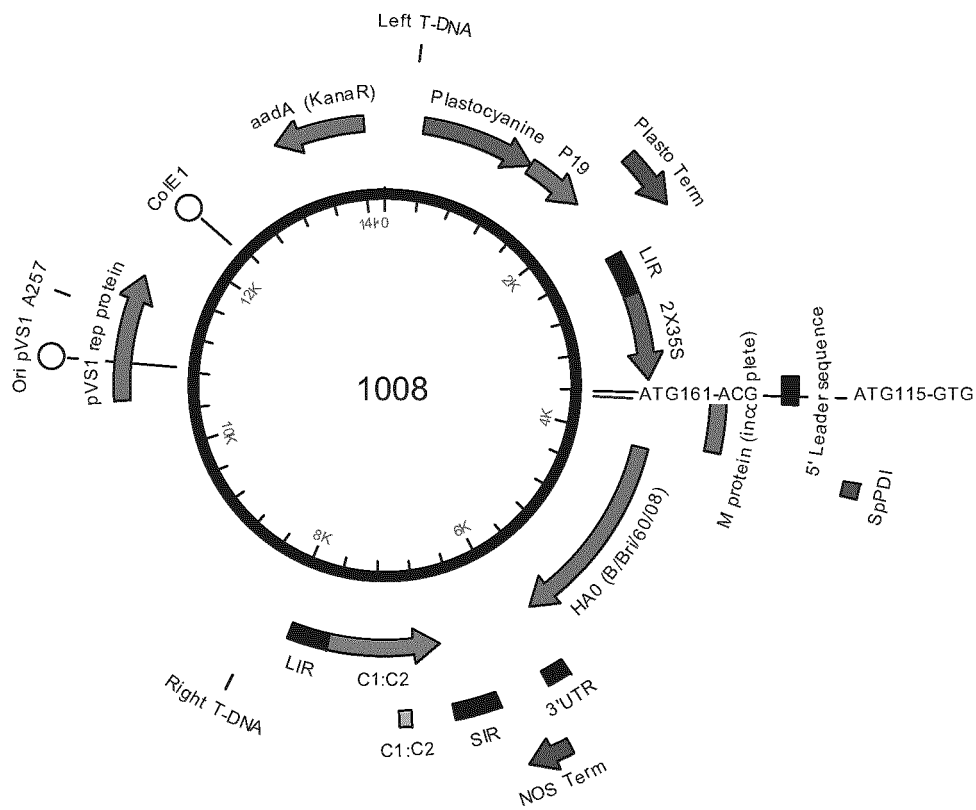


Figure 9

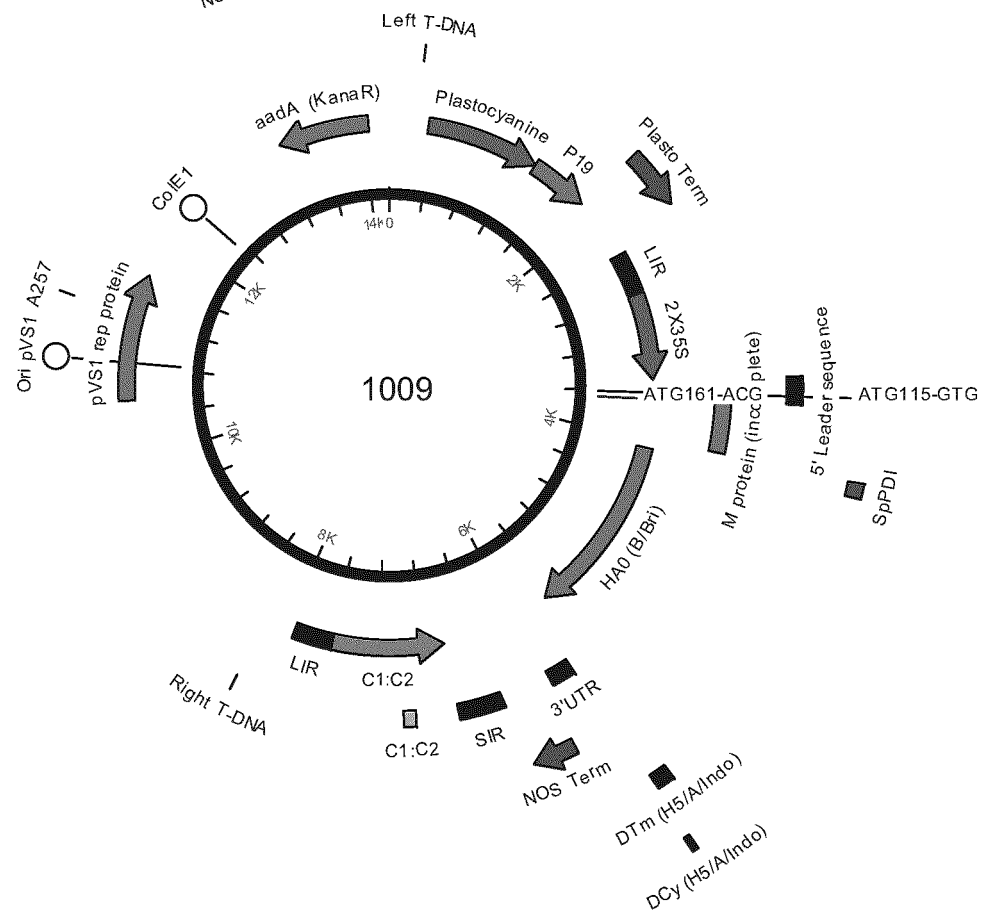


Figure 10

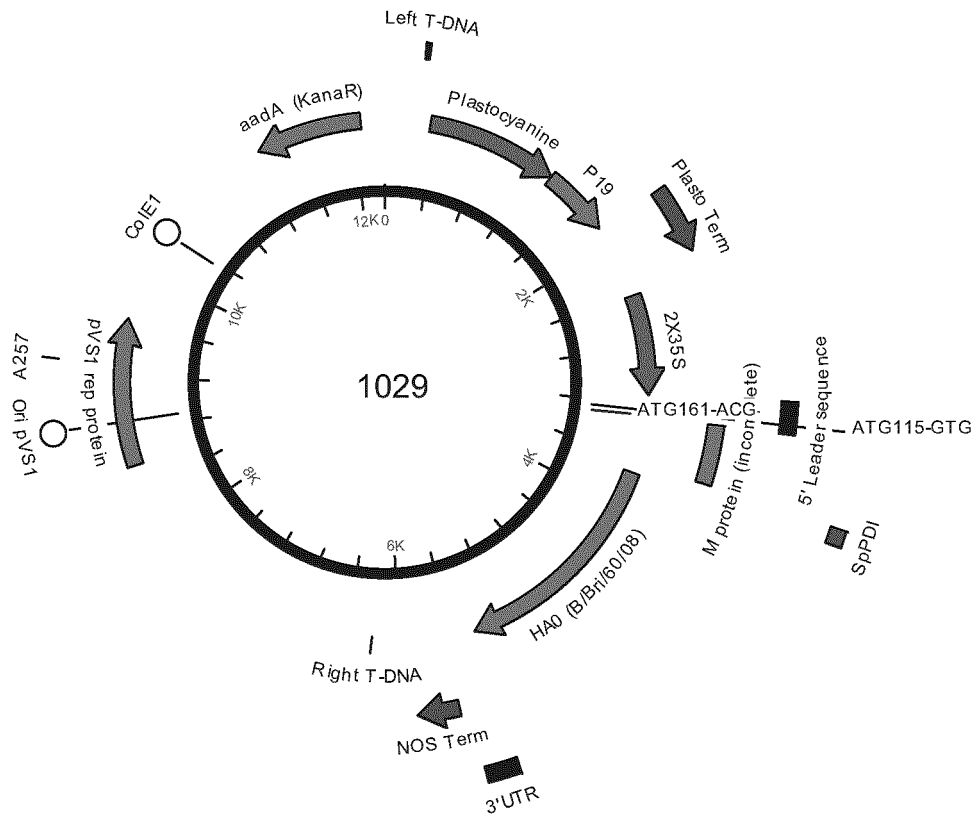


Figure 11

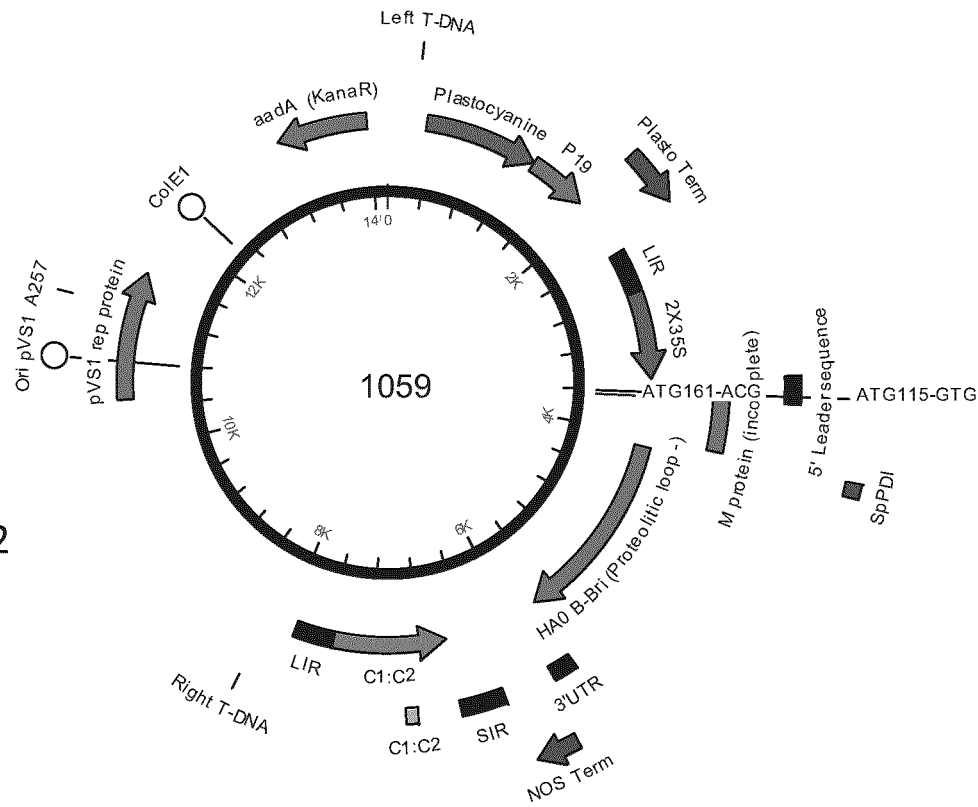


Figure 12

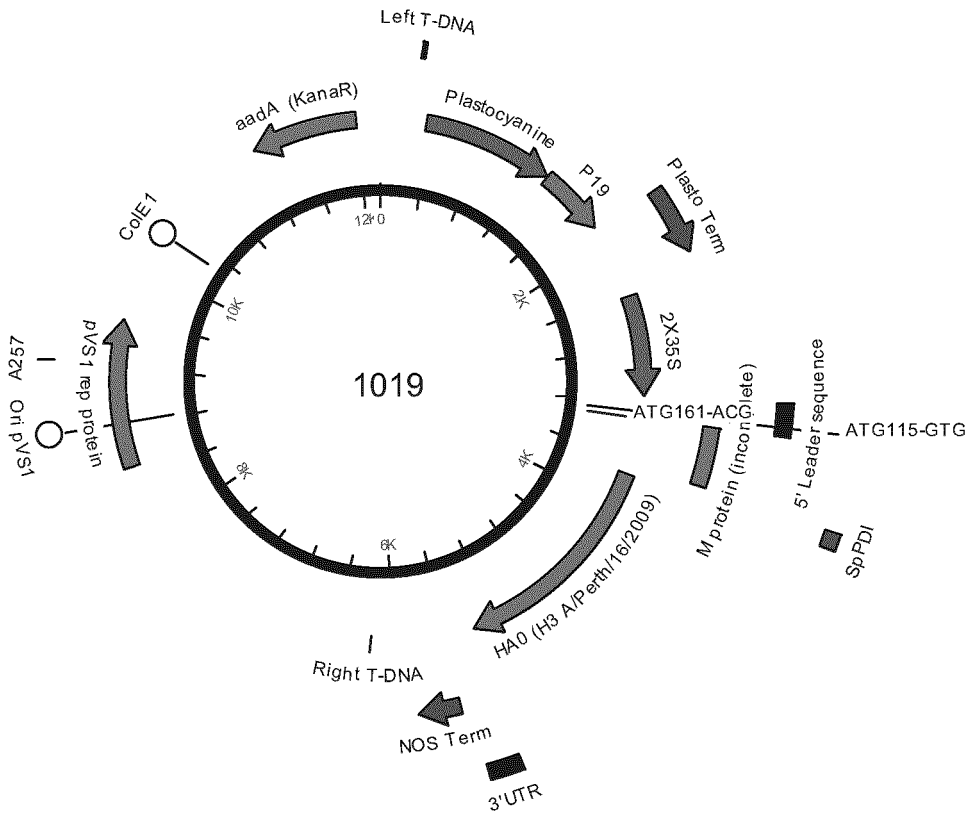


Figure 13

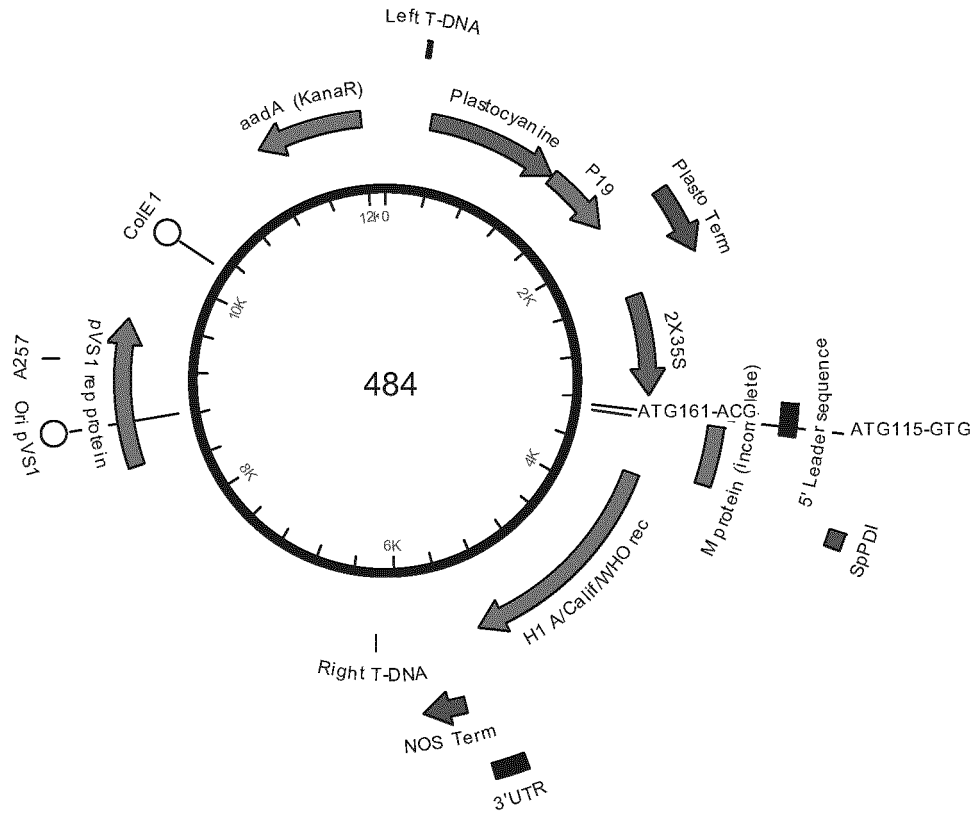


Figure 14

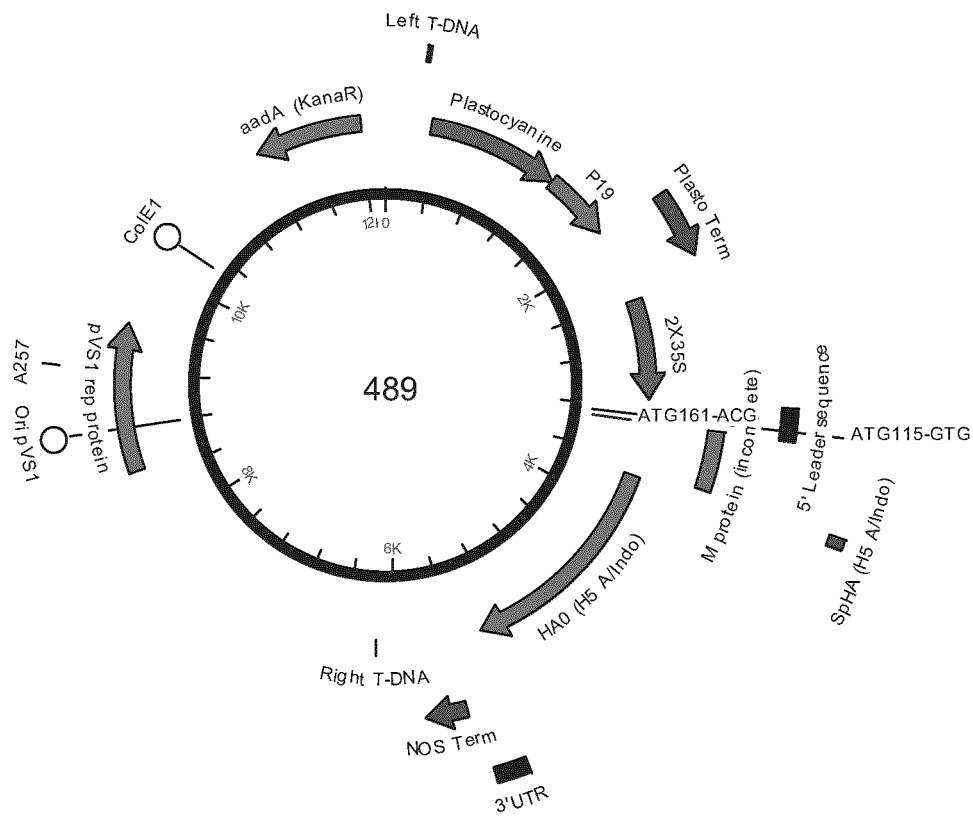


Figure 15

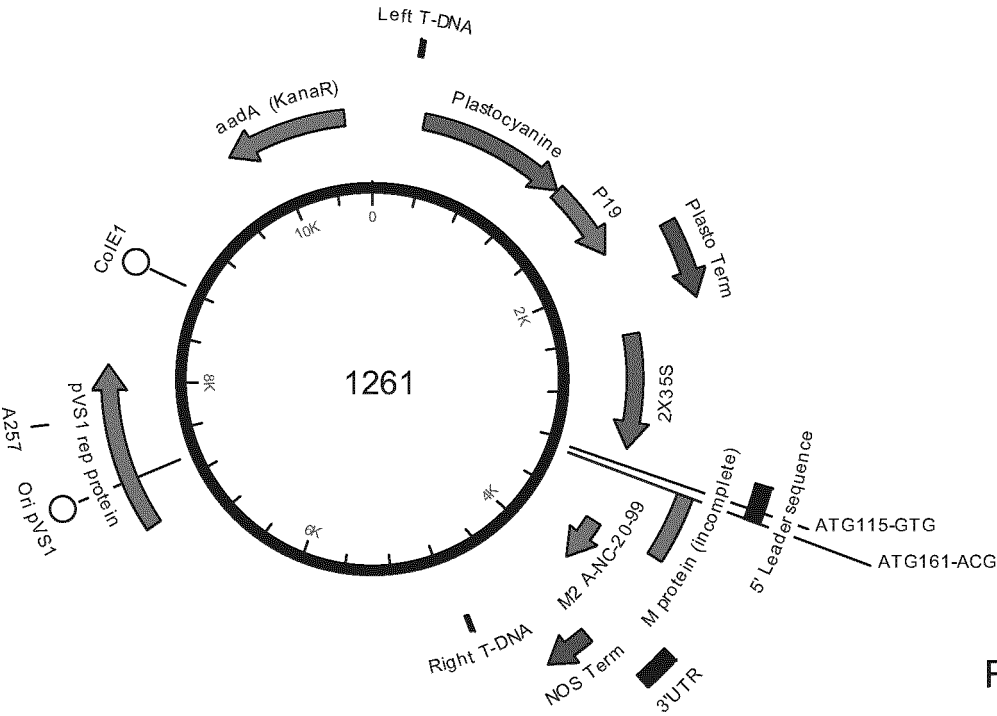


Figure 16

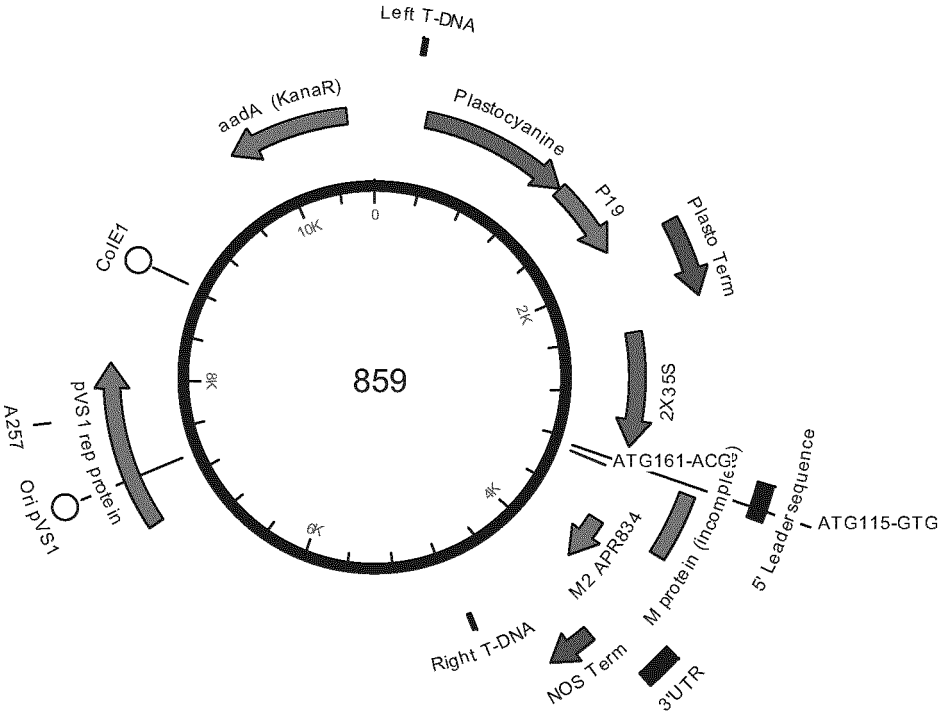


Figure 17

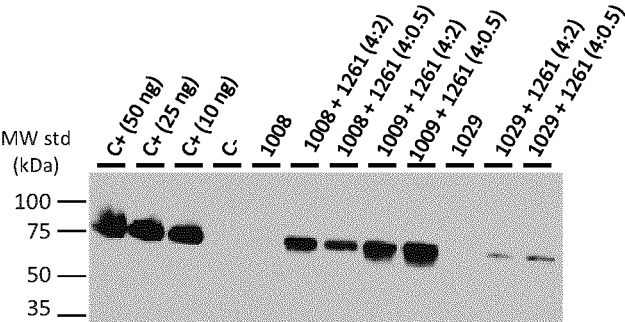


Figure 18

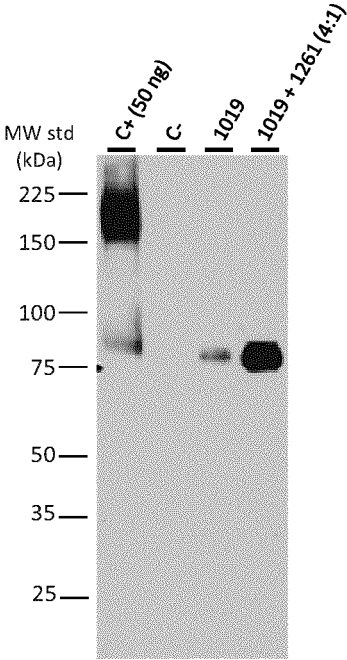


Figure 19

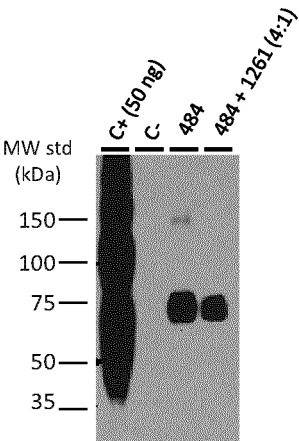


Figure 20

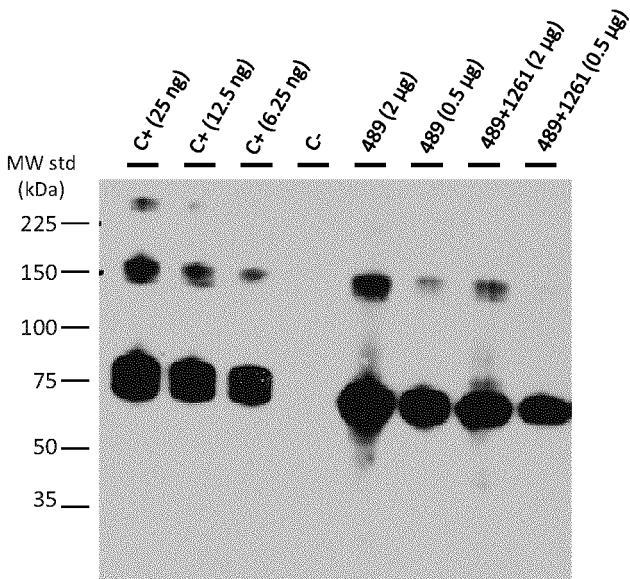


Figure 21

Figure 22A.

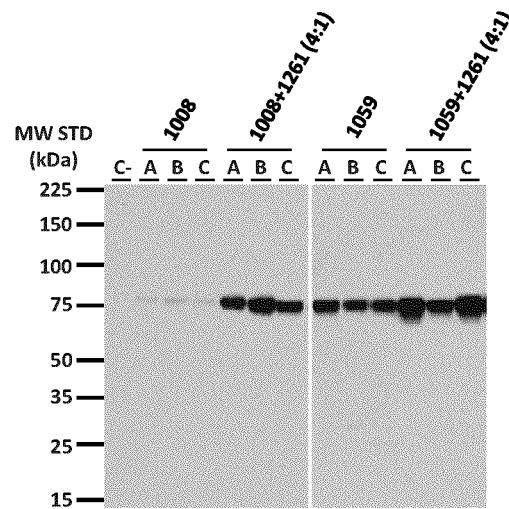


Figure 22B.

Construct number	Hemagglutination capacity (HA units / mg protein) ^a
1008	533
1008 + 1261 (4:1)	3200
1059	4267
1059 + 1261 (4:1)	34133

^a Inverse of the smallest amount of total protein required for positive hemagglutination reaction in a final volume of 200 μ l.

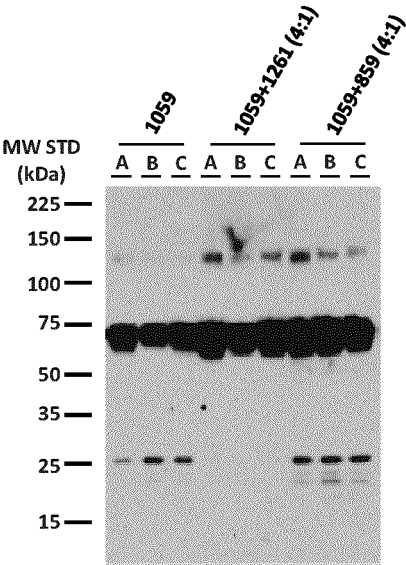


Figure 23A.

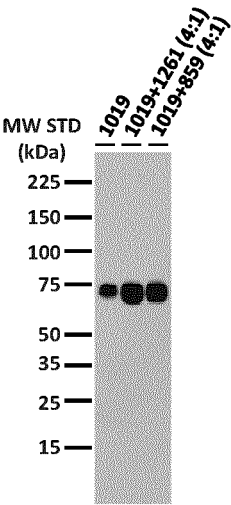


Figure 23B.

	250	260	270	280	290
H1 Now Col	V R S A K L R M V T G L R N			I P S I O S R G L F G A I A G F I E G C	
H1 Brisbane	V R S A K L R M V T G L R N	- - - - -	- - - - -	I P S I O S R G L F G A I A G F I E G C	
H1 Sol Islands	V R S A K L R M V T G L R N	- - - - -	- - - - -	I P S I O S R G L F G A I A G F I E G C	
H2 A_Singapore	V K S E K L V L A T G L R N	- - - - -	- - - - -	V P Q I E S R G L F G A I A G F I E G C	
H2 A_Brisbane	V K Q N T L K L A T G M R N	- - - - -	- - - - -	V P E K Q T R G L F G A I A G F I E N C	
H3 A_WCN	V K Q N T L K L A T G M R N	- - - - -	- - - - -	V P E K Q T R G L F G A I A G F I E N C	
H5 Anhui	V K S N K L V L A T G L R N	- - - - -	- - - - -	S P L R E R R R K R G L F G A I A G F I E G C	
H5 Indo	V K S N R L V L A T G L R N	- - - - -	- - - - -	S P Q R E S R R K K R G L F G A I A G F I E G C	
H5 Viet Nam	V K S N R L V L A T G L R N	- - - - -	- - - - -	S P Q R E R R R K K R G L F G A I A G F I E G C	
H6 Teal_HK	V K S C S L R L A T G L R N	- - - - -	- - - - -	V P Q I C T R G L F G A I A G F I C G C	
H7 Ea_Prague	V K Q K S L M L A T G M K N	- - - - -	- - - - -	V P E A P A H K Q L T H M R K K R G L F G A I A G F I E N C	
H9 A_Hk	V R V N S L R L A V G L R N	- - - - -	- - - - -	V P A R S S R G L F G A I A G F I E G C	
B_Florida	A K - A I G N C P I W V K I P L K L A N G I K Y R P P A K L L K E R G F F G A I A G F L E G C				
B_Malaysia	A K - A I G N C P I W V K I P L K L A N G I K Y R P P A K L L K E R G F F G A I A G F L E G C				



Figure 24

A-2X35S/CPMV-HT/PDISP/H3 Victoria/NOS (Construct number 1391)

Figure 25A, SEQ ID NO: 44

IF-H3V36111.S2+4c

TCTCAGATCTTCGCCCAAAAACCTTCCTGGAAATGACAACAGCACGGCA

Figure 25B, SEQ ID NO: 45

IF-H3V36111.s1-4r

ACTAAAGAAAATAGGCCTTCAAATGCAAATGTTGCACCTAATGTTGCCCTT

Figure 25C, SEQ ID NO: 46

Synthesized H3 gene (corresponding to nt 25 to 1725 from GISAID isolate number
EPI_ISL_101506 HA sequence)

ATGAAGACTATCATTGCTTTGAGCCACATTCTATGTCTGGTTTTTCGCTCAAAAACCTTCCTGGAAATGACAA
CAGCACGGCAACGCTGTGCCTTGGGCACCATGCAGTACCAAACGGAACGATAGTGAAAAACAATCACGAA
TGACCAAATTGAAGTTACTAATGCTACTGAGCTGGTTCAGAATTCCTCAATAGGTGAAATATGCGACAGT
CCTCATCAGATCCTTGATGGAGAAAACTGCACACTAATAGATGCTCTATTGGGAGACCCCTCAGTGTGATG
GCTTCCAAAATAAGAAATGGGACCTTTTTGTTGAACGAAGCAAAGCCTACAGCAACTGTTACCCTTATGA
TGTGCCGATTATGCCTCCCTTAGGTCAGTGTGCTCATCCGGCACACTGGAGTTTAAACAATGAAAGCT
TCAATTGGACTGGAGTCACTCAAAACGGAACAAGTTCTGCTTGCATAAGGAGATCTAATAATAGTTTCTT
TAGTAGATTAAATTGGTTGACCCACTTAACTTCAAATACCCAGCATTGAACGTGACTATGCCAAACAAT
GAACAATTTGACAAATTGTACATTTGGGGGGTTCACCACCCGGGTACGGACAAGGACCAAAATCTTCCTGT
ATGCTCAATCATCAGGAAGAATCACAGTATCTACCAAAGAAGCCAACAAGCTGTAATCCCGAATATCG
GATCTAGACCCAGAATAAGGAATATCCCTAGCAGAATAAGCATCTATTGGACAATAGTAAAACCGGGAG
ACATACTTTTGATTAACAGCACAGGGAATCTAATTGCTCCTAGGGGTTACTTCAAAATACGAAGTGGGAA
AAGCTCAATAATGAGATCAGATGCACCCATTGGCAAATGCAATTCTGAATGCATCACTCCAAATGGAAGC
ATTCCCAATGACAAACCATTCCAAAATGTAAACAGGATCACATACGGGGCCTGTCCAGATATGTAAAGC
AAAGCACTCTGAAATTGGCAACAGGAATGCGAAATGTACCAGAGAAACAACTAGAGGCATATTTGGCG
CAATAGCGGGTTTCATAGAAAATGGTTGGGAGGGAATGGTGGATGGTTGGTACGGTTTCAGGCATCAAA
ATTCTGAGGGAAGAGGACAAGCAGCAGATCTCAAAAGCACTCAAGCAGCAATCGATCAAAATCAATGGGA
AGCTGAATCGATTGATCGGGAAAACCAACGAGAAATTCATCAGATTGAAAAAGAAATTCTCAGAAGTCG
AAGGGAGAATTACAGGACCTTGAGAAATATGTTGAGGACACTAAAATAGATCTCTGGTCATACAACGCGG
AGCTTCTTGTTGCCCTGGAGAACCAACATACAATTGATCTAACTGACTCAGAAATGAACAACTGTTTGA
AAAAACAAGAAGCAACTAAGGGAAAAATGCTGAGGATATGGGCAATGGTTGTTTCAAAATATACCACAA
ATGTGACAATGCCTGCATAGGATCAATCAGAAATGGAAGTTATGACCACGATGTATACAGAGATGAAGC
ATTAAACAACCGGTTCCAGATCAAGGGAGTTGAGCTGAAGTCAGGGTACAAAGATTGGATCCTATGGAT
TTCCTTTGCCATATCATGTTTTTGTCTTTGTGTTGCTTTGTTGGGGTTCATCATGTGGGCCTGCCAAAAGGG
CAACATTAGGTGCAACATTTGCATTTGA

Figure 25D, SEQ ID NO: 47

Expression cassette number 1391 from 2X35S promoter to NOS terminator. PDISP/H3 from influenza A/Victoria/361/2011 (H3N2) is underlined.

GTCAACATGGTGGAGCAGCACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAA
 AGGGCAATTGAGACTTTTCAACAAAGGTAATATCCGGAAACCTCCTCGGATTCCATTGCCAGCTATCT
 GTCACCTTATTGTGAAGATAGTGGAAAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAA
 AGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATCG
 TGGAAAAAGAAGACGTTCCAACCACGTCTTCAAAGCAAGTGGATTGATGTGATAACATGGTGGAGCACG
 ACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAAAGGGCAATTGAGACTTTTCA
 ACAAAGGGTAATATCCGGAAACCTCCTCGGATTCCATTGCCAGCTATCTGTCACTTTATTGTGAAGATA
 GTGGAAAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAAAGGCCATCGTTGAAGATGCC
 TCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATCGTGGAAAAAGAAGACGTTCCA
 ACCACGCTTTCAAAGCAAGTGGATTGATGTGATATCTCCACTGACGTAAGGGATGACGCACAAATCCCACT
 ATCCTTCGCAAGACCCTTCTCTATATAAGGAAGTTCATTTTCAATTGGAGAGGTATTAATAATCTTAATAGG
 TTTTGATAAAAGCGAACGTGGGGAAACCCGAACCAAACCTTCTTCTAACTCTCTCTCATCTCTCTTAAAG
 CAAACTTCTCTCTTGTCTTTCTTGTGCGTGAGCGATCTTCAACGTTGTCAGATCGTGCTTCGGCACCAGTACA
 ACGTTTCTTTCACTGAAGCGAAATCAAAGATCTCTTTGTGGACACGTAGTGCGGCGCCATTAAATAACG
 TGTACTTGTCTATTCTTGTGCGGTGGTCTTGGGAAAAGAAAGCTTGTCTGGAGGCTGCTGTTCAAGCCCCA
 TACATTACTTGTACGATTCTGCTGACTTTCGGCGGGTGAATATCTCTACTTCTGCTTGACGAGGTATTG
 TTGCTGTACTTCTTCTTCTTCTTCTTGTGCTGATTGGTCTATAAGAAATCTAGTATTTTCTTTGAAACAGA
 GTTTTCCCGTGGTTTTGCAACTTGGAGAAAGATTGTTAAGCTTCTGTATATTCTGCCCAAATTTGTCTGGGC
 CCATGGCGAAAAACGTTGCGATTTTCGGCTTATTGTTTTCTTCTTCTTGTGTTGGTTCCTTCTCAGATCTTCG
 CCAAAAACTTCTCTGGAAATGACAACAGCACGGCAACGCTGTGCCTTGGGCACCATGCAGTACCAAACG
 GAACGATAGTGAAAAAATCACGAATGACCAAATTGAAGTTACTAATGCTACTGAGCTGGTTCAGAAATTC
 CTCAATAGGTGAAATATGCGACAGTCTCATCAGATCCTTGATGGAGAAAACTGCACACTAATAGATGCT
 CTATTGGGAGACCCTCAGTGTGATGGCTTCCAAATAAGAAATGGGACCTTTTTGTTGAACGAAGCAAAG
 CCTACAGCAACTGTTACCCTTATGATGTGCCGATTATGCCTCCCTTAGGTCAGTGTGCTCATCCGGC
 ACACTGGAGTTTAACAATGAAAGCTTCAATTGGACTGGAGTCACTCAAAACGGAACAAGTTCTGCTTGCA
 TAAGGAGATCTAATAATAGTTTCTTTAGTAGATTAAATTGGTTGACCCACTTAAACTTCAAATACCCAGC
 ATTGAACGTGACTATGCCAAACAATGAACAATTTGACAAATTGTACATTTGGGGGGTTTACCACCCGGGT
 ACGGACAAGGACCAAACTTCTCTGTATGCTCAATCATCAGGAAGAATCACAGTATCTACCAAAAAGAGC
 CAACAAGCTGAATCCCGAATATCGGATCTAGACCCAGAATAAGGAATATCCCTAGCAGAATAAGCATC
 TATTGGACAATAGTAAAAACCGGGAGACATACTTTTGATTAAACAGCACAGGGAATCTAATTGCTCTTAGGG
 GTTACTTCAAAATACGAAGTGGGAAAAGCTCAATTAATGAGATCAGATGCACCCATTGGCAATTCGAATT
 CTGAATGCATCACTCCAAATGGAAGCATTCCCAATGACAAACCATTCCAAAATGTAAACAGGATCACATA
 CGGGGCTGTCCAGATATGTTAAGCAAAGCACTCTGAAATTGGCAACAGGAATGCGAAATGTACCAGA
 GAAACAACTAGAGGCATATTTGGCGCAATAGCGGGTTTCATAGAAAATGGTTGGGAGGGAATGGTGGG
 TGGTTGGTACGGTTTCAGGCATCAAAATTCTGAGGGAAGAGGACAAGCAGCAGATCTCAAAAGCACTCA
 AGCAGCAATCGATCAAAATCAATGGGAAGCTGAATCGATTGATCGGGAAAACCAACGAGAAATCCATCA
 GATTGAAAAAGAATTCTCAGAAGTCGAAGGGGAAATTCAGGACCTTGAGAAATATGTTGAGGACACTAA
 AATAGATCTCTGGTCATACAACGCGGAGCTTCTTGTGCTTGGGAGAACCAACATACAATTGATCTAACT
 GACTCAGAAAATGAACAAACTGTTTGAAAAACAAAGCAACTAAGGGAAAAATGCTGAGGATATGGG
 CAATGGTTGTTTCAAAATATACCACAAATGTGACAAATGCCTGCATAGGATCAATCAGAAAATGGAACCTAT
 GACCACGATGTATACAGAGATGAAGCATTAAACAACCGGTTCCAGATCAAGGGAGTTGAGACTGAAGTCA
 GGGTACAAAGATTGGATCCTATGGATTTCCTTTGCCATATCATGTTTTTTGCTTTGTGTTGCTTTGTGGGG
 TTCATCATGTGGGCTGCCAAAAAGGCAACATTAGGTGCAACATTTGCATTTGAAGGCCTATTTTCTTTAG
 TTTGAATTTACTGTTATTTCGGTGTGCATTTCTATGTTTGGTGAGCGGTTTTCTGTGCTCAGAGTGTGTTAT
 TTTATGTAATTTAATTTCTTTGTGAGCTCCTGTTTAGCAGGTGCTCCCTTCAGCAAGGACACAAAAAGATT
 TTAATTTTATTAATAAAAAAAAAAAAAAAAAAGACCGGAATTCGATATCAAGCTTATCGACCTGCAGATCGT
 TCAAACATTTGGCAATAAAGTTCTTAAGATTGAATCCTGTTGCCGGTCTTGCATGATTATCATATAATT
 TCTGTTGAATTACGTTAAGCATGTAATAATTAACATGTAATGCATGACGTTATTTATGAGATGGGTTTTTA

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AATTATCGCGCGGGTGCATCTATGTTACTAGAT

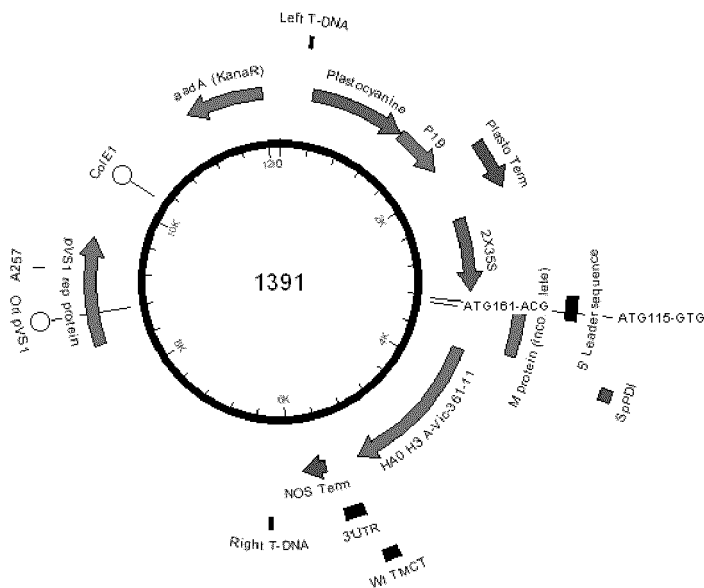
Figure 25E, SEQ ID NO: 48

Amino acid sequence of PDISP-H3 from influenza A/ Victoria/361/2011 (H3N2)

MAKNVAIFGLLFSLVLVPSQIFAQKLPGNDNSTATLCLGHHAVPNGTIVKTITNDQIEVT
NATELVQNSSIGEICDSPHQILDGENCTLIDALLGDPQCDGFQNKKWDLFVERSKAYSNC
YPYDVPDYASLRSLVASSGTLEFNNEFSNWTGVTQNGTSSACIRRSNNSFFSRLNWLTHL
NFKYPALNVTMPNNEQFDKLYIWGVHHPGTDKDQIFLYAQSSGRITVSTKRSQQAVIPNI
GSRPRIRNIPSRISYWTIVKPGDILLINSTGNLIAPRGYFKIRSGKSSIMRSDAPIGKCNSCI
TPNGSIPNDKPFQNVNRITYGACPRYVKQSTLKLATGMRNVPEKQTRGIFGAIAGFIENG
WEGMVDGWYGFRHQNSEGRGQAADLKSTQAAIDQINGKLNRLIGKTNEKFHQIEKEFS
EVEGRIQDLEKYVEDTKIDLWSYNAELLVALENQHTIDLTDSMNKLFKTKKQLRENA
EDMGNGCFKIYHKCDNACIGSIRNGTYDHDVYRDEALNNRFQIKGVELKSGYKDWILWI
SFAISCFLLCVALLGFIMWACQKGNIRCNICI*

Figure 25F

Schematic representation of construct number 1391



B-2X35S/CPMV-HT/HA B Wisconsin/NOS into BeYDV(m)+Replicase amplification
system (Construct number 1462)

Figure 26A, SEQ ID NO: 49

IF-HAB110.S1+3c

AAATTTGTCGGGCCCATGAAGGCAATAATTGTACTACTCATGGTAG

Figure 26B, SEQ ID NO: 50

IF-HAB110.s1-4r

ACTAAAGAAAATAGGCCTTTATAGACAGATGGAGCATGAAACGTTGTCTCTG

Figure 26C, SEQ ID NO: 51

Synthesized HA B Wisconsin (Genbank accession number JN993010)

ATGAAGGCAATAATTGTACTACTCATGGTAGTAACATCCAATGCAGATCGAATCTGCACTGGGATAACAT
CTTCAAACCTCACCTCATGTGGTCAAAACAGCTACTCAAGGGGAGGTCAATGTGACTGGCGTGATACCACT
GACAACAACACCAACAAAATCTTATTTTGCAAATCTCAAAGGAACAAGGACCAGAGGGAACTATGCCC
GGACTGTCTCAACTGTACAGATCTGGATGTGGCCTTGGGCAGGCCAATGTGTGTGGGGACCACTTCT
GCTAAAGCTTCAATACTCCACGAGGTCTAGACCTGTTACATCCGGGTGCTTTCTATAATGCACGACAGAA
CAAAAATCAGGCAACTACCAATCTTCTCAGAGGATATGAAAATATCAGGTTATCAACCCAAAACGTTAT
CGATGCAGAAAAAGCACCAGGAGGACCCTACAGACTTGGAACTCAGGATCTTGCCTAACGCTACCAG
TAAAATCGGATTTTTTGTCAACAATGGCTTGGGCTGTCCCAAGGACAACCTACAAAAATGCAACGAACCCA
CTAACAGTAGAAGTACCATACATTTGTACAGAAGGGGAAGACCAAATTACTGTTTGGGGGTTCCATTGAG
ATAACAAAACCCAAATGAAGAGCCTCTATGGAGACTCAAATCCTCAAAAGTTCACCTCATCTGCTAATGG
AGTAACCACACATTATGTTTCTCAGATTGGCGACTTCCAGATCAAACAGAAGACGGAGGACTACCACAA
AGCGGCAGAAATTGTTGTTGATTACATGATGCAAAAACCTGGGAAAACAGGAACAATTGTCTATCAAAGA
GGTGTGTTTGTGCTCAAAAGGTGTGGTGCAGGAGTGGCAGGAGCAAAGTAATAAAAGGGTCAATGCTT
TAATTGGTGAAGCAGATTGCCTTCATGAAAAATACGGTGGATTAAACAAAAGCAAGCCTTACTACACAG
GAGAACATGCAAAAGCCATAGGAAATGCCCCAATATGGGTAAAAACACCTTTGAAGCTTGCCAATGGAA
CCAAATATAGACCTCCTGCAAACTATTGAAGGAAAGGGGTTTCTTCGGAGCTATTGCTGGTTTCCTAGA
AGGAGGATGGGAAGGAATGATTGCAGGTTGGCAGGATACACATCTCACGGAGCATGAGTGGCAGT
GGCGGCAGACCTTAAGAGTACACAAGAAGCTATAAATAAGATAACAAAAAATCTCAATTCTTTGAGTGA
GCTAGAAGTAAAGAACCTTCAAAGACTAAGTGGTGCCATGGATGAACTCCACAACGAAATACTCGAGCT
GGATGAGAAAGTGGATGATCTCAGAGCTGACACTATAAGCTCACAATAGAACTTGCACTTGTCTTTCC
AACGAAGGAATAATAAACAGTGAAGACGAGCATCTATTGGCACTTGAGAGAAAACCTAAAGAAAAATGCTG
GGTCCCTCTGCTGTAGACATAGGAAACGGATGCTTCGAAACCAACACAAATGCAACCAGACCTGCTTA
GACAGGATAGCTGCTGGCACCTTAATGCAGGAGAATTTTCTCTCCCACTTTTGATTCAATGAACATTAC
TGCTGCATCTTTAAATGATGATGGATTGGATAACCATACTATACTGCTCTATTACTCAACTGCTGCTTCTA
GTTTGGCTGTAACATTAATGCTAGCTATTTTATTGTTTATATGGTCTCCAGAGACAACGTTTCATGCTCC
ATCTGTCTATAA

Figure 26D

Schematic representation of construct 193. SacII and StuI restriction enzyme sites used for plasmid linearization are annotated on the representation.

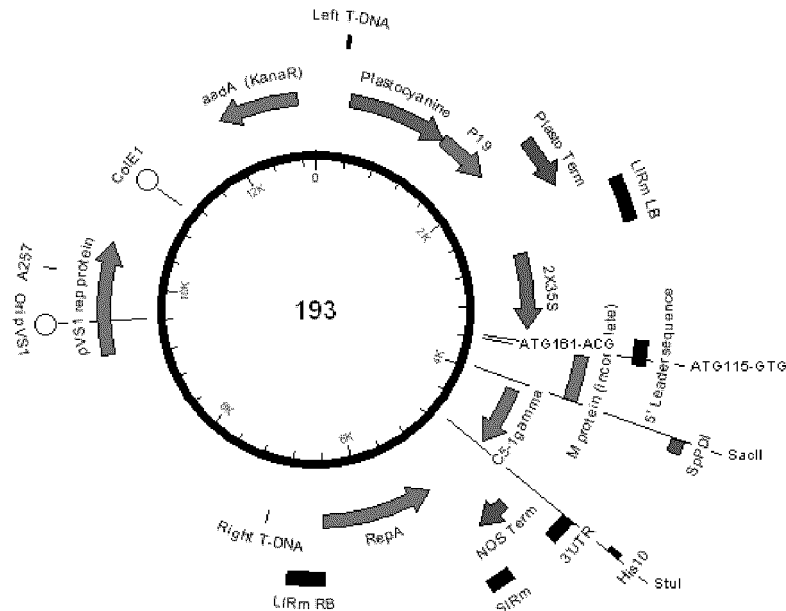


Figure 26E, SEQ ID NO: 52

Construct 193 from left to right t-DNA borders (underlined). 2X35S/CPMV-HT/NOS into BeYDV(m)+Replicase amplification system with Plastocyanine-P19-Plastocyanine silencing inhibitor expression cassette

TGGCAGGATATATTGTGGTGTAACAAATTGACGCTTAGACAACCTTAATAACACATTGCGGACGTTTTTA
ATGTACTGAATTAACGCCGAATCCCGGGCTGGTATATTTATATGTTGTCAAATAACTCAAAAACCATAAA
AGTTTAAAGTTAGCAAGTGTGTACATTTTTACTTGAACAAAAATATTACCTACTACTGTTATAAATCATT
TTAAACATTAGAGTAAAGAAATATGGATGATAAGAACAAGAGTAGTGATATTTTGACAACAATTTTGTG
CAACATTTGAGAAAATTTTGTGTTCTCTCTTTTCATTGGTCAAAAACAATAGAGAGAGAAAAAGGAAGA
GGGAGAATAAAAAACATAATGTGAGTATGAGAGAGAAAGTTGTACAAAAGTTGTACCAAAATAGTTGTAC
AAATATCATTGAGGAATTTGACAAAAGCTACACAAATAAGGGTTAATTGCTGTAAATAAATAAGGATGA
CGCATTAGAGAGATGTACCATTAGAGAATTTTTGGCAAGTCATTAAGAAAGAAAGAATAAATTATTTTAA
AATTAAGAGTTGAGTCATTTGATTAAACATGTGATTATTTAATGAATTGATGAAAAGAGTTGGATTAAAGT
TGTATTAGTAATTAGAATTTGGTGTCAAATTTAATTTGACATTTGATCTTTTCTATATATTGCCCATAGA
GTCAGTTAACTCATTTTTATATTTATAGATCAAATAAGAGAAATAACGGTATATTAATCCCTCCAAAAA
AAAAAACCGGTATATTTACTAAAAAATCTAAGCCACGTAGGAGGATAACAGGATCCCGTAGGAGGATA
ACATCCAATCCAACCAATCACAACAATCCTGATGAGATAACCCACTTTAAGCCACGCATCTGTGGCACA
TCTACATTATCTAAATCACACATTCTTCCACATCTGAGCCACACAAAAACCAATCCACATCTTTATCAC
CCATTCTATAAAAAATCACACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGAGAAGAG
ACTAATTAATTAATTAATCATCTTGAGAGAAAATGGAACGAGCTATACAAGGAAACGACGCTAGGGAAC

AAGCTAACAGTGAACGTTGGGATGGAGGATCAGGAGGTACCACTTCTCCCTTCAAACCTCCTGACGAAAAG
TCCGAGTTGGACTGAGTGGCGGCTACATAACGATGAGACGAATTCGAATCAAGATAATCCCTTGGTTTC
AAGGAAAGCTGGGGTTTCGGGAAAGTTGTATTTAAGAGATATCTCAGATACGACAGGACGGAAGCTTCA
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CCAGATCGGATGTACCTATAGTATTCGGTTTCGAGGAGTTAGTATCACCGTTTCTGGAGGGTCGCGAACT
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AAAGTAATGTATCAAGAGGATGCCCTGAAGGTACTCAAACCTTCGAAAAAGAAAGCGAGTAAGTTAAAA
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AGAATCAGAATGTTTCTCCATAACTAAGTACATGAAGACCTGCCGCGTACAATTGTCTTATATTTGA
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TTCCCGTGGTTTTCGAACTTGGAGAAAGATTGTTAAGCTTCTGTATATTCTGCCCAAATTTGTCGGGCCCCG
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GCCTGCAGGCTCCTCAGCCAAAACGACACCCCCATCTGTCTATCCACTGGCCCCCTGGATCTGCTGCCCAA
ACTAATCCATGGTGACCTGGGATGCCTGGTCAAGGGCTATTTCCCTGAGCCAGTGACAGTGACCTGGA
ACTCTGGATCCCTGTCCAGCGGTGTGCACACCTTCCAGCTGTCTGCAGTCTGACCTCTACACTCTGAGC
AGCTCAGTGACTGTCCCTCCAGCACCTGGCCAGCGAGACCGTCACTGCAACGTTGCCACCCCGGCCA
GCAGCACCAAGGTGGACAAAGAAAATTGTGCCAGGATTGTGTTGTAAAGCCTTGCCATATGTACAGTCCC
AGAAGTATCATCTGTCTTCATCTTCCCCCAAAGCCCAAGGATGTGCTCACCATTACTCTGACTCCTAAGG
TCACGTGTGTTGTGGTAGACATCAGCAAGGATGATCCCGAGGTCCAGTTCAGCTGGTTGTAGATGATGT
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ATGACGTTATTTATGAGATGGGTTTTATGATTAGAGTCCCGCAATTATACATTTAATACGCGATAGAAA
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 ATGAGACAGGATGTATGTAAGTATAAGCGTCTATGCTTACATGGTATAGATGGGTTTCCCTCCAGGAGTG
 TAGATCTTCGTGGCAGCGAAGATCTGATTCTGTGAAGGGCGACACATACGGTTCAGGTTGTGGAGGGGAAT
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 GTCAAGATATTCTCTTAGACGTTGCAGTCTGGATAATAGTTCTCCATCGTGGTTCAGATTGCGAGGAG
 AGACCTTATGATCTCGGAAATCTCCTCTGGTTTAAATATCTCCGTCCTTTGATATGTAATCAAGGACTTGT
 TTAGAGTTTCTAGCTGGCTGGATATTAGGGTGATTCTCTTCAAAATCGAAAAAAGAAGGATCCCTAATAC
 AAGGTTTTTTATCAAGCTGGAGAAGAGCATGATAGTGGGTAGTGCCATCTTGATGAAGCTCAGAAGCAAC
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 GGGGGCCACGCGGAATTTAATATTACCGGCGTGGCCCCCCTTATCGCGAGTGCTTTAGCACGAGCGGT
 CCAGATTTAAAGTAGAAAAATTTCCCGCCCACTAGGGTTAAAGGTGTTACACTATAAAAGCATATACGAT
 GTGATGGTATTTGACTAGTGGCACTGGCCGTCGTTTACAACGTCGTGACTGGGAAAAACCTGGCGTTAC
 CCAACTTAATCGCCTTGCAGCACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCCGACCGAT
 CGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGCTAGAGCAGCTTGAGCTTGGATCAGATTGTGCG
 TTTCCCGCCTTCAGTTTAAACTATCAGTGTGTTGACAGGATATATTGGCGGGTAAACCTAAGAGAAAAAGAG
CGTTTA

Figure 26F, SEQ ID NO: 53

Expression cassette number 1462 from 2X35S promoter to NOS terminator. HA from influenza B/Wisconsin/1/2010 is underlined.

GTCAACATGGTGGAGCAGACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAA
 AGGGCAATTGAGACTTTTCAACAAAGGTAATATCCGGAACCTCCTCGGATTCCATTGCCAGCTATCT
 GTCACCTTATTGTGAAGATAGTGGAAAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAA
 AGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATCG
 TGGAAGAAAGAACGTTCCAACCACGTCTTCAAAGCAAGTGGATTGATGTGATAACATGGTGGAGCACG
 ACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAAAGGGCAATTGAGACTTTTCA
 ACAAAGGGTAATATCCGGAACCTCCTCGGATTCCATTGCCAGCTATCTGTCACTTTATTGTGAAGATA
 GTGGAAAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAAAGGCCATCGTTGAAGATGCC
 TCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATCGTGGAAAAAGAACGTTCCA
 ACCACGCTTTCAAAGCAAGTGGATTGATGTGATATCTCCACTGACGTAAGGGATGACGCACAAATCCCACT
 ATCCTTCGCAAGACCCTCCTCTATATAAGGAAGTTCATTTTCAATTGGAGAGGTATTAATAATCTTAATAGG
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 CAAACTTCTCTCTTGTCTTTCTTGCCTGAGCGATCTTCAACGTTGTCAGATCGTGCTTCGGCACCAGTACA
 ACGTTTTCTTTCACTGAAGCGAAATCAAAGATCTCTTTGTGGACACGTAGTGGCGGCCATTAAATAACG
 TGTACTTGTCTATTCTTGTGGTGTGGTCTTGGGAAAAGAAAGCTTGTGGAGGCTGCTGTTCAGCCCCA
 TACATTACTTGTTACGATTCTGCTGACTTTCGGCGGGTGCAATATCTCTACTTCTGCTTGACGAGGTATTG
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 GTTTTCCCGTGGTTTTGCAACTTGGAGAAAGATTGTTAAGCTTCTGTATATTCTGCCCCAAATTTGTCGGGC
 CATGAAGGCAATAATTGTACTACTCATGGTAGTAACATCCAATGCAGATCGAATCTGCACTGGGATAAC

ATCTTCAAACCTCACCTCATGTGGTCAAAACAGCTACTCAAGGGGAGGTCAATGTGACTGGCGTGATACCA
 CTGACAACAACACCAACAAAATCTTATTTTGCAAATCTCAAAGGAACAAGGACCAGAGGGGAACTATGC
 CCGGACTGTCTCAACTGTACAGATCTGGATGTGGCCTTGGGCAGGCCAATGTGTGTGGGGACCACACCTT
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 CCACTAACAGTAGAAGTACCATACATTTGTACAGAAGGGGAAGACCAAAATTACTGTTTGGGGGTTCATT
 CAGATAACAAAACCCAAATGAAGAGCCTCTATGGAGACTCAAATCCTCAAAAGTTCACCTCATCTGTAA
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 CAAAGCGGCAGAAATTGTTGATTACATGATGCAAAAACCTGGGAAAAACAGGAACAATTGTCTATCA
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 GAACCAAATATAGACCTCCTGCAAAACTATTGAAGGAAAGGGGTTTCTTCGGAGCTATTGCTGGTTTCCT
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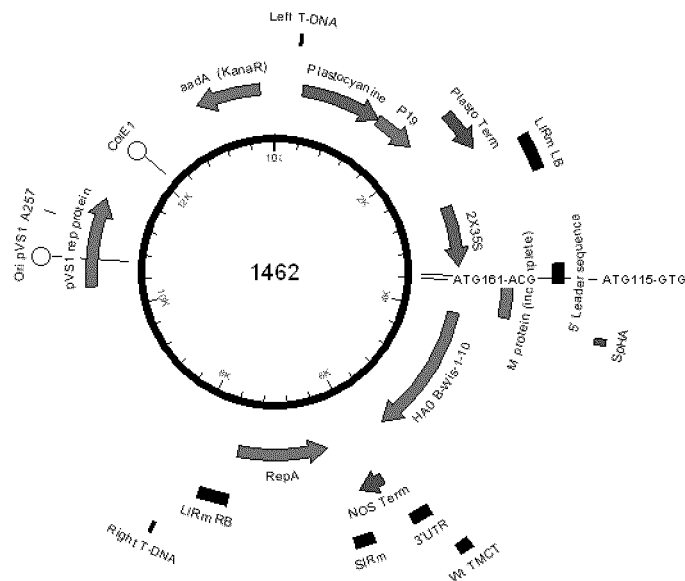
Figure 26G, SEQ ID NO: 54

Amino acid sequence of HA from influenza B/Wisconsin/1/2010

MKAIIVLLMVVTSNADRICTGITSSNSPHVVKATQGEVNVTVGIPLTTPTKSYFANLKGTRTRGKLCPCDCLN
 CTDLDELVALGRPMCVGTTTPSAKASILHEVRPVTSGCFPIIMHRTKIRQLPNLLRGYENIRLSTQNVIDAEKAPGG
 PYRLGTSGSCP NATSKIGFFATMAWAVPKDNYKNATNPLTVEVPYICTEGEDQITVWGFHSDNKTQMKSLYG
 DSNPQKFTSSANGVTTHYVSQIGDFPDQTEDGGLPQSGRIVVDYMMQKPGKTGTIVYQRGVLLPQKVWCASG
 RSKVIKGSPLIGEADCLHEKYGGLNKSPPYTGEGHAKAIGNCPIWVKTPKLKLANGTKYRPPAKLLKERGFFG
 AIAGFLEGGWEGMIAGWHGYTSHGAHGVAVAADLKSTQEAINKITKNLNSLSELEVKNLQRLSGAMDELHN
 EILELDEKVDLRLADTISSQIELAVLLSNEGINSDEHLLALERKLKMLGPSAVDIGNGCFETKHKCNQTCLD
 RIAAGTFNAGEFSLPTFDSL NITAASLNDDGLDNHTILLYSTAASSLAVTLM LAIFIVYMVSRDNVSCSICL*

Figure 26H

Schematic representation of construct number 1462



C-2X35S/CPMV-HT/HA B Wisconsin with deleted proteolytic loop/NOS into BeYDV(m)+Replicase amplification system (Construct number 1467)

Figure 27A, SEQ ID NO: 55

HAB110(PrL-).r

TCCTTCCCATCCTCCACCAGGAGGTCTATATTTGGTTCCATTGGCAAGCTTCAAAG

Figure 27B, SEQ ID NO: 56

HAB110(PrL-).c

ATATAGACCTCCTGGTGGAGGATGGGAAGGAATGATTGCAGGTTGGCACGGA

Figure 27C, SEQ ID NO: 57

Expression cassette number 1467 from 2X35S promoter to NOS terminator. HA from influenza B/Wisconsin/1/2010 with deleted proteolytic loop is underlined.

GTCAACATGGTGGAGCACGACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAA
AGGGCAATTGAGACTTTTCAACAAAGGGTAATATCCGGAAACCTCCTCGGATTCCATTGCCAGCTATCT
GTCACCTTATTGTGAAGATAGTGGAAAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAA

AGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATCG
 TGGAAAAAGAAGACGTTCCAACCACGTCTTCAAAGCAAGTGGATTGATGTGATAACATGGTGGAGCACG
 ACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAAAGGGCAATTGAGACTTTTCA
 ACAAAGGGTAATATCCGGAACCTCCTCGGATTCCATTGCCAGCTATCTGTCACTTTATTGTGAAGATA
 GTGGAAAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAAAGGCCATCGTTGAAGATGCC
 TCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATCGTGGAAAAAGAAGACGTTCCA
 ACCACGTCTTCAAAGCAAGTGGATTGATGTGATATCTCCACTGACGTAAGGGATGACGCACAATCCCCT
 ATCCTTCGCAAGACCCTTCCTCTATATAAGGAAGTTCATTTTCATTTGGAGAGGTATTAATACTTAATAGG
 TTTTGATAAAAAGCGAACGTGGGGAAACCCGAACCAACCTTCTTCTAACTCTCTCTCATCTCTCTTAAAG
 CAAACTTCTCTCTTGTCTTTCTTGGTGGAGCGATCTTCAACGTTGTCAGATCGTGCTTCGGCACCAGTACA
 ACGTTTTCTTTCACTGAAGCGAAATCAAAGATCTCTTTGTGGACACGTAGTGCGGCGCCATTAAATAACG
 TGTACTTGTCTATTCTTGTGCGGTGTGGTCTTGGGAAAAGAAAGCTTGCTGGAGGCTGCTGTTCAGCCCCA
 TACATTACTTGTACGATTCTGCTGACTTTGCGGCGGTGCAATATCTCTACTTCTGCTTGACGAGGTATTG
 TTGCCTGTACTTCTTCTTCTTCTTCTTGTGCTGATTGGTCTATAAGAAATCTAGTATTTTCTTTGAAACAGA
 GTTTTCCCGTGGTTTTGCAACTTGGAGAAAGATTGTTAAGCTTCTGTATATTCTGCCCAAATTTGTGCGGC
 CCATGAAGGAATAATTGTACTACTCATGGTAGTAACATCCAATGCAGATCGAATCTGCACTGGGATAAC
 ATCTTCAAACCTCACCTCATGTGGTCAAAACAGCTACTCAAGGGGAGGTCAATGTGACTGGCGGTGATACCA
 CTGACAACAACACCAACAAAAATCTTATTTGCAAATCTCAAAGGAACAAGGACCAGAGGGGAACTATGC
 CCGGACTGTCTCAACTGTACAGATCTGGATGTGGCCTTGGGCAGGCCAATGTGTGTGGGGACCACACCTT
 CTGCTAAAGCTTCAATACTCCACGAGGTGACACCTGTTACATCCGGGTGCTTCTCTATAATGCACGACAG
 AACAAAAATCAGGCAACTACCCAATCTTCTCAGAGGATATGAAAATATCAGGTTATCAACCCAAAAACGTT
 ATCGATGCAGAAAAAGCACCAGGAGGAGCCCTACAGACTTGGAACCTCAGGATCTTGCCCTAACGCTACC
 AGTAAAAATCGGATTTTTTGCACAATGGCTTGGGCTGTCCCAAAGGACAACCTACAAAAATGCAACGAAC
 CCACTAACAGTAGAAGTACCATACATTGTACAGAAGGGGAAGACCAAATTAAGTGTGGGGGTTCATT
 CAGATAACAAAAACCAATGAAGAGCCTCTATGGAGACTCAAATCCTCAAAGTTACCTCATCTGCTAA
 TGGAGTAACACACATTATGTTTCTCAGATTGGCGACTTCCAGATCAAACAGAAAGACGGAGGACTACCA
 CAAAGCGGCAGAAATGTTGTTGATTACATGATGCAAAAACCTGGGAAAAACAGGAACAATGTCTATCAA
 AGAGGTGTTTTGTTGCCTCAAAAAGGTGTGGTGCAGAGTGGCAGGAGCAAAAGTAATAAAAGGGTCATTG
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 ACGGAGCACATGGAGTGGCAGTGGCGGCAGACCTTAAGAGTACACAAGAAGCTATAAATAAGATAACA
 AAAAAATCTCAATTCTTTGAGTGAGCTAGAAGTAAAGAACCTTCAAAGACTAAGTGGTGCCATGGATGAA
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 TCTATTACTCAACTGCTGCTTCTAGTTTGGCTGTAACATTAATGCTAGCTATTTTATTGTTTATATGGTCT
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 GCATGTAATAATTAACATGTAATGCATGACGTTATTTATGAGATGGGTTTTTATGATTAGAGTCCCGCAAT
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 CATCTATGTTACTAGAT

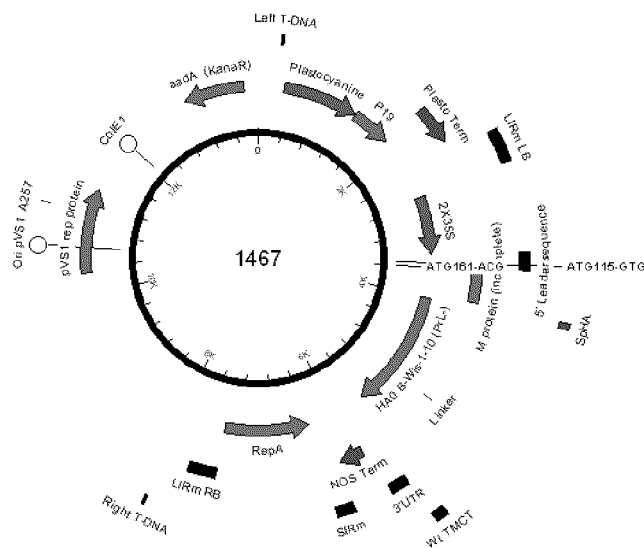
Figure 27D, SEQ ID NO: 58

Amino acid sequence of HA from influenza B/Wisconsin/1/2010 with deleted proteolytic loop

MKAIIVLLMVVTSNADRICTGITSSNSPHVVKATATQGEVNVTVGIPLTTTPTKSYFANLKG
 TRTRGKLCPCDCLNCTDLDVALGRPMC VGTTPSAKASILHEVRPVTSGCFPIMHDRTKIRQ
 LPNLLRGYENIRLSTQNVIDA EKAPGGPYRLGTSGSCP NATSKIGFFATMAWAVPKDNY
 KNATNPLTVEVPYICTEGEDQITVWGFHSDNKTQMKSLYGDSNPQKFTSSANGVTTHYV
 SQIGDFPDQTEDGGLPQSGRIVVDYMMQKPGKTGTIVYQRGVLLPQKVWCASGRSKVIK
 GSLPLIGEADCLHEKYGGLNKS KPYTGEHAKAIGNCPIWVK TPLKLANGTKYRPPGGG
 WEGMIAGWHGYTSHGAHGVAVAADLKSTQEAINKITKNLNSLSELEVKNLQRLSGAMD
 ELHNEILELDEKVDDL RADTISSQIELAVLLSNEGIIINSEDEHLLALERK LKKMLGPSAVDI
 GNGCFETKHKCNQTCLDRIAAGTFNAGEFSLPTFDSL NITAASLND DGLDNHTILLYYST
 AASSLAVTLM LAIFIVYMVSRDNVSCSICL*

Figure 27E

Schematic representation of construct number 1467



D-2X35S/CPMV-HT/PDISP/HA B Malaysia/NOS into BeYDV(m)+Replicase amplification system (Construct number 1631)

Figure 28A, SEQ ID NO: 59

IF-HB-M-04.s2+4c

TCTCAGATCTTCGCCGATCGAATCTGCACTGGGATAACATCGTC

Figure 28B, SEQ ID NO: 60

IF-HB-M-04.s1-4r

ACTAAAGAAAATAGGCCTTTATAGACAGATGGAGCAAGAAACATTG

Figure 28C, SEQ ID NO: 61

Synthesized HA B Malaysia (corresponding to nt 31-1743 from Genbank accession number EU124275). T759C and C888G mutations are underlined.

GATCGAATCTGCACTGGGATAACATCGTCAAACCTACCACATGTTGTCAAACTGCTACTCAAGGGGAGG
TCAATGTGACTGGTGTAATACCACTGACAACAACCCACCAAATCTCATTGTCAAATCTCAAAGGAAC
AGAAACCAGAGGGAACTATGCCCAAATGCCTCACTGCACAGATCTGGACGTGGCCTTGGGCAGACC
AAAATGCACGGGGAACATACCCTCGGCAAGAGTTTCAATACTCCATGAAGTCAGACCTGTTACATCTGGG
TGCTTTCTATAATGCACGACAGAACAAAAATTAGACAGCTGCCTAAACTTCTCAGAGGATACGAACATA
TCAGGTTATCAACTCATAACGTTATCAATGCAGAAAATGCACCAGGAGGACCCTACAAAATTGGAACCTC
AGGGTCTTGCCCTAACGTTACCAATGGAAACGGATTTTCGCAACAATGGCTTGGGCCGTCCCAAAAAAC
GACAACAACAAAACAGCAACAAATTCATTAACAATAGAAGTACCATACATTTGTACAGAAGGAGAAGAC
CAAATTACCGTTTGGGGGTTCCACTCTGATAACGAAACCCAAATGGCAAAGCTCTATGGGGACTCAAAGC
CCCAGAAGTTCACCTCATCTGCCAACGGAGTGACCACACATTACGTTTCACAGATTGGTGGCTTCCCAAA
TCAAACAGAAGACGGAGGACTACCACAAAGCGGTAGAATTGTTGTTGATTACATGGTGCAAAAATCTGG
GAAAACAGGAACAATTACCTATCAAAGAGGTATTTTATTGCCTCAAAAAGTGTGGTGCGCAAGTGGCAG
GAGCAAGGTAATAAAAGGATCGTTGCCTTAAATTGGAGAAGCAGATTGCCTCCACGAAAAATACGGTGG
ATTAACAAAAAGCAAGCCTTACTACACAGGGGAACATGCAAAAGGCCATAGGAAATTGCCCAATATGGGT
GAAAACACCCCTGAAGCTGGCCAATGGAACCAATATAGACCTCCTGCAAAAATATTAAAGGAAAGGGG
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ATAACAAAAATCTCAACTCTTGAGTGAGCTGGAAGTAAAGAATCTTCAAAGACTAAGCGGTGCCATG
GATGAACCTCCACAACGAAATACTAGAACTAGACGAGAAAAGTGGATGATCTCAGAGCTGATACAATAAGC
TCACAAATAGAACTCGCAGTCCTGCTTTCCAATGAAGGAATAATAAACAGTGAAGATGAGCATCTTTGG
CGCTTGAAAGAAAGCTGAAGAAAATGCTGGGCCCTCTGCTGTAGAGATAGGGAATGGATGCTTTGAAA
CCAAACACAAGTGCAACCAGACCTGTCTCGACAGAATAGCTGCTGGTACCTTTGATGCAGGAGAATTTTC
TCTCCCCACTTTTGATTCACTGAATATTACTGCTGCATCTTTAAATGACGATGGATTGGATAATCATACTA
TACTGCTTTACTACTCAACTGCTGCCTCCAGTTTGGCTGTAACATTGATGATAGCTATCTTTGTTGTTTATA
TGGTCTCCAGAGACAATGTTTCTTGCTCCATCTGTCTATAA

Figure 28D

Schematic representation of construct 194. SacII and StuI restriction enzyme sites used for plasmid linearization are annotated on the representation.

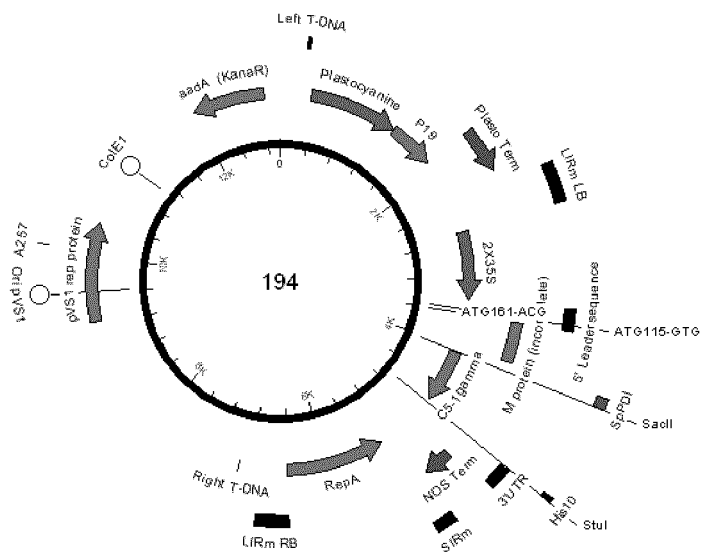


Figure 28E, SEQ ID NO: 62

Construct 194 from left to right t-DNA borders (underlined). 2X35S/CPMV-HT/NOS into BeYDV(m)+Replicase amplification system with Plastocyanine-P19-Plastocyanine silencing inhibitor expression cassette

TGGCAGGATATATTGTGGTGTAAACAAATTGACGCTTAGACAACCTTAATAACACATTGCGGACGTTTTTA
 ATGTAAGTGAATTAACGCCGAATCCCGGGCTGGTATATTATATGTTGTCAAATAACTCAAAAACCATAAA
 AGTTTAAAGTTAGCAAGTGTGTACATTTTTACTTGAACAAAAATATTCACCTACTACTGTTATAAATCATT
 TTAACATTAGAGTAAAGAAATATGGATGATAAGAACAAGAGTAGTGATATTTTGACAACAATTTTGTG
 CAACATTTGAGAAAAATTTTGTGTTCTCTCTTTTCATTGGTCAAAAAACAATAGAGAGAGAAAAAGGAAGA
 GGGAGAATAAAAAACATAATGTGAGTATGAGAGAGAAAAGTTGTACAAAAAGTTGTACCAAAATAGTTGTAC
 AAATATCTGAGGAATTTGACAAAAGCTACACAAAATAAGGGTTAATTGCTGTAAATAAATAAGGATGA
 CGCATTAGAGAGATGTACCATTAGAGAAATTTTGGCAAGTCATTAAGAAAGAAAGAAATAAATTATTTTAA
 AATTAAGAAAGTTGAGTCATTTGATTAAACATGTGATTATTTAATGAATTGATGAAAGAGTTGGATTAAAGT
 TGTATTAGTAATTAGAATTTGGTGTCAAATTTAATTTGACATTTGATCTTTTCTATATATTGCCCATAGA
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 CCATTCTATAAAAAATCACACTTTGTGAGTCTACACTTTGATTCCCTTCAAACACATACAAAGAGAAGAG
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 AAGCTAACAGTGAACGTTGGGATGGAGGATCAGGAGGTACCCTTCTCCCTTCAAACCTTCCCTGACGAAAG
 TCCGAGTTGGACTGAGTGGCGGCTACATAACGATGAGACGAATTCGAATCAAGATAATCCCTTGGTTC
 AAGGAAAGCTGGGGTTTCGGGAAAGTTGTATTTAAGAGATATCTCAGATACGACAGGACGGAAGCTTCA
 CTGCACAGAGTCCTTGATCTTGACGGGAGATTTCGGTTAACTATGCAGCATCTCGATTTTTTCGGTTTCGA
 CCAGATCGGATGTACCTATAGTATTCGGTTTCGAGGAGTTAGTATCACCGTTTCTGGAGGGTCGCGAACT
 CTTCAGCATCTCTGTGAGATGGCAATTCGGTCTAAGCAAGAACTGCTACAGCTTGCCCCAATCGAAGTGG
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 TGCTTCTCGTCTCCTATTTATAATATGGTTTGTATTGTTAATTTGTTCTGTAGAAGAGCTTAATTAAT
 CGTTGTTGTTATGAAATACTATTTGTATGAGATGAACTGGTGTAAATGTAATTCATTTACATAAGTGAGATC

AGAATCAGAATGTTTCCTCCATAACTAACTAGACATGAAGACCTGCCGCGTACAATTGTCTTATATTTGA
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CAATAGATTAATAATGGAAATATCAGTTATCGAAATTCATTAACAATCAACTTAACGTTATTAACACTA
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TCGTTTCCCGCCTTCAGTTTGCAAGCTGCTCTAGCCGTGTAGCCAATACGCAAACCGCCTCTCCCCGCGG
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ATAACCGCGCTGGAGGCATGGAGGCAGGGGTATTTTGGTCATTTTAATAGATAGTGGAATAATGACGTGG
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 GTCATTTTAATAGATAGTGGAATGACGTGGAATTTACTTAAAGACGAAGTCTTTGCGACAAGGGGGG
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 CTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGCTAGAGCAGCTTGAGCTTGGATCAGATTGTCTGTTTC
 CCGCCTCAGTTTAACTATCAGTGTGTGACAGGATATATTGGCGGGTAAACCTAAGAGAAAAAGAGCGTT
TA

Figure 28F, SEQ ID NO: 63

Expression cassette number 1631 from 2X35S promoter to NOS terminator. PDISP-HA from influenza B/ Malaysia/2506/2004 is underlined.

GTCAACATGGTGGAGCACGACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAA
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 AGGCCATCGTTGAAGATGCCTCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATCG
 TGGAAAAAGAAGACGTTCCAACCACGTCTTCAAAGCAAGTGGATTGATGTGATAACATGGTGGAGCACG
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 ACAAAGGGTAATATCCGGAACCTCCTCGGATTCCATTGCCAGCTATCTGTCACTTTATTGTGAAGATA
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 ACCACGCTTCAAAGCAAGTGGATTGATGTGATATCTCCACTGACGTAAGGGATGACGCACAATCCCACT
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 TGTACTTGTCTATTCTTGTGCGGTGTGGTCTTGGGAAAAGAAAGCTTGCTGGAGGCTGCTGTTACGCCCCA
 TACATTACTTGTACGATTCTGCTGACTTTCGGCGGGTGCAATATCTCTACTTCTGCTTGACGAGGTATTG
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 GTTTTCCCGTGGTTTTCGAACTTGGAGAAAGATTGTTAAGCTTCTGTATATTCTGCCCAAATTTGTGCGGC
CCATGGCGAAAAACGTTGCGATTTTCGGCTTATTGTTTTCTCTTCTTGTGTTGGTTCTCTCAGATCTTCG
CCGATCGAATCTGCACTGGGATAACATCGTCAAACCTACCCACATGTTGTCAAACCTGCTACTCAAGGGGA
GGTCAATGTGACTGGTGAATACCACTGACAACAACCCACCAAATCTCATTTTTGCAAAATCTCAAAGGA
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TATCAGGTTATCAACTCATAACGTTATCAATGCAGAAAAATGCACCAGGAGGACCCTACAAAATTGGAACC
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ACGACAACAACAAAAACAGCAACAAATTCATTAACAATAGAAGTACCATAACATTTGTACAGAAGGAGAAG
ACCAAATTACCGTTTGGGGGTCCACTCTGATAACGAAACCCAAATGGCAAAGCTCTATGGGGACTCAAA

GCCCCAGAAGTTCACCTCATCTGCCAACGGAGTGACCACACATTACGTTTCACAGATTGGTGGCTTCCCA
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 AGGAGCAAGGTAATAAAAAGATCGTTGCCTTAATTGGAGAAGCAGATTGCCTCCACGAAAAATACGGT
 GGATTAACAAAAAGCAAGCCTTACTACACAGGGGAACATGCAAAGGCCATAGGAAATTGCCCAATATGG
 GTGAAAACACCTTGAAGCTGGCCAATGGAACCAAATATAGACCTCCTGCAAAAATATTAAAGGAAAGG
 GGTTCCTTCGGAGCTATTGCTGGTTTCTTAGAAGGAGGATGGGAAGGAATGATTGCAGGTTGGCACGGAT
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 GCTCACAATAGAACTCGCAGTCCTGCTTTCCTCAATGAAGGAATAATAAACAGTGAAGATGAGCATCTCTT
 GGCGCTTGAAAAGAAAGCTGAAGAAAATGCTGGGCCCCCTGCTGTAGAGATAGGGAATGGATGCTTTGA
 AACCAACACAAGTGCAACCAGACCTGTCTCGACAGAATAGCTGCTGGTACCTTTGATGCAGGAGAATTT
 TCTCTCCCCACTTTTGATTCACTGAATATTACTGCTGCATCTTTAAATGACGATGGATTGGATAATCATA
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 GCAATAAAGTTTCTTAAGATTGAATCCTGTTGCCGCTTTCGATGATTATCATATAATTTCTGTTGAATT
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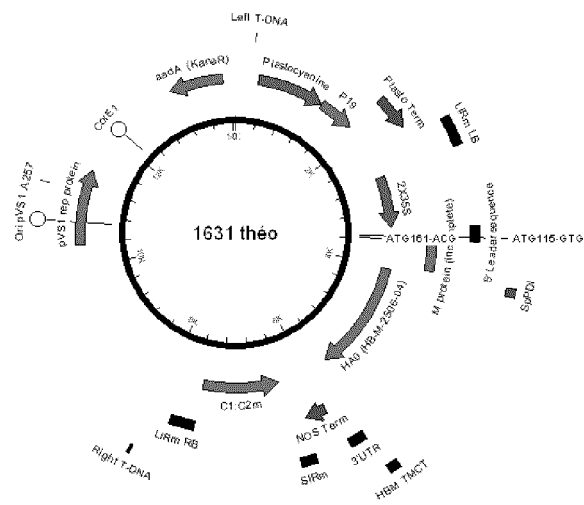
Figure 28G, SEQ ID NO: 64

Amino acid sequence of PDISP-HA from influenza B/Malaysia/2506/2004

MAKNVAIFGLLSLLVLVPSQIFADRICTGITSSNSPHVVKATQGEVNVTVIPLTTPTKSHFANLKGTETRG
 KLCPKCLNCTDLVALGRPKCTGNIPSARVSILHEVRPVTSGCFPIIMHDRTKIRQLPKLLRGYEHRLSTHNVIN
 AENAPGGPYKIGTSGSCPNVTNGNGFFATMAWAVPKNDNNKTATNSLTIEVPYICTEGEDQITVWGFHSDNET
 QMAKLYGDSKPQKFTSSANGVTTHYVSQIGGFPNQTEDGGLPQSGRIVVDYMVQKSGKTGTITYQRGILLPQ
 KVWCASGRSKVIKGSPLIGEADCLHEKYGGLNKSPPYTGHAHAIGNCPIWVKTPKLKLANGTKYRPPAKL
 LKERGFFGAIAGFLEGGWEGMIAGWHGYTSHGAHVAVAADLKSTQEAINKITKNLSLELVKNLQRLSG
 AMDELHNEILELDEKVDDLADTISSQIELAVLLSNEGIINSEDEHLLALERKLKMLGPSAVEIGNCFETKH
 KCNQTCLDRIAAGTFDAGEFSLPTFDSL NITAAASLNDDGLDNHTILLYYSTAASSLAVTLMIAIFVVMVSRDN
 VSCSICL*

Figure 28H

Schematic representation of construct number 1631



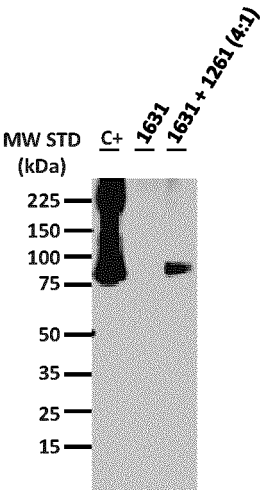


Figure 29.

Figure 30A.

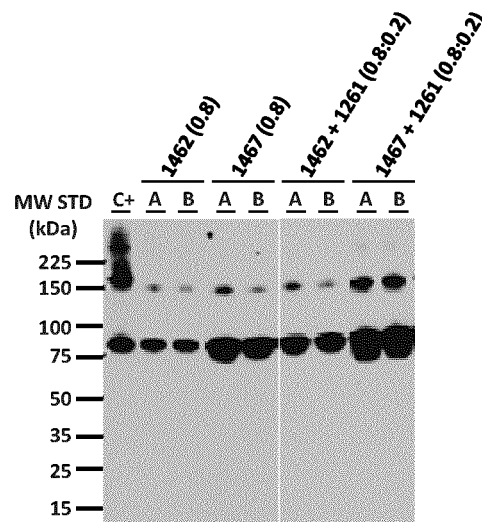


Figure 30B.

Construct number	Hemagglutination capacity (HA titer) ^a
1462 (0.8)	136 ± 48
1467 (0.8)	2660 ± 384
1462 + 1261 (0.8:0.2)	941 ± 192
1467 + 1261 (0.8:0.2)	4344 ± 1536

^a Inverse of the highest dilution capable of agglutinating red blood cells.

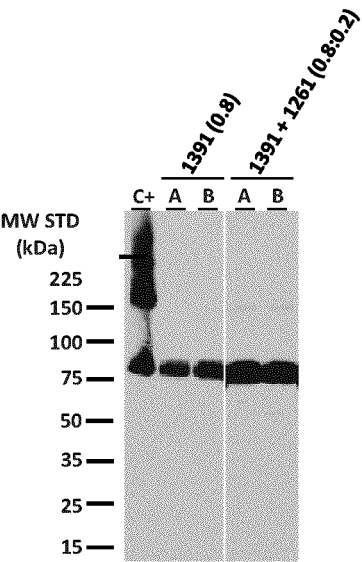


Figure 31.