FIGURE 22

Lane #	Sample	Description
1	496-59-001A	H5/Indo CTRL (# 489)
2	496-59-001B	H5/Indo CTRL (# 489)
3	496-59-002A	H5/Indo PRL- (# 928)
4	496-59-002B	H5/Indo PRL- (# 928)
5	496-59-003A	H5/Indo TETR (# 676)
6	496-59-003B	H5/Indo TETR (# 676)
7	496-59-004A	H5/Indo TETQ (# 766)
8	496-59-004B	H5/Indo TETQ (# 766)
9	MW	
10	C+	H5 25 ng

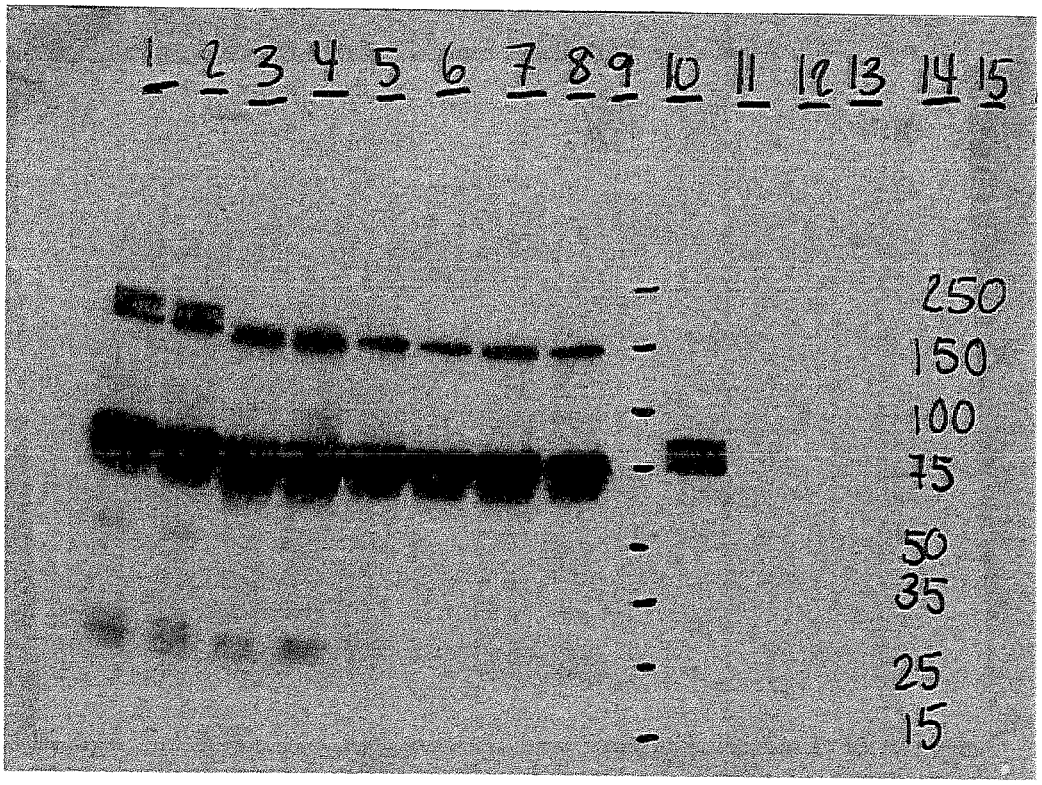


Figure 36C
Schematic representation of construct number 1445 (2X35S/CPMV HT)

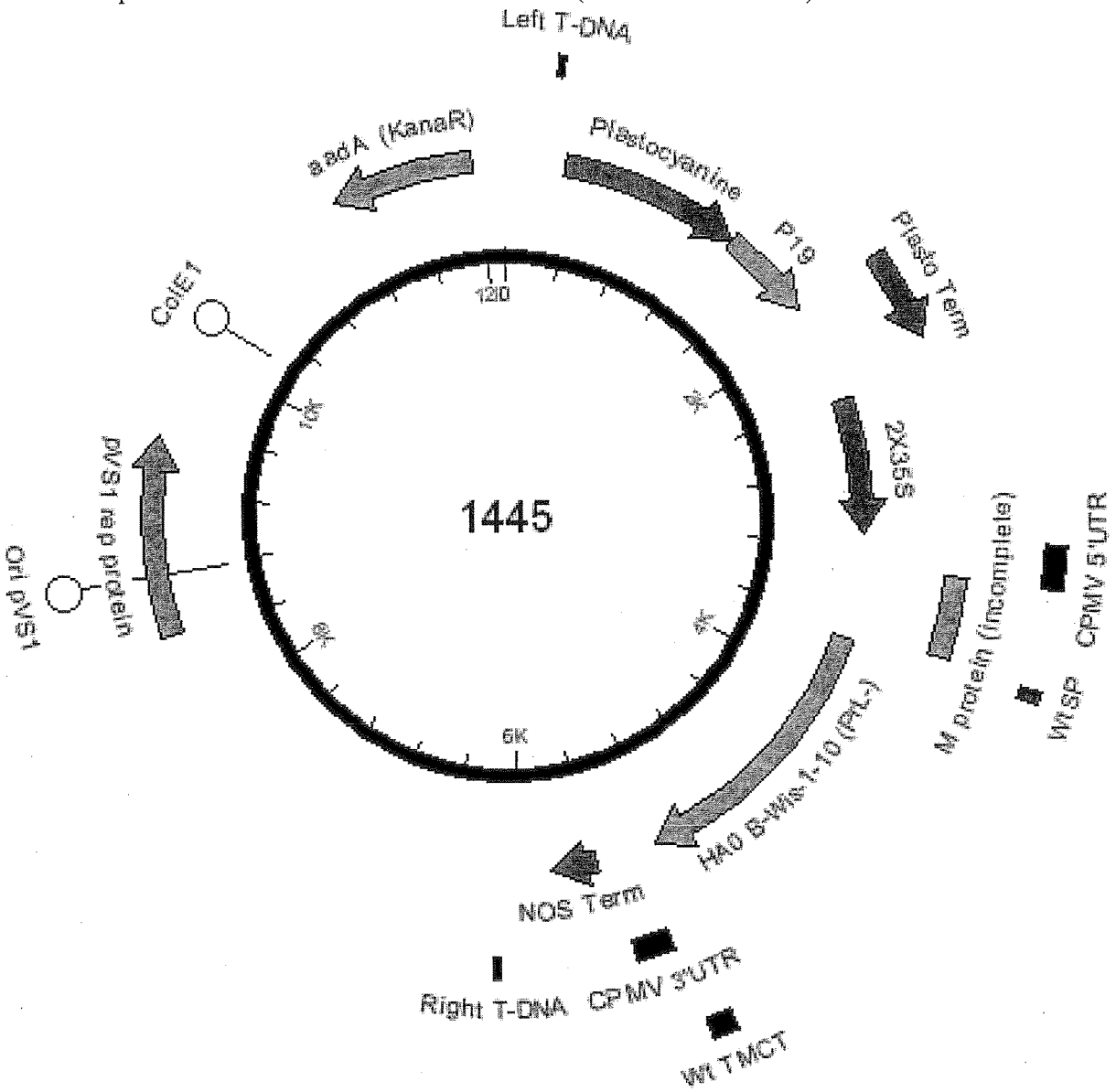


Figure 36D
Schematic representation of construct number 1820 (2X35S/CPMV HT*(-Mprot))

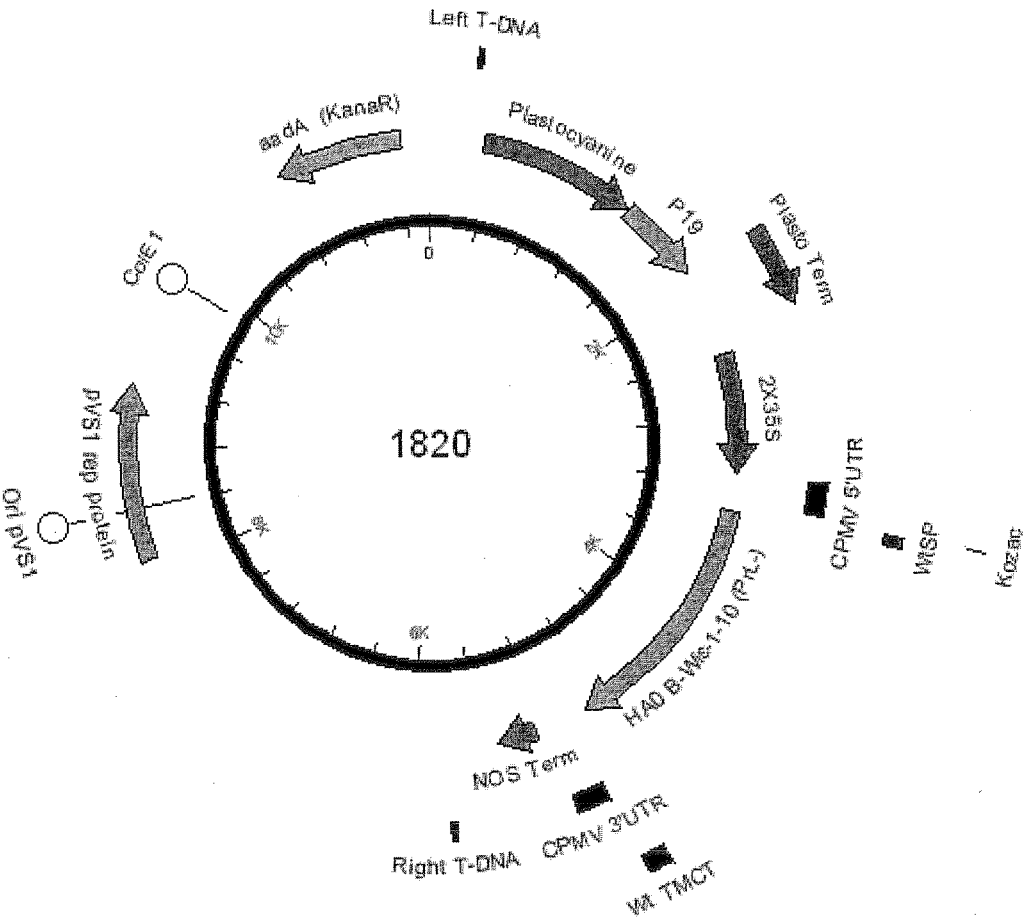


Figure 36E
Schematic representation of construct number 1975 (2X35S/CPMV HT*(fl5'UTR))

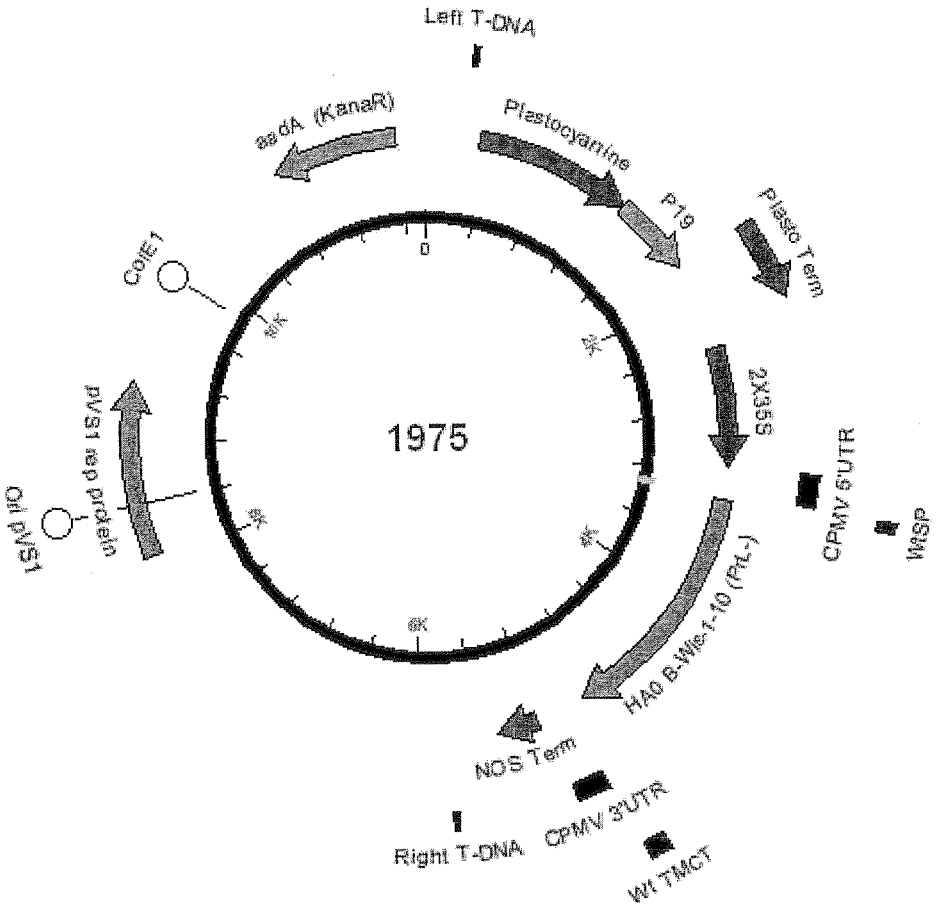


Figure 37C
Schematic representation of construct number 1454 (2X35S/CPMV HT)

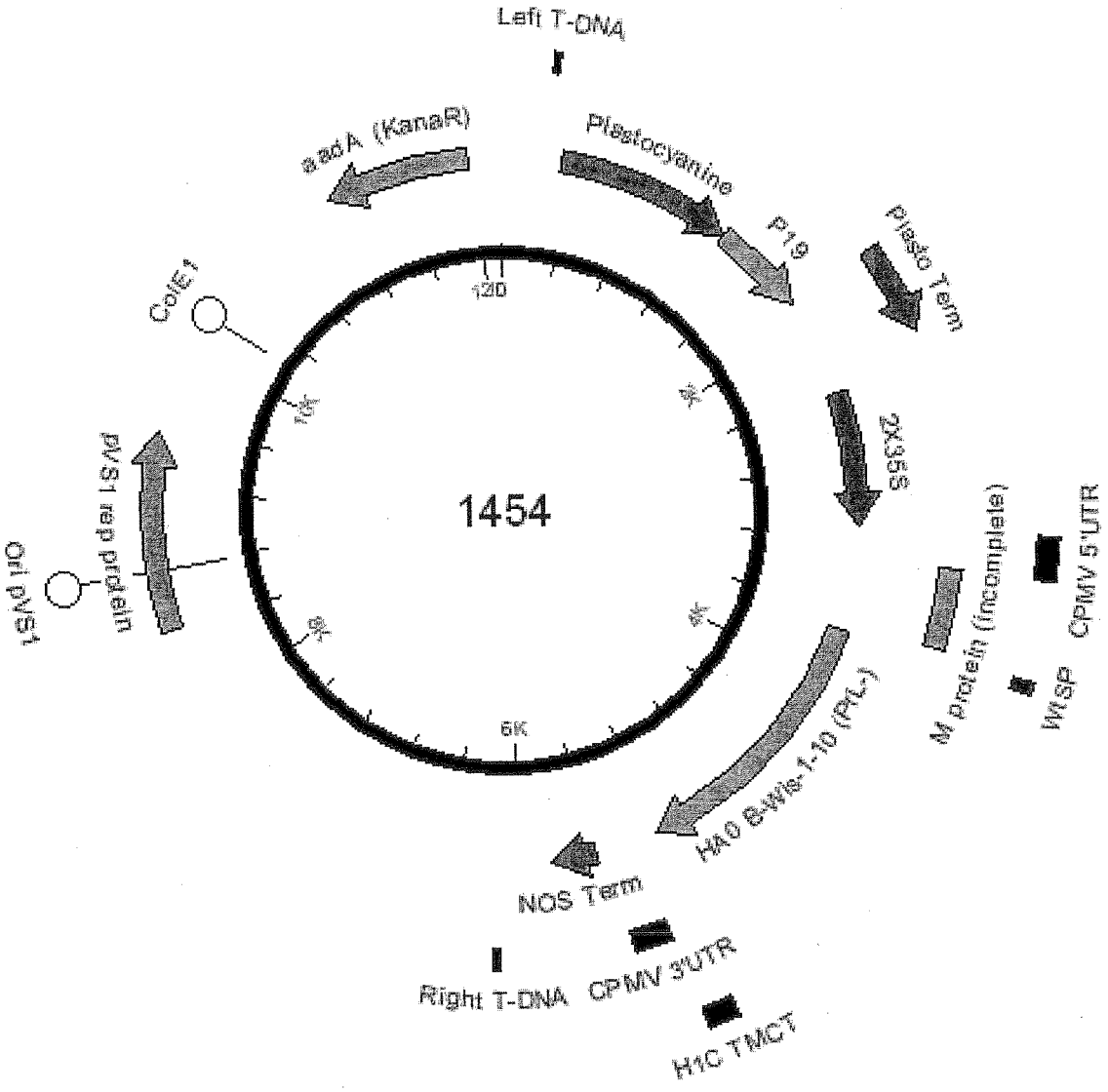


Figure 37D
Schematic representation of construct number 1893 (2X35S/CPMV HT*(-Mprot))

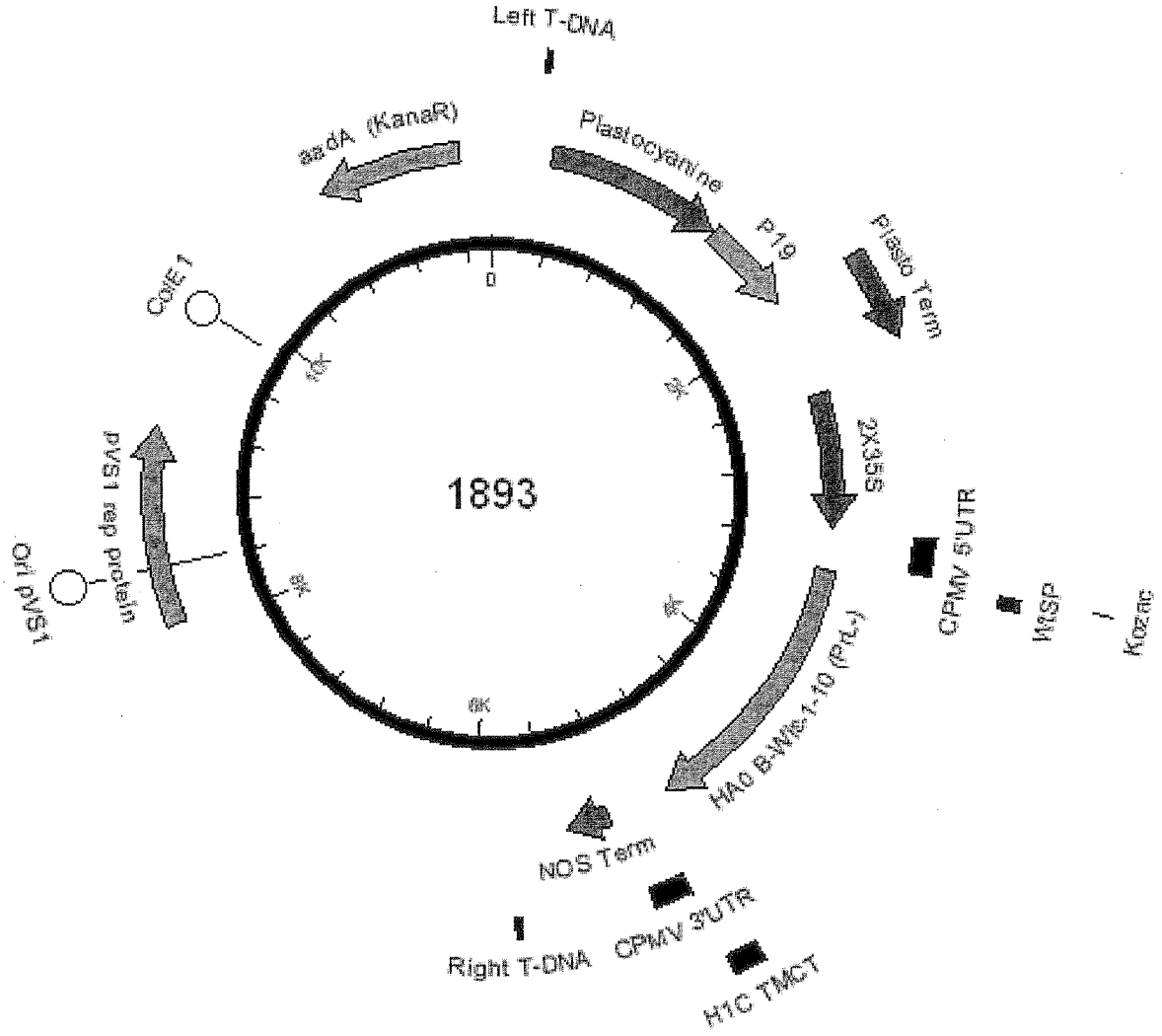


Figure 39C
Schematic representation of construct number 2052 (2X35S/CPMV HT*)

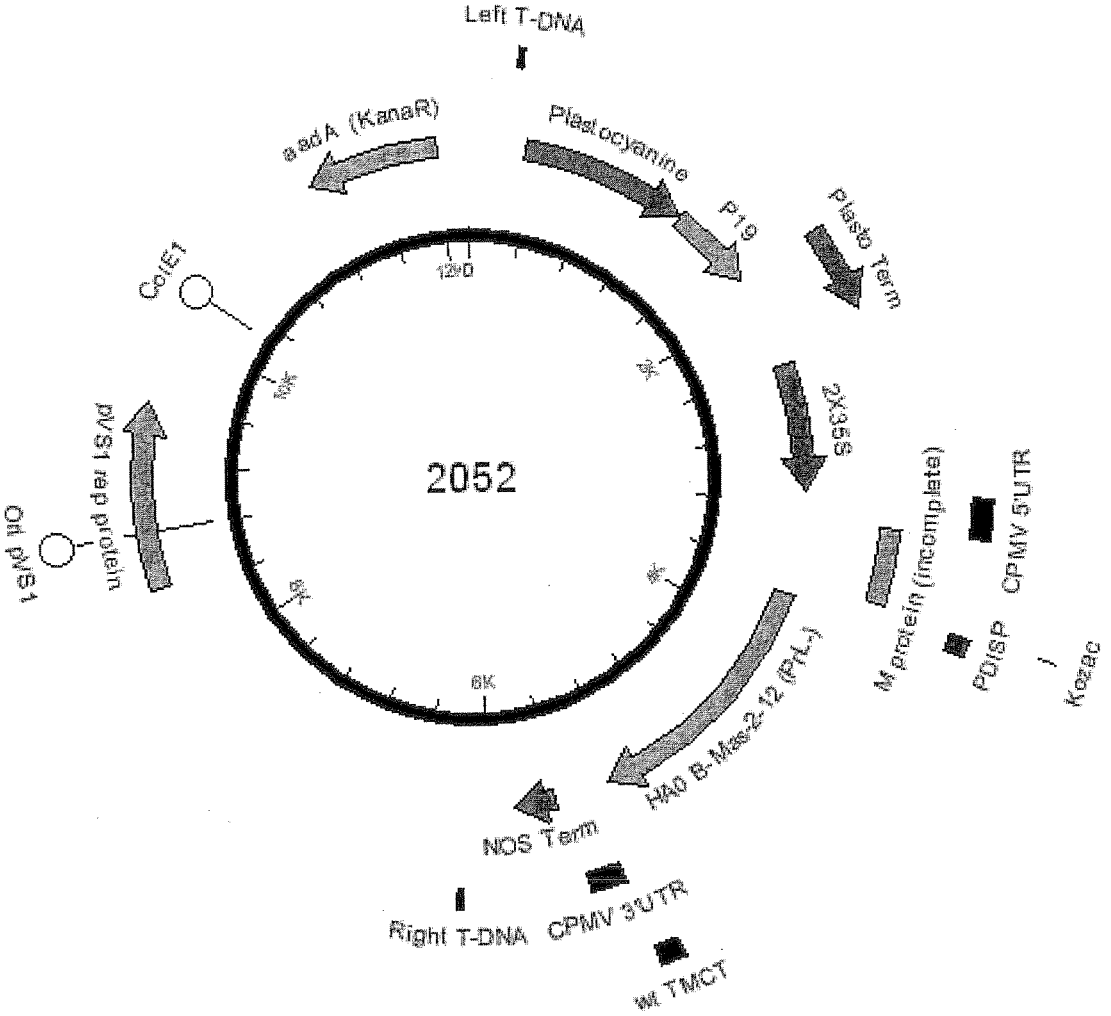


Figure 40C Schematic representation of construct number 2062 (2X35S/CPMV HT*)

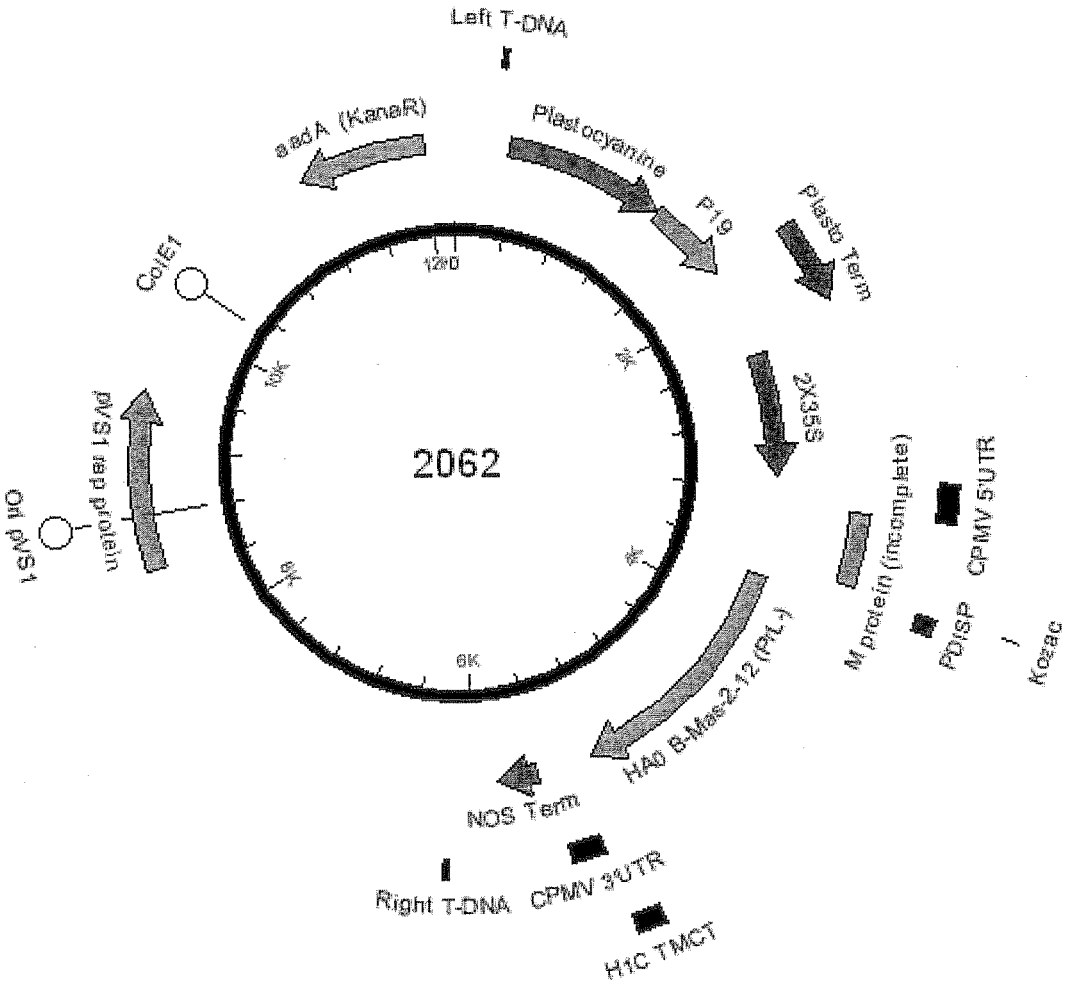


Figure 41C

Schematic representation of construct number 1839 (2X35S/CPMV HT*)

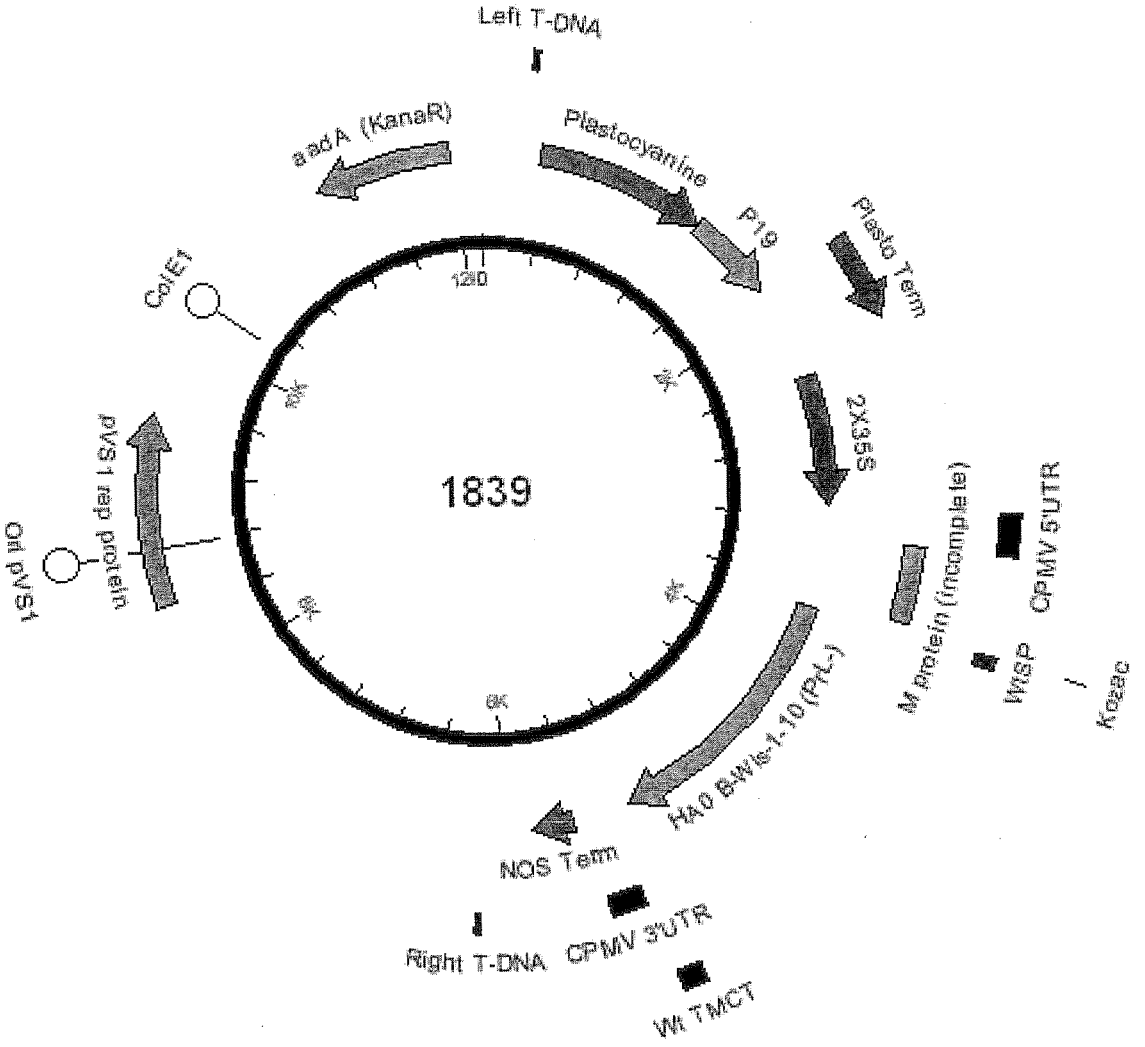


Figure 42C
Schematic representation of construct number 1860 (2X35S/CPMV HT*)

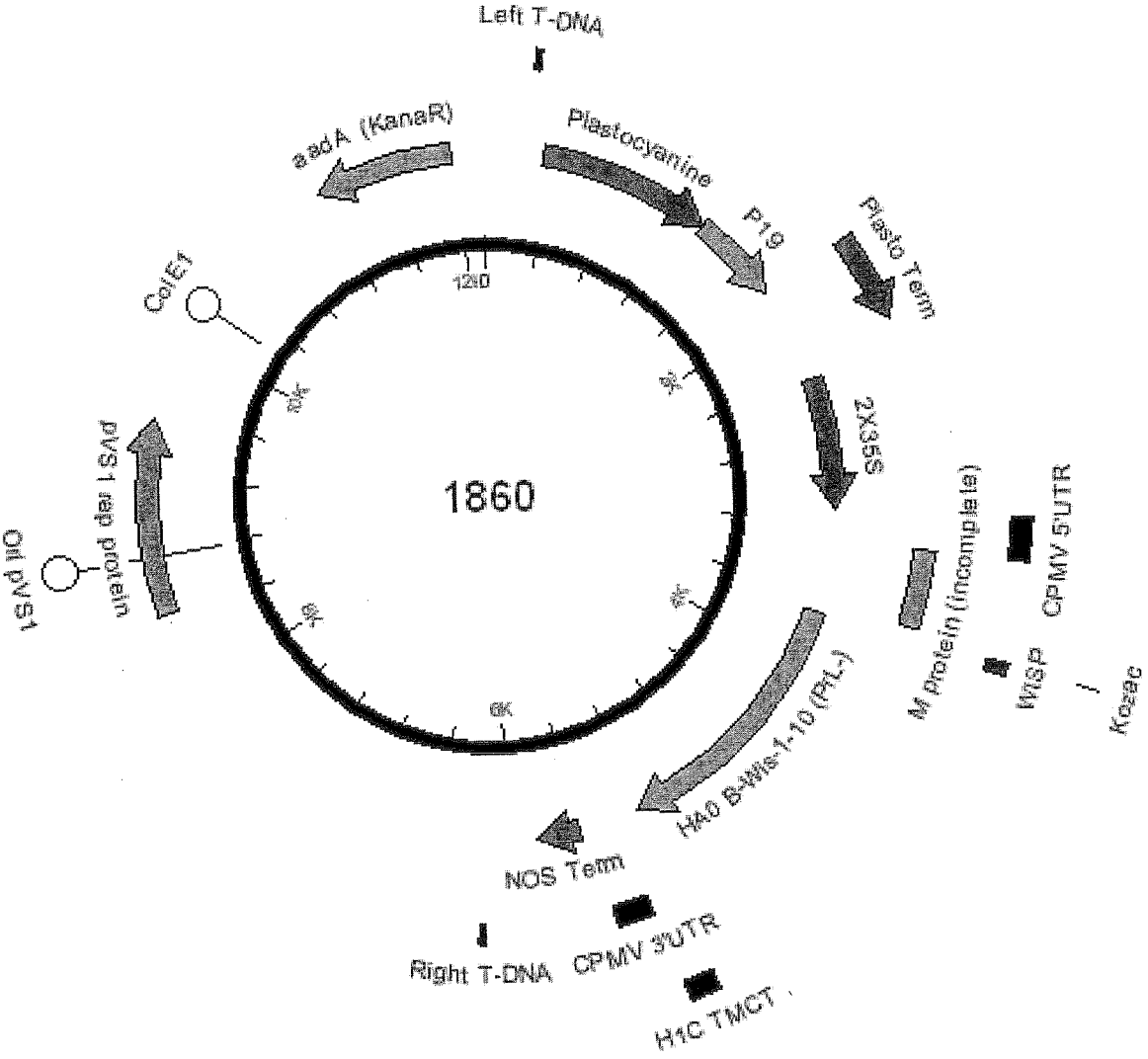


Figure 43C
Schematic representation of construct number 489 (2X35S/CPMV HT)

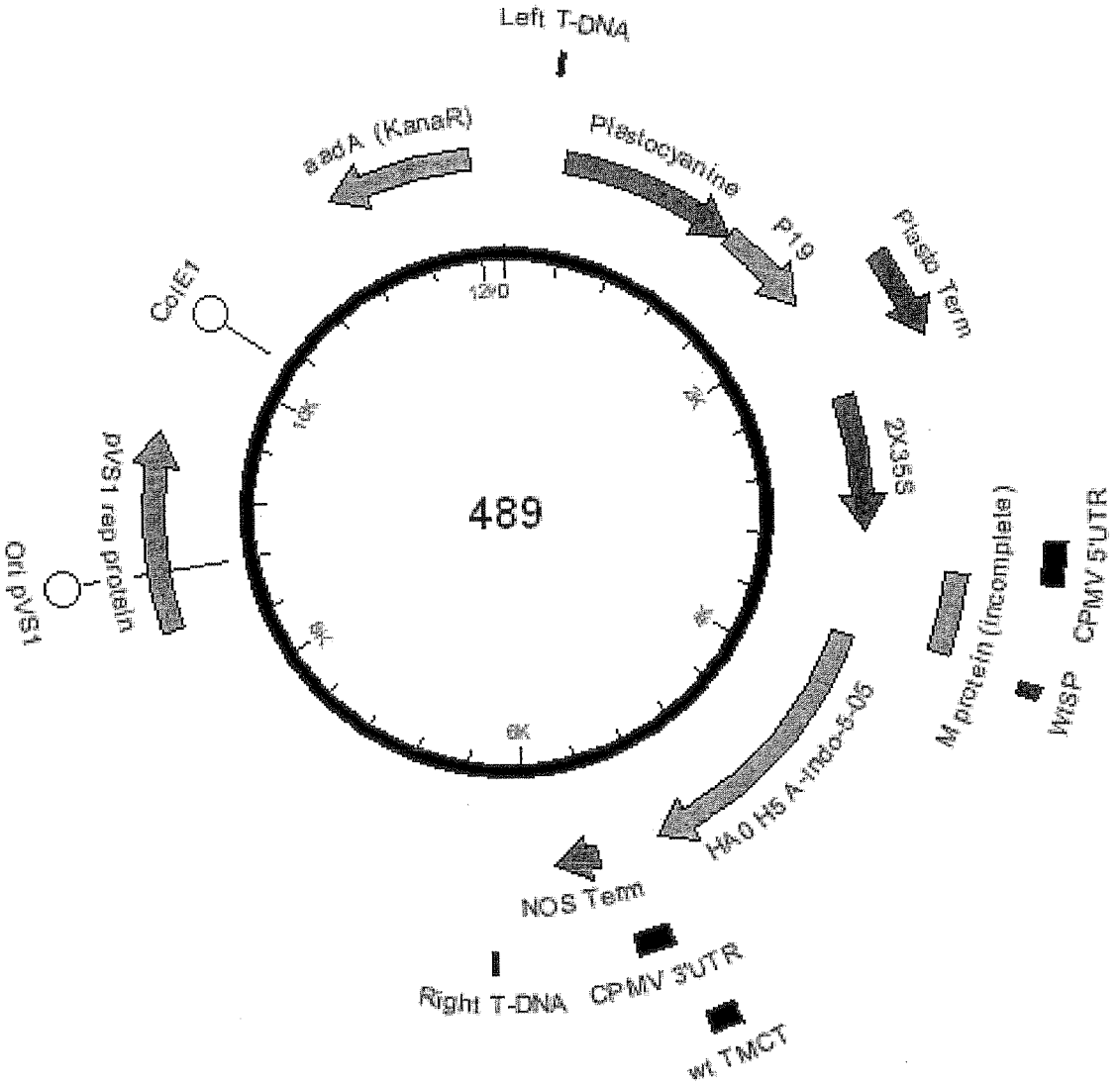
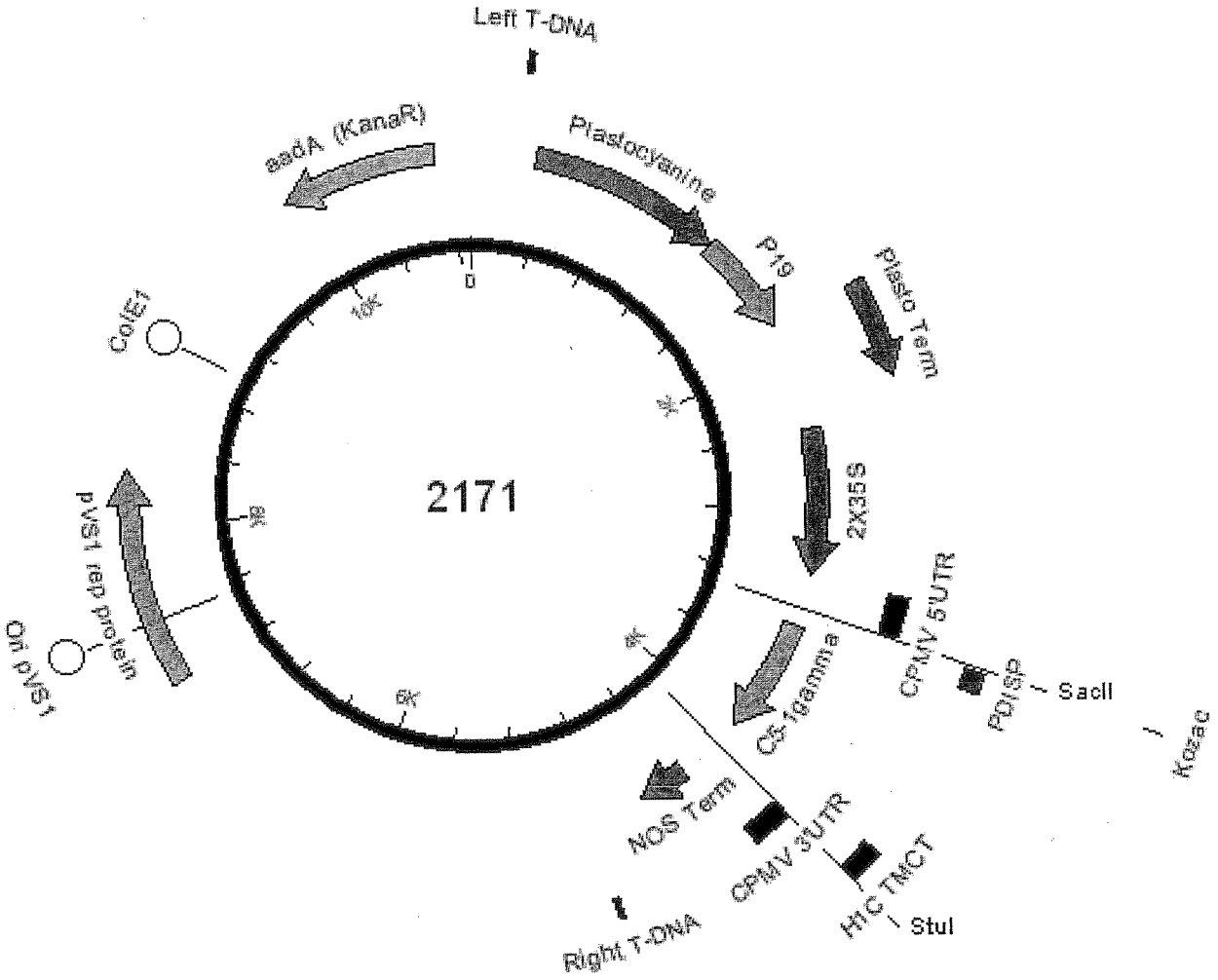


Figure 44D
Schematic representation of construct 2171. SacII and StuI restriction enzyme sites used for plasmid linearization are annotated on the representation.



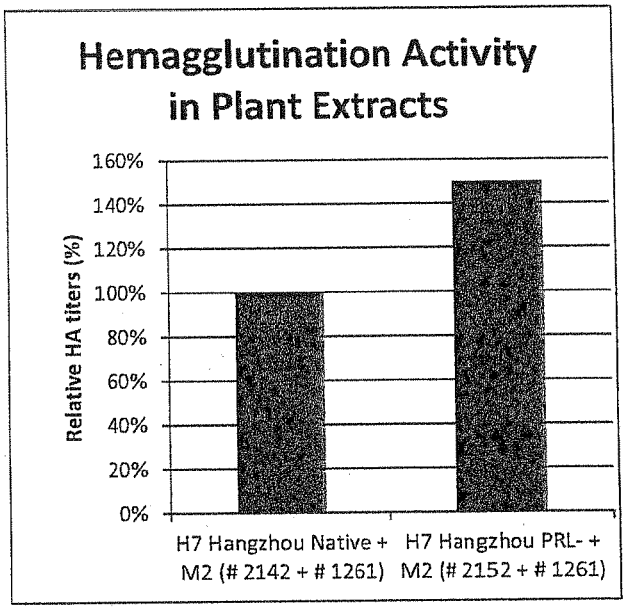


Figure 46A

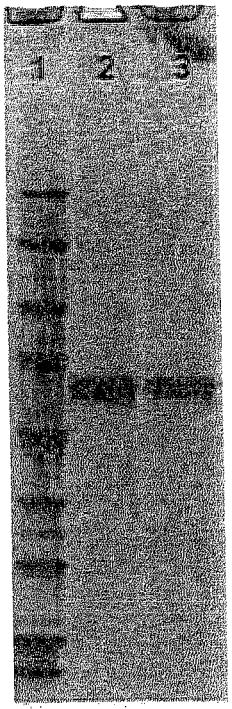


Figure 46C

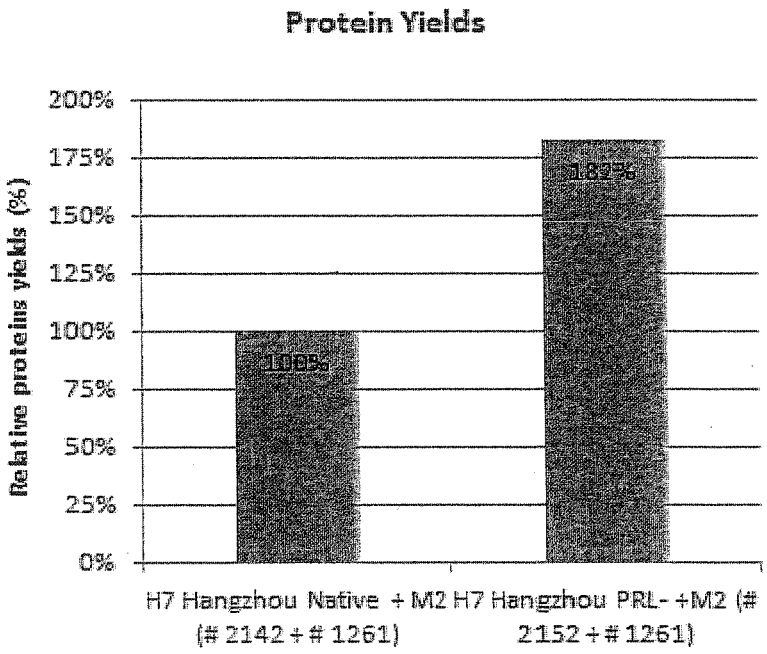
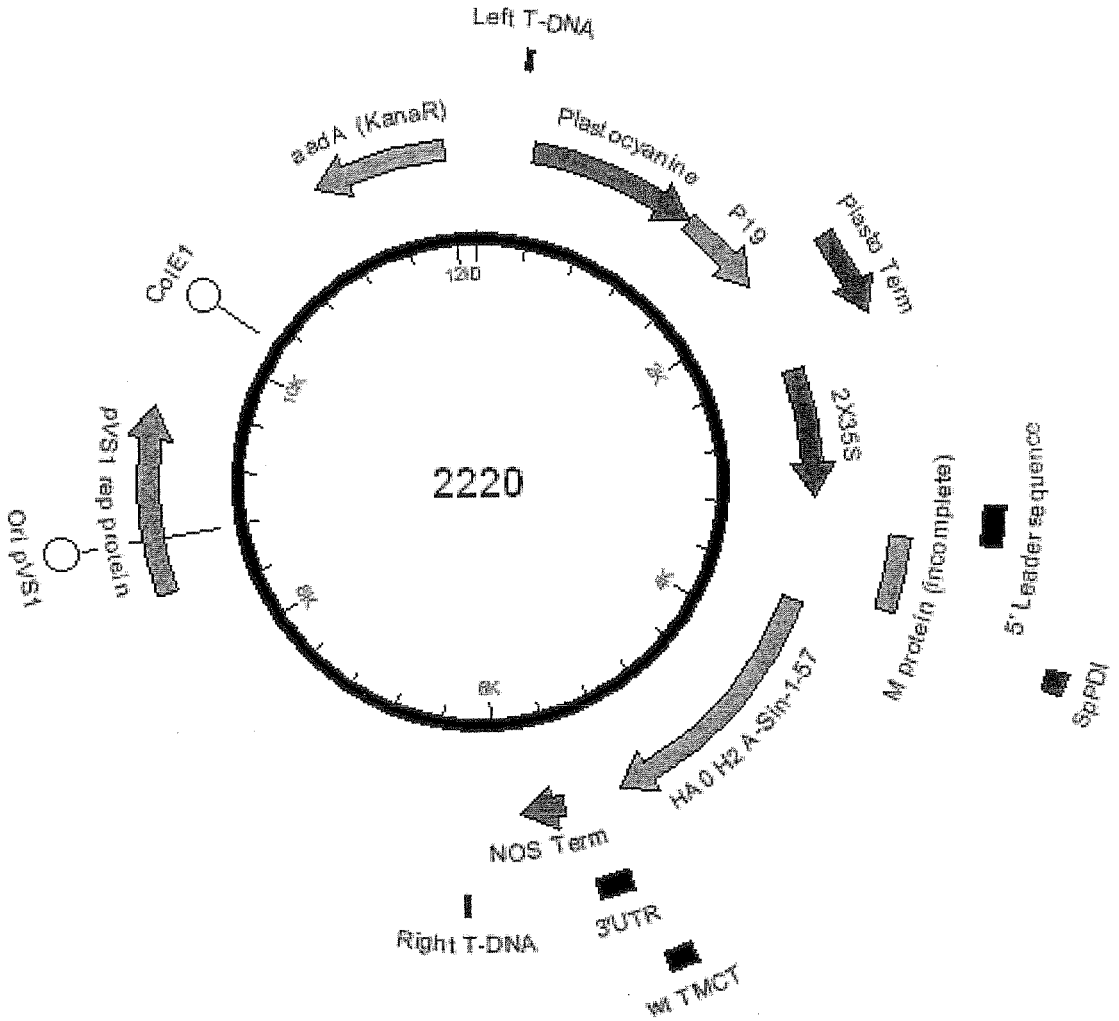


Figure 46B

Figure 48E

Schematic representation of construct number 2220



2X35S/CPMV HT+/ PDISP/H2 Singapore with deleted proteolytic loop/ NOS (Construct number 2221)

Figure 49A, SEQ ID NO: 131

H2S157(Prl-).r

TGCCATCCTCCGCCGGGAACATTCCTTAGTCCTGTTGCTAAGACCAAC

Figure 49B, SEQ ID NO: 132

H2S157(Prl-).c

AGGAATGTTCCCGGCGGAGGATGGCAAGGAATGGTTGATGGTTGGTATGG

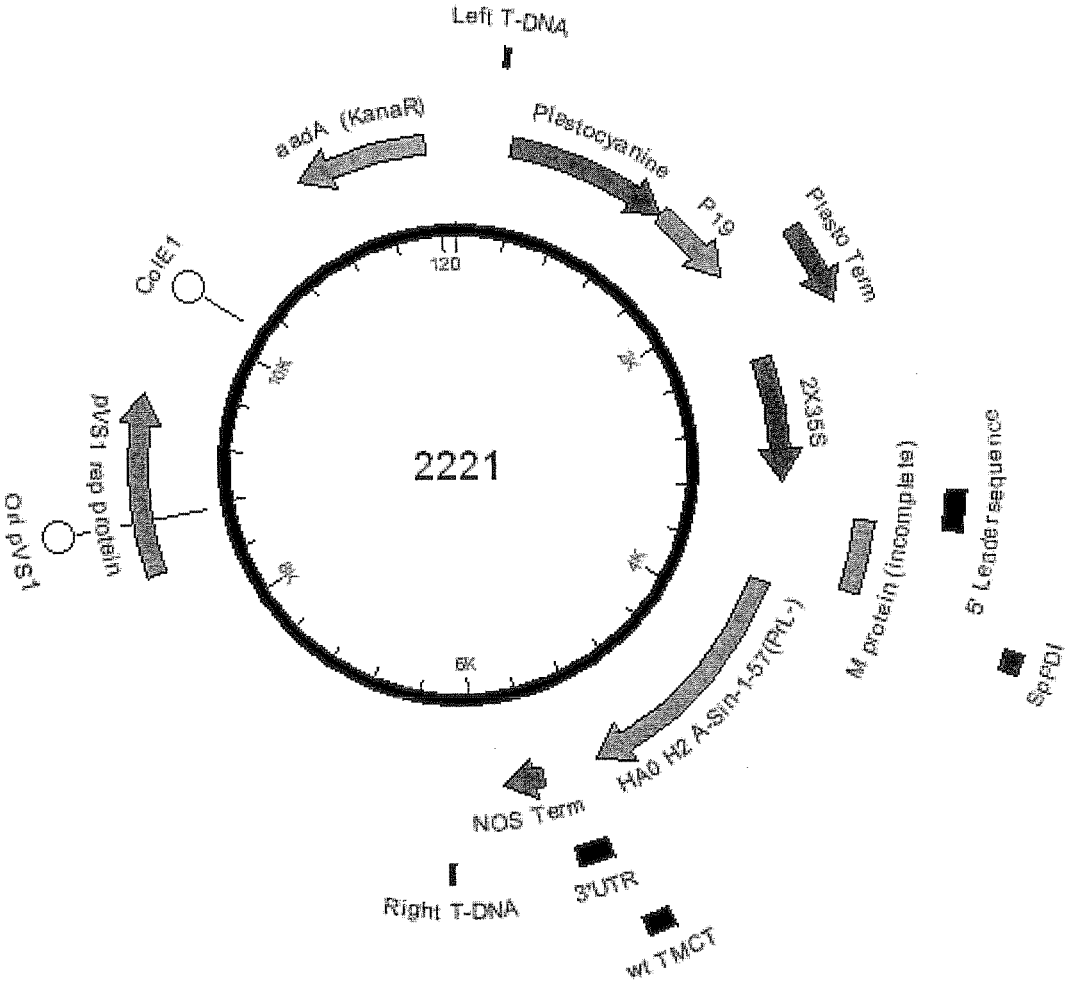
Figure 49C, SEQ ID NO: 133

Expression cassette number 2221 from 2X35S promoter to NOS terminator. PDISP/H2 Singapore with deleted proteolytic loop nucleotide sequence is underlined.

GTCAACATGGTGGAGCACGACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAAAGGGCAATTG
AGACTTTTCAACAAAGGGTAATATCCGGAAACCTCCTCGGATTCCATTGCCCAGCTATCTGTCACTTTATTGTGAAGAT
AGTGGAAAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAAAGGCCATCGTTGAAGATGCCTCTGCCGAC
AGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATCGTGGAAAAAGAAGACGTTCCAACCACGTCTTCAAAGCAAG
TGGATTGATGTGATAACATGGTGGAGCACGACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCA
AAGGGCAATTGAGACTTTTCAACAAAGGGTAATATCCGGAAACCTCCTCGGATTCCATTGCCCAGCTATCTGTCACTTT
ATTGTGAAGATAGTGGAAAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAAAGGCCATCGTTGAAGATG
CCTCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATCGTGGAAAAAGAAGACGTTCCAACCACGTC
TTCAAAGCAAGTGGATTGATGTGATATCTCCACTGACGTAAGGGATGACGCACAATCCCACTATCCTTCGCAAGACCCT
TCCTCTATATAAGGAAGTTCATTTCATTTGGAGAGGTATTAAAATCTTAATAGGTTTTGATAAAAGCGAACGTGGGGAA
ACCCGAACCAAACCTTCTTCTAAACTCTCTCTCATCTCTCTTAAAGCAAACTTCTCTCTTGTCTTTCTTGCGTGAGCGA

Figure 49E

Schematic representation of construct number 2221



PDISP/H2 Singapore (Construct number 2222) and PDISP/H2 Singapore with deleted proteolytic loop (Construct number 2223) in 2X35S/CPMV 160+/NOS expression system

Figure 50A, SEQ ID NO: 135

Expression cassette number 2222 from 2X35S promoter to NOS terminator. PDISP/H2 Singapore nucleotide sequence is underlined.

GTCAACATGGTGGAGCACGACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAAAGGGCAATTG
AGACTTTTCAACAAAGGGTAATATCCGGAAACCTCCTCGGATTCCATTGCCCAGCTATCTGTCACTTTATTGTGAAGAT
AGTGGAAAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAAAGGCCATCGTTGAAGATGCCTCTGCCGAC
AGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATCGTGGAAAAAGAAGACGTTCCAACCACGTCTTCAAAGCAAG
TGGATTGATGTGATAACATGGTGGAGCACGACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCA
AAGGGCAATTGAGACTTTTCAACAAAGGGTAATATCCGGAAACCTCCTCGGATTCCATTGCCCAGCTATCTGTCACTTT
ATTGTGAAGATAGTGGAAAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAAAGGCCATCGTTGAAGATG
CCTCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATCGTGGAAAAAGAAGACGTTCCAACCACGTC
TTCAAAGCAAGTGGATTGATGTGATATCTCCACTGACGTAAGGGATGACGCACAATCCCACTATCCTTCGCAAGACCCT
TCCTCTATATAAGGAAGTTCATTTCATTTGGAGAGGTATTAAAATCTTAATAGGTTTTGATAAAAGCGAACGTGGGGAA
ACCCGAACCAAACCTTCTTCTAAACTCTCTCTCATCTCTCTTAAAGCAAACTTCTCTCTTGTCTTTCTTGCGTGAGCGA
TCTTCAACGTTGTCAGATCGTGCTTCGGCACCAGTACAGGGCCCAATACCGCGGAGAAAATGGCGAAAAACGTTGCGAT
TTTCGGCTTATTGTTTTCTCTTCTTGTGTTGGTTCCTTCTCAGATCTTCGCGGACCAAATATGCATTGGATACCATGCC
AATAATTCCACAGAGAAGGTCGACACAATTCTAGAGCGGAACGTCACTGTGACTCATGCCAAGGACATTCTTGAGAAGA
CCCATAACGGAAAGTTATGCAAACTAAACGGAATCCCTCCACTTGAACTAGGGGACTGTAGCATTGCCGGATGGCTCCT
TGGAAATCCAGAATGTGATAGGCTTCTAAGTGTGCCAGAATGGTCCTATATAATGGAGAAAGAAAACCCGAGAGACGGT
TTGTGTTATCCAGGCAGCTTCAATGATTATGAAGAATTGAAACATCTCCTCAGCAGCGTGAAACATTTCGAGAAAGTAA
AGATTCTGCCCAAAGATAGATGGACACAGCATACAACAACTGGAGGTTCACGGGCCTGCGCGGTGTCTGGTAATCCATC
ATTCTTCAGGAACATGGTCTGGCTGACAAAGAAAGAATCAAATTATCCGGTTGCCAAAGGATCGTACAACAATACAAGC
GGAGAACAAATGCTAATAATTTGGGGGGTGCACCATCCCAATGATGAGACAGAACAAAGAACATTGTACCAGAATGTGG
GAACCTATGTTTCCGTAGGCACATCAACATTGAACAAAAGGTCAACCCCAGACATAGCAACAAGGCCTAAAGTGAATGG
ACTAGGAAGTAGAATGGAGTTCTCTTGGACCCTATTGGATATGTGGGACACCATAAATTTTGAGAGTACTGGTAATCTA

AAAGGGGTAAAATTGAGCAGCATGGGGGTTTATCAAATCCTTGCCATTTATGCTACAGTAGCAGGTTCTCTGTCACTGG
CAATCATGATGGCTGGGATCTCTTTCTGGATGTGCTCCAACGGGTCTCTGCAGTGCAGGATCTGCATATGAAGGCCTAT
TTTCTTTAGTTTGAATTTACTGTTATTCGGTGTGCATTTCTATGTTTGGTGAGCGGTTTTCTGTGCTCAGAGTGTGTTT
ATTTTATGTAATTTAATTTCTTTGTGAGCTCCTGTTTAGCAGGTCGTCCCTTCAGCAAGGACACAAAAAGATTTTAATT
TTATTAAAAAAAAAAAAAAAAAAAGACCGGGAATTCGATATCAAGCTTATCGACCTGCAGATCGTTCAAACATTTGGCAA
TAAAGTTTCTTAAGATTGAATCCTGTTGCCGGTCTTGCGATGATTATCATATAATTTCTGTTGAATTACGTTAAGCATG
TAATAATTAACATGTAATGCATGACGTTATTTATGAGATGGGTTTTTATGATTAGAGTCCCGCAATTATACATTTAATA
CGCGATAGAAAACAAAATATAGCGCGCAAACTAGGATAAATTATCGCGCGCGGTGTCATCTATGTTACTAGAT

Figure 50C

Schematic representation of construct number 2222

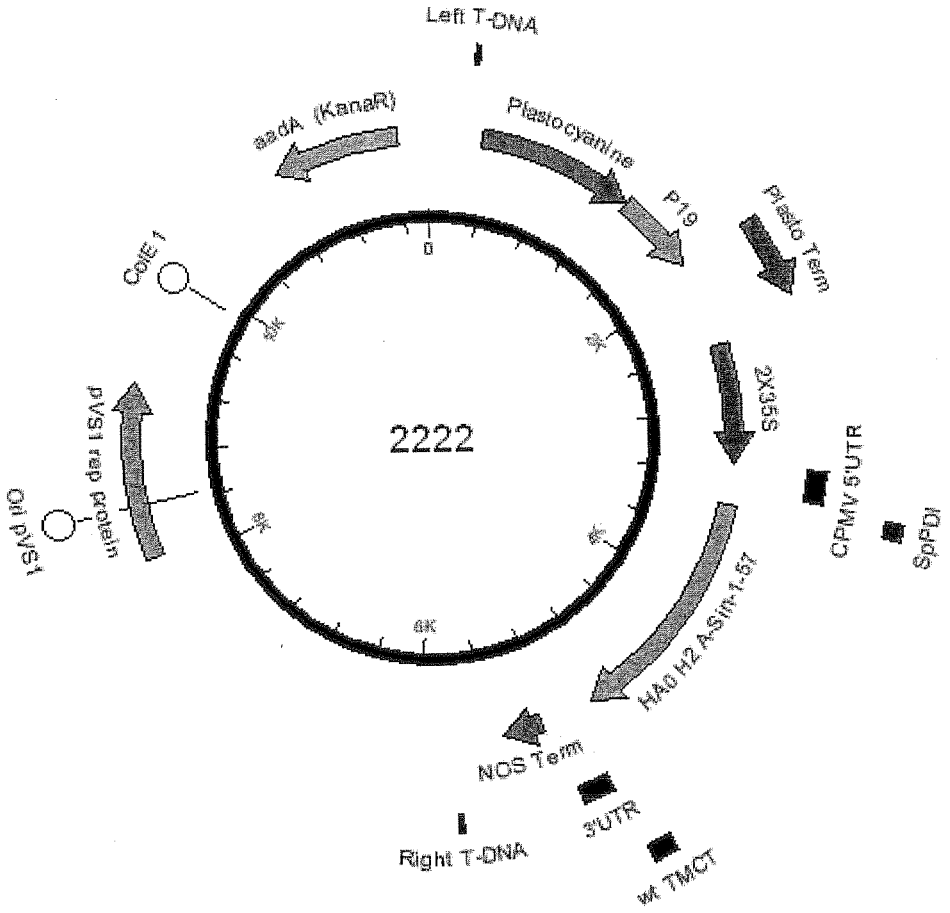


Figure 50D

Schematic representation of construct number 2223

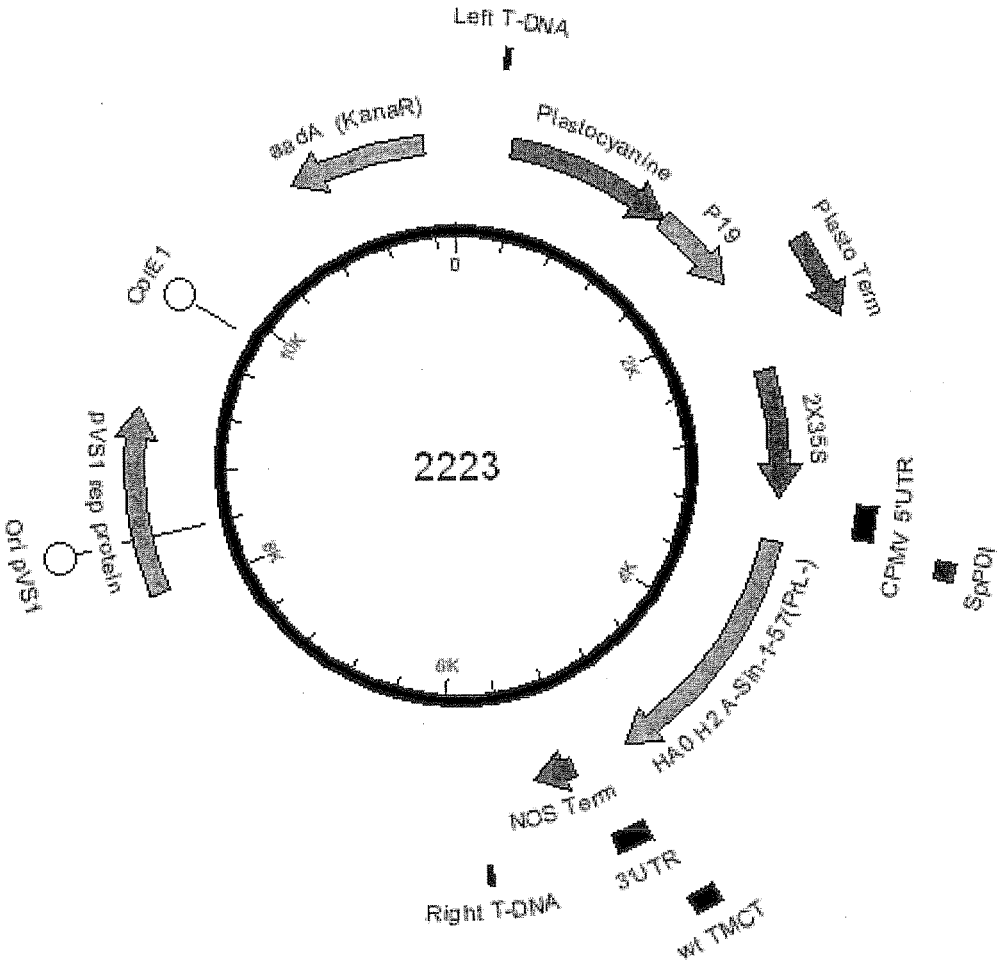


Figure 51D

Schematic representation of construct number 2019

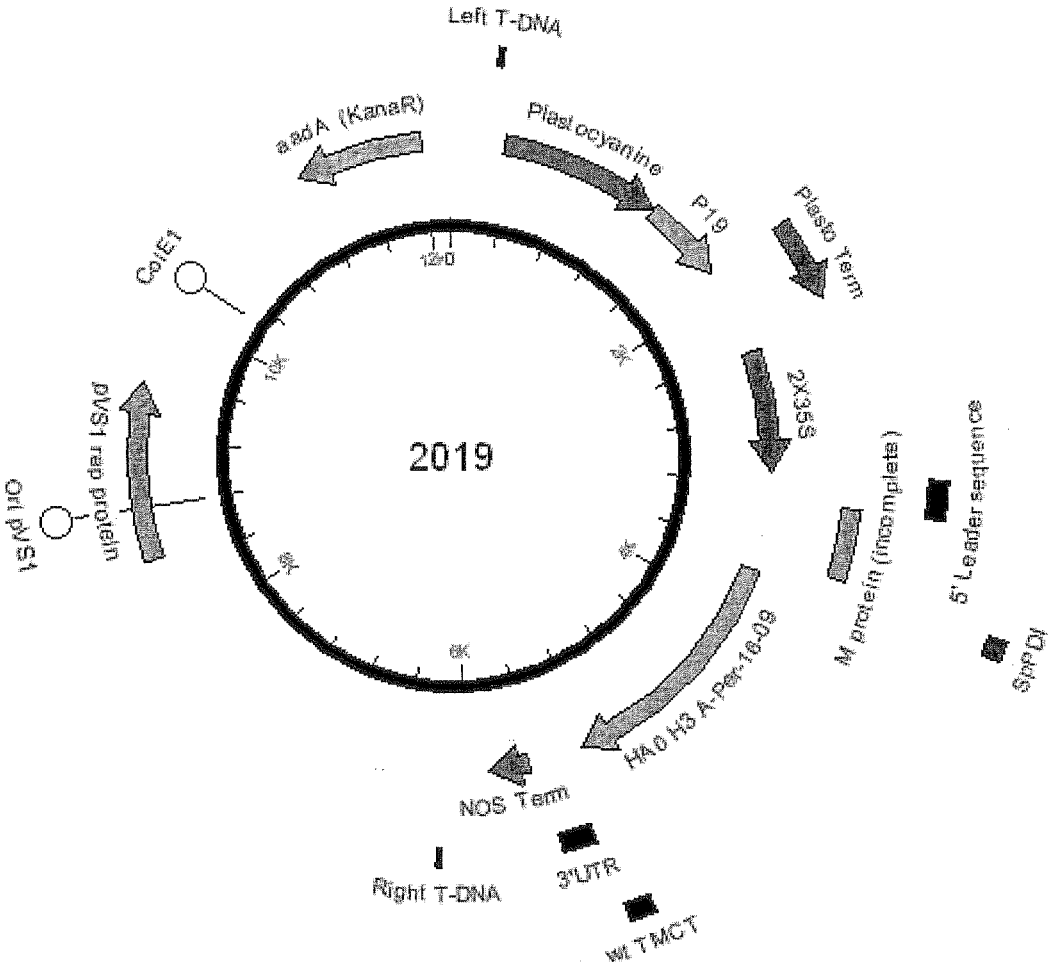


Figure 51E

Schematic representation of construct number 2139

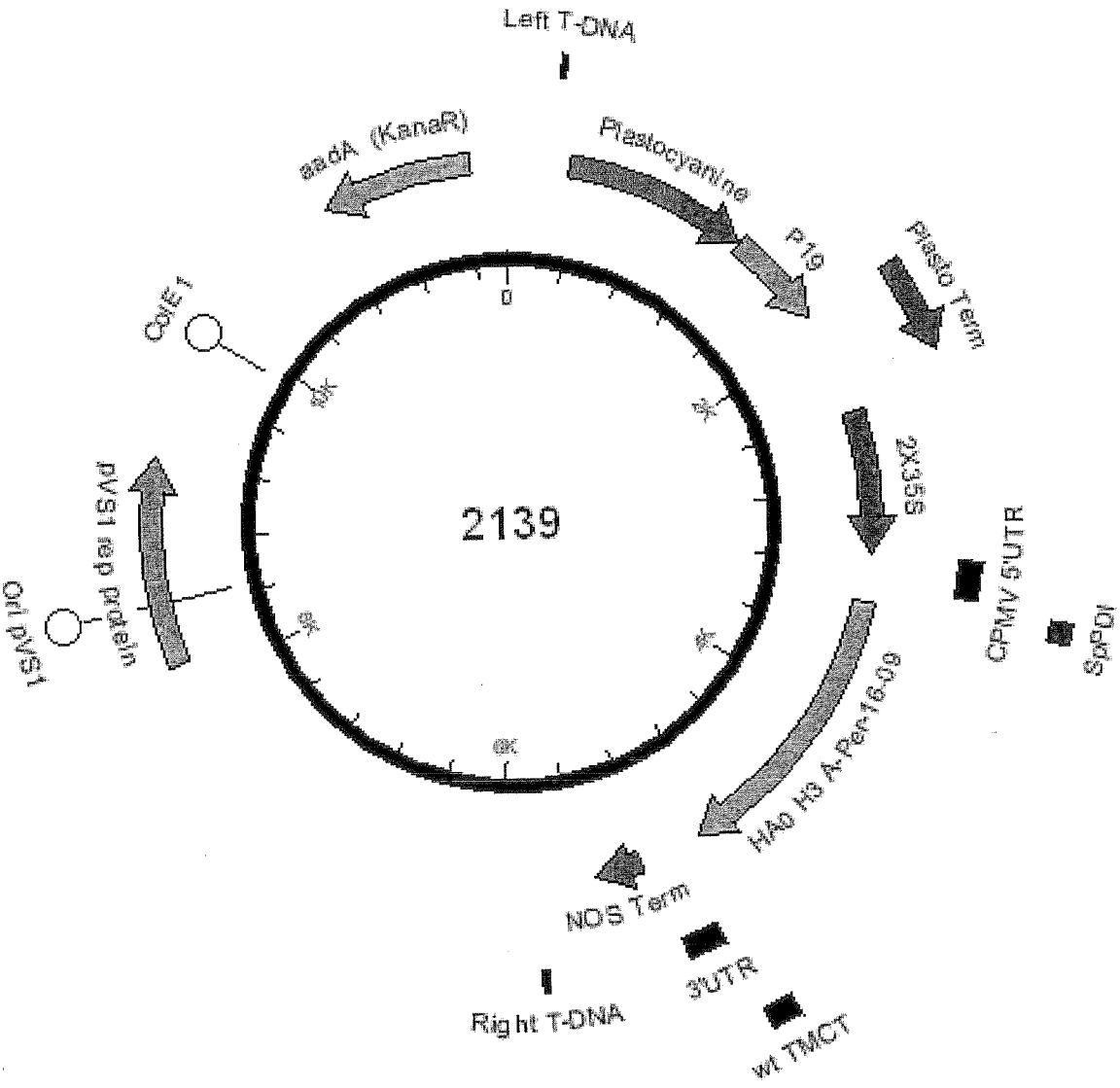


Figure 52E

Schematic representation of construct number 2039

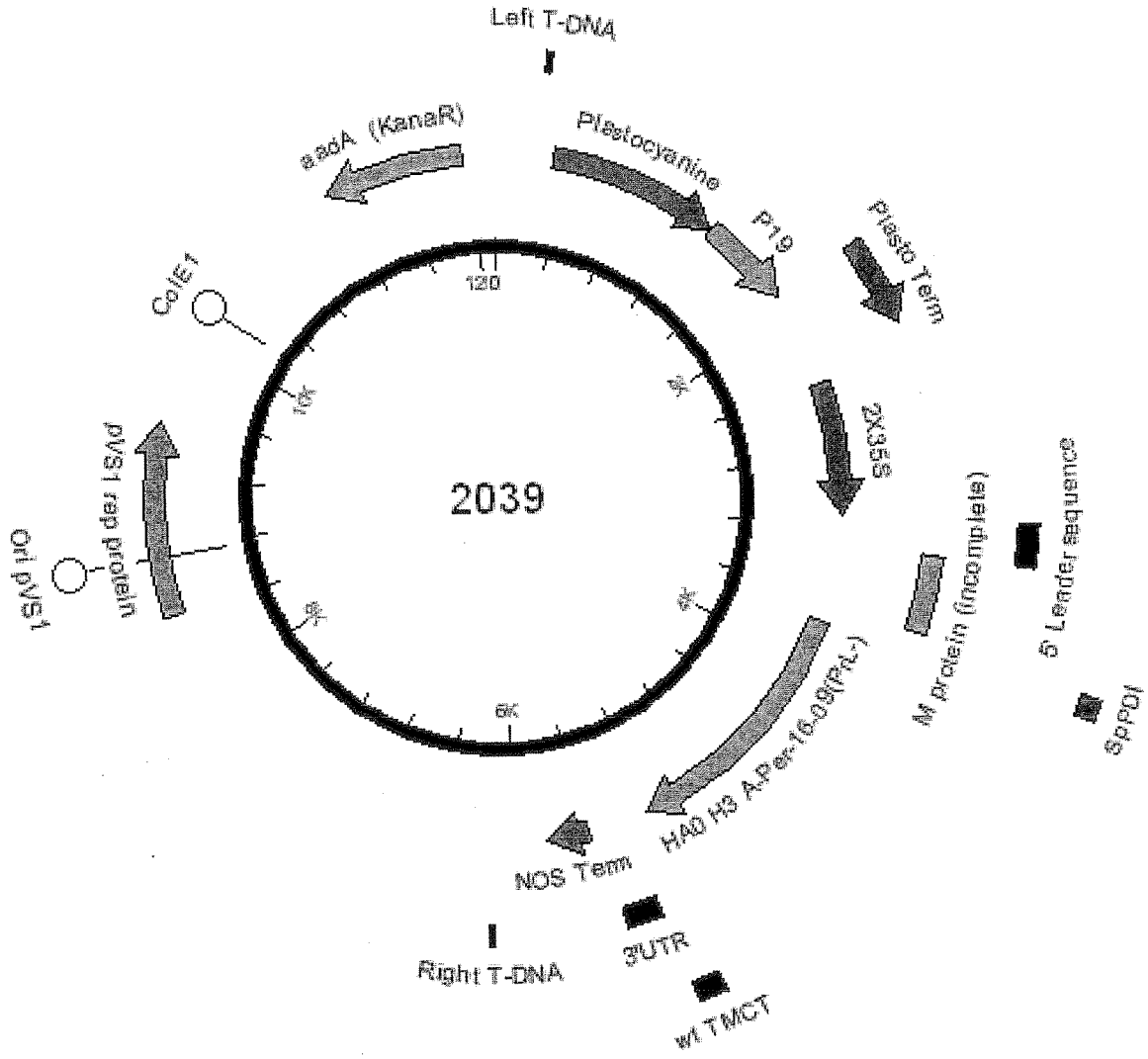


Figure 52F

Schematic representation of construct number 2159

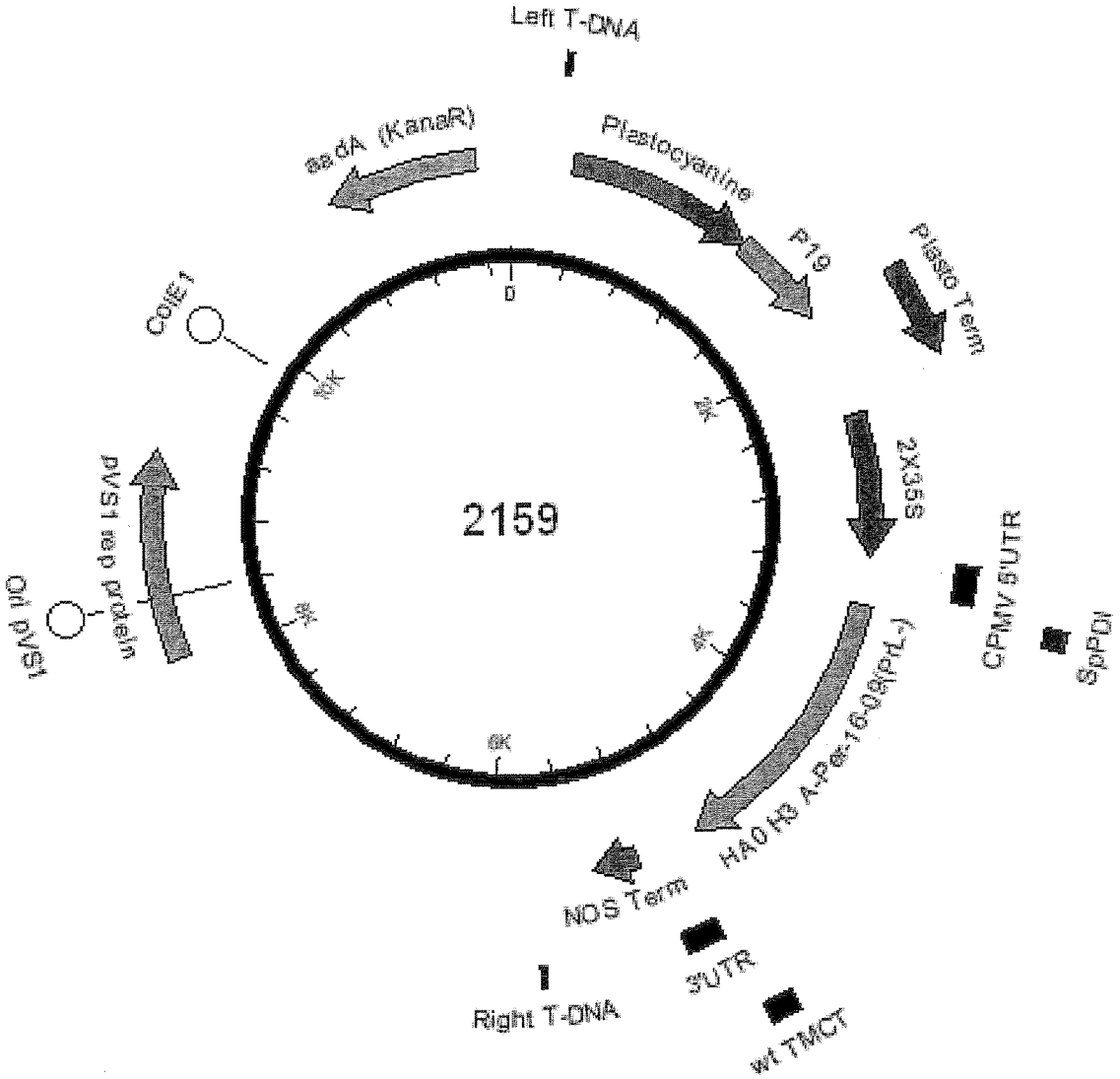


Figure 53E

Schematic representation of construct number 2230

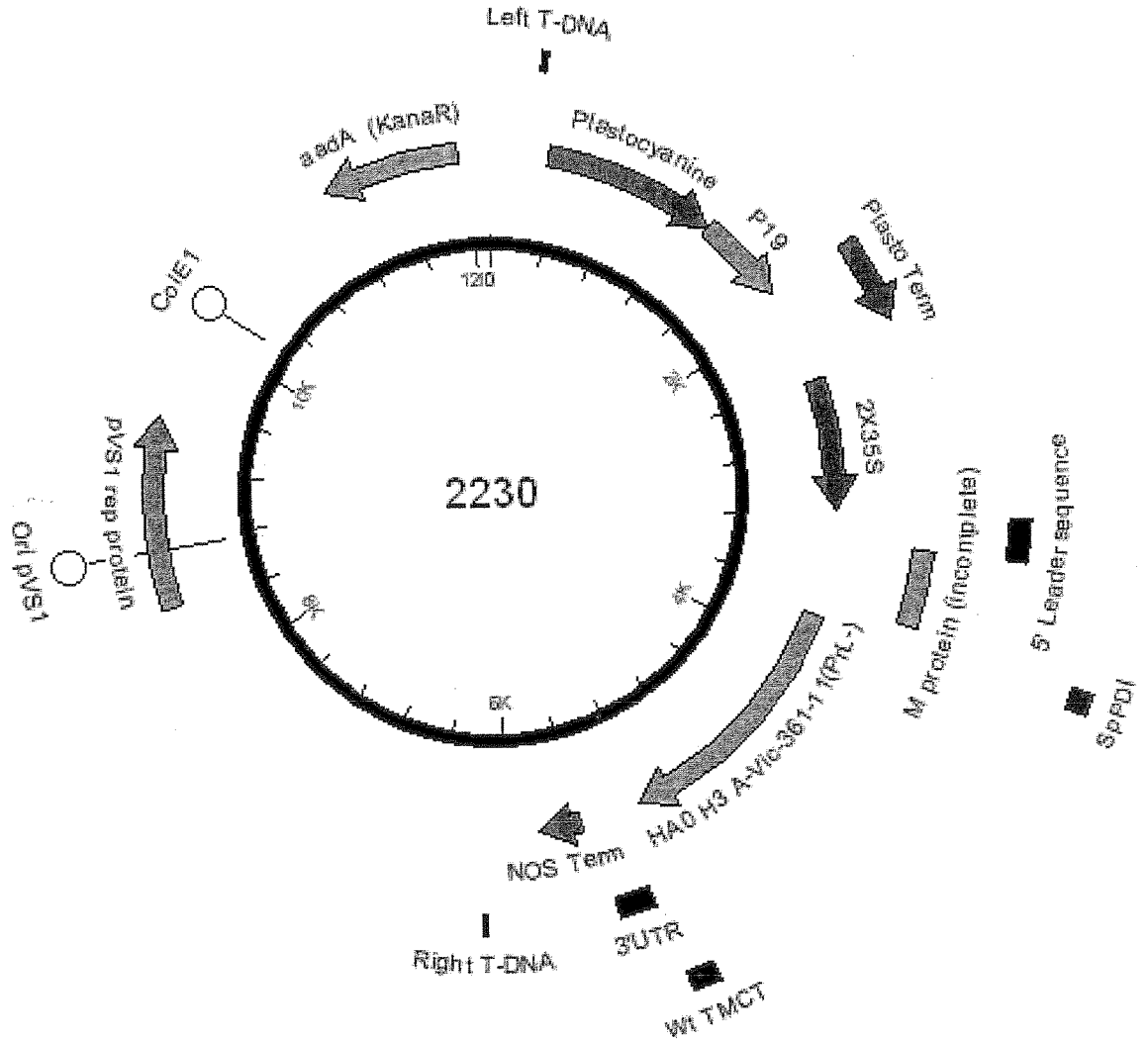


Figure 53F

Schematic representation of construct number 2250

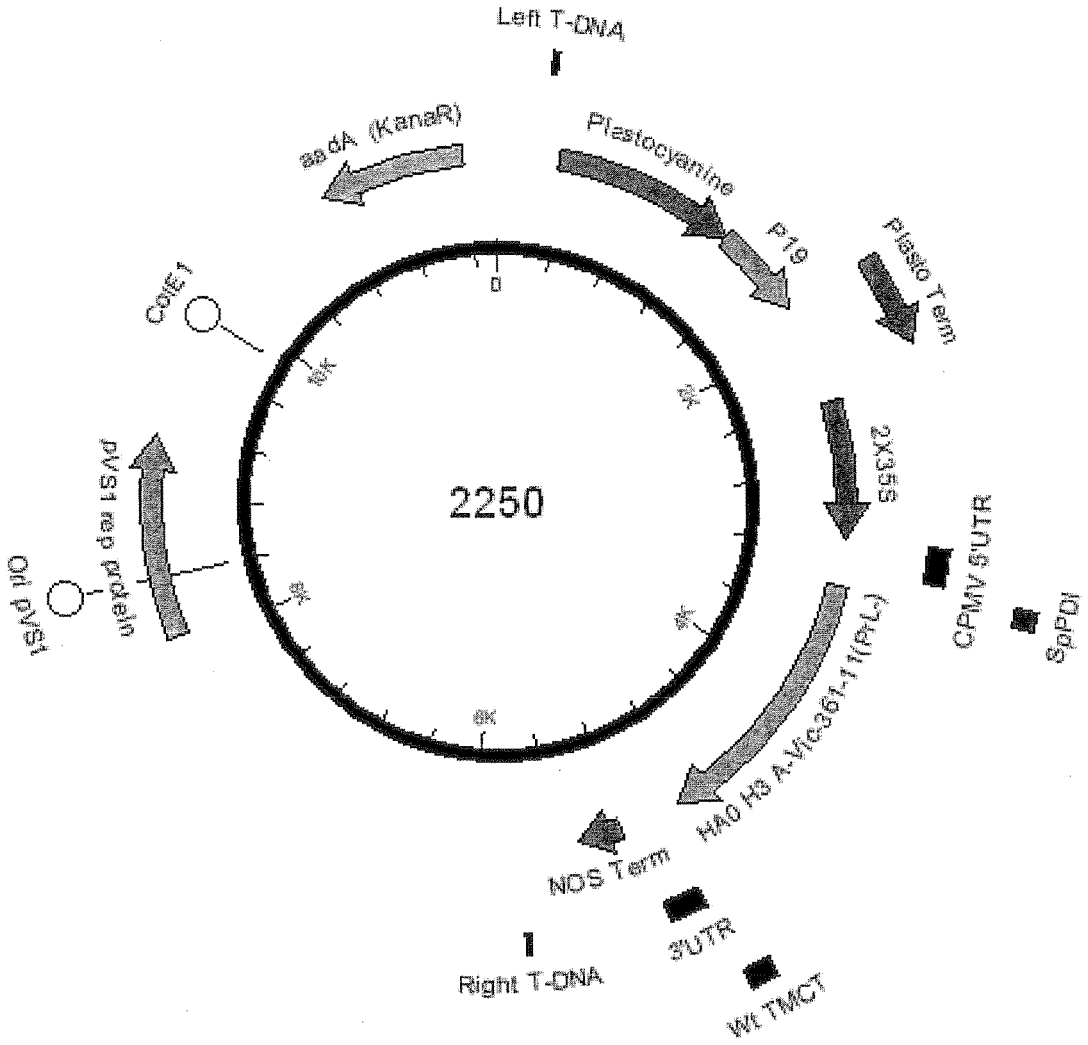
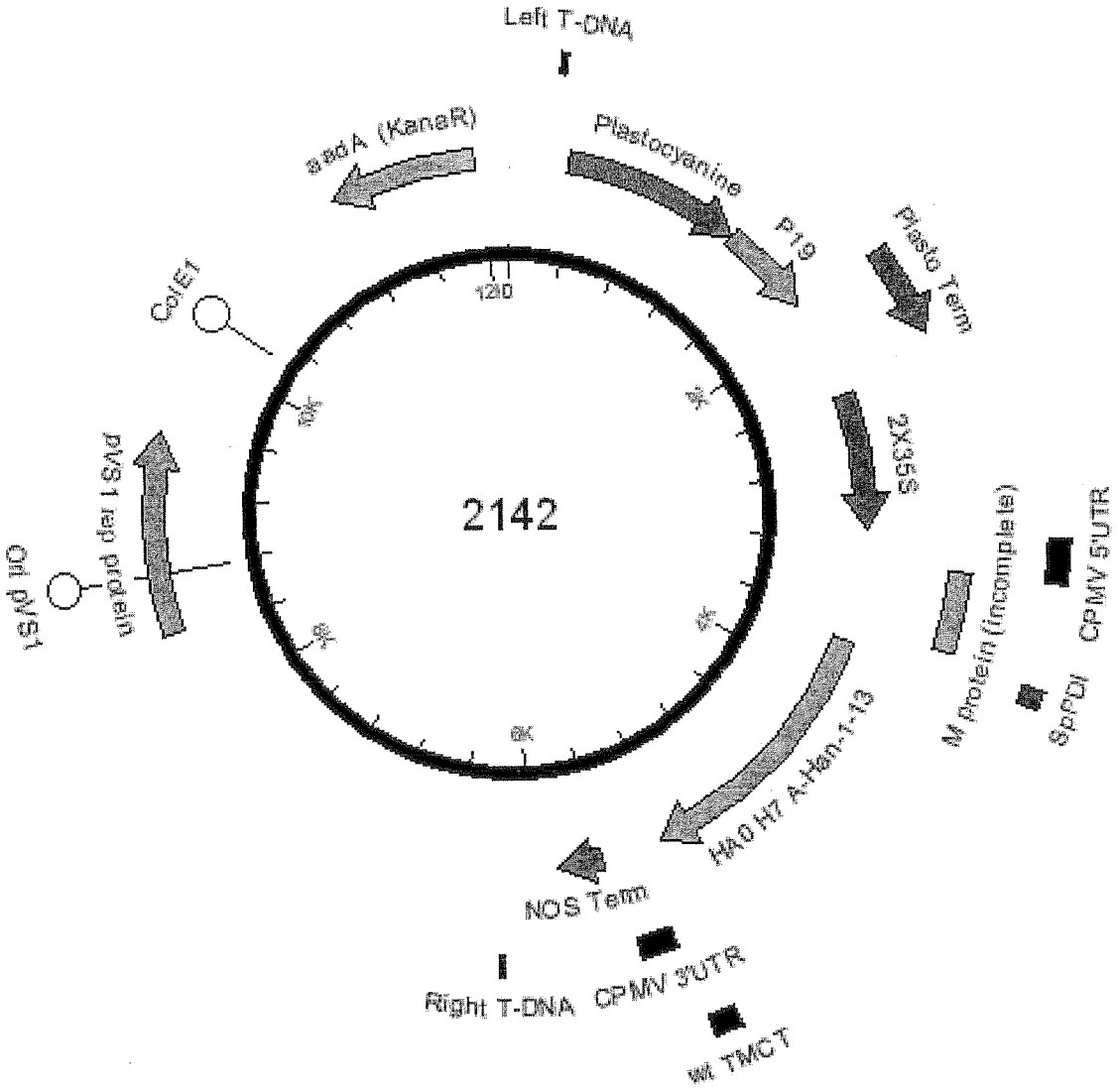


Figure 54D

Schematic representation of construct number 2142



2X35S/CPMV HT+/PDISP/H7 Hangzhou with deleted proteolytic loop/NOS (Construct no 2152)

Figure 55A, SEQ ID NO: 151

Nucleotide sequence of PDISP/H7 Hangzhou with deleted proteolytic loop

ATGGCGAAAAACGTTGCGATTTTCGGCTTATTGTTTTCTCTTCTTGTGTTGGTTCCTTCTCAGATCTTCGCGGACAAAATCTGCCTCG
GACATCATGCCGTGTCAAACGGAACCAAAGTAAACACATTAACTGAAAGAGGAGTGGAAGTCGTCAATGCAACTGAAACAGTGG
AACGAACAAACATCCCCAGGATCTGCTCAAAAGGGAAAAGGACAGTTGACCTCGGTCAATGTGGACTCCTGGGGACAATCACTG
GACCACCTCAATGTGACCAATTCCTAGAATTTTCAGCCGATTTAATTATTGAGAGGCGAGAAGGAAGTGATGTCTGTTATCCTGGG
AAATTCGTGAATGAAGAAGCTCTGAGGCAAATTCTCAGAGAATCAGGCGGAATTGACAAGGAAGCAATGGGATTCACATACAGT
GGAATAAGAACTAATGGAGCAACCAGTGCATGTAGGAGATCAGGATCTTCATTCTATGCAGAAATGAAATGGCTCCTGTCAAACA
CAGATAATGCTGCATTCCCGCAGATGACTAAGTCATATAAAAATACAAGAAAAAGCCCAGCTCTAATAGTATGGGGGATCCATCA
TTCCGTATCAACTGCAGAGCAAACCAAGCTATATGGGAGTGGAAACAAACTGGTGACAGTTGGGAGTTCTAATTATCAACAATCT
TTTGTACCGAGTCCAGGAGCGAGACCACAAGTTAATGGTATATCTGGAAGAATTGACTTTCATTGGCTAATGCTAAATCCCAATGA
TACAGTCACTTTCAGTTTCAATGGGGCTTTCATAGCTCCAGACCGTGCAAGCTTCCTGAGAGGAAAATCTATGGGAATCCAGAGTG
GAGTACAGGTTGATGCCAATTGTGAAGGGGACTGCTATCATAGTGGAGGGACAATAATAAGTAACTTGCCATTTCAGAACATAGA
TAGCAGGGCAGTTGGAAAATGTCCGAGATATGTTAAGCAAAGGAGTCTGCTGCTAGCAACAGGGATGAAGAATGTTCCTGGCGG
ATGGGAAGGCCTAATTGATGGTTGGTATGGTTTCAGACACCAGAATGCACAGGGAGAGGGAACTGCTGCAGATTACAAAAGCAC
TCAATCGGCAATTGATCAAATAACAGGAAAATTAAACCGGCTTATAGAAAAAACCAACCAACAATTTGAGTTGATCGACAATGAA
TTCAATGAGGTAGAGAAGCAAATCGGTAATGTGATAAATTGGACCAGAGATTCTATAACAGAAGTGTGGTCATACAATGCTGAAC
TCTTGGTAGCAATGGAGAACCAGCATACAATTGATCTGGCTGATTCAGAAATGGACAAACTGTACGAACGAGTGAAAAGACAGCT
GAGAGAGAATGCTGAAGAAGATGGCACTGGTTGCTTTGAAATATTTCACAAGTGTGATGATGACTGTATGGCCAGTATTAGAAAT
AACACCTATGATCACAGCAAATACAGGGAAGAGGCAATGCAAAATAGAATACAGATTGACCCAGTCAAACTAAGCAGCGGCTAC
AAAGATGTGATACTTTGGTTTAGCTTCGGGGCATCATGTTTCATACTTCTAGCCATTGTAATGGGCCTTGTCTTCATATGTGTAAAG
AATGGAAACATGCGGTGCACTATTTGTATATAA

Figure 55B, SEQ ID NO: 152

H7H113(PrL-).r

CCTTCCCATCCGCCAGGAACATTCTTCATCCCTGTTGCTAGCAGCAGAC

Figure 55C, SEQ ID NO: 153

H7H113(PrL-).c

AGAATGTTCCTGGCGGATGGGAAGGCCTAATTGATGGTTGGTATGGTT

Figure 55D, SEQ ID NO: 154

Amino acid sequence of PDISP/H7 Hangzhou with deleted proteolytic loop

MAKNVAIFGLLFSLLVLVPSQIFADKICLGHHAVSNGTKVNTLTERGVEVVNATETVERTNIPRICSKGKRTVDLGQCGLLGTITGPPQCD
QFLEFSADLIIERREGSDVCYPGKFVNEEALRQILRESGGIDKEAMGFTYSGIRTNGATSACRRSGSSFYAEMKWLLSNTDNAAFPQMTK
SYKNTRKSPALIVWGIHHSVSTAEQTKLYGSGNKLVTVGSSNYQQSFVPSPGARPQVNGISGRIDFHWLMLNPNDTVTFSFNGAFIAPD
RASFLRGKSMGIQSGVQVDANCEGDCYHSGGTIISNLPFQNIDSRAVGKCPRYVKQRSLLLATGMKNVPGGWEGLIDGWYGFRHQNA
QGEGTAADYKSTQSAIDQITGKLNRLIEKTNQQFELIDNEFNEVEKQIGNVINWTRDSITEVWSYNAELLVAMENQHTIDLADSEMDKL
YERVKRQLRENAEEDGTGCFEIFHKCDDDCMASIRNNTYDHSKYREEAMQNRIQIDPVKLSSGYKDVILWFSFGASCFILLAIVMGLVFIC
VKNGNMRCTICI*

Figure 55E

Schematic representation of construct number 2152

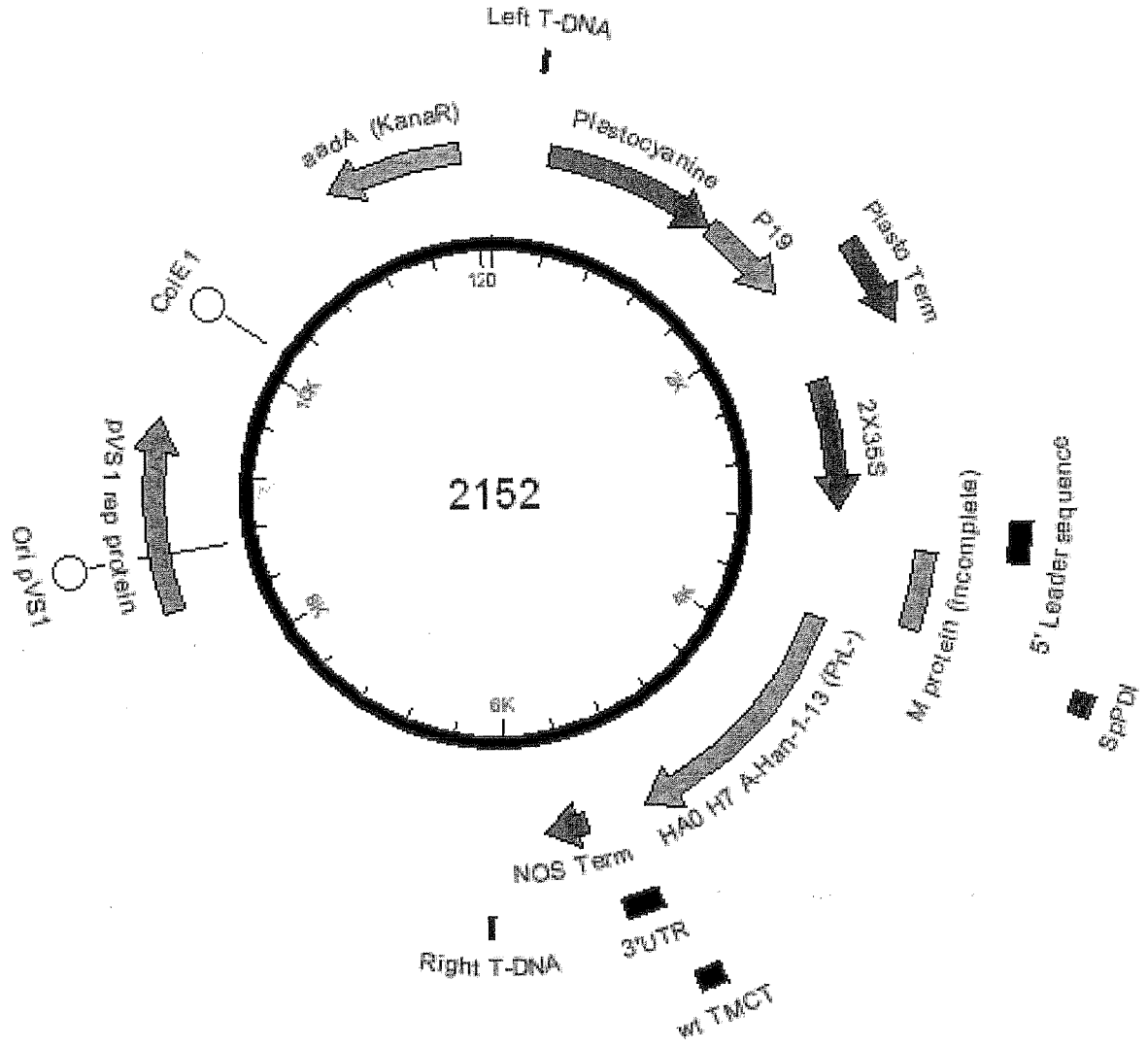


Figure 56D

Schematic representation of construct number 2224

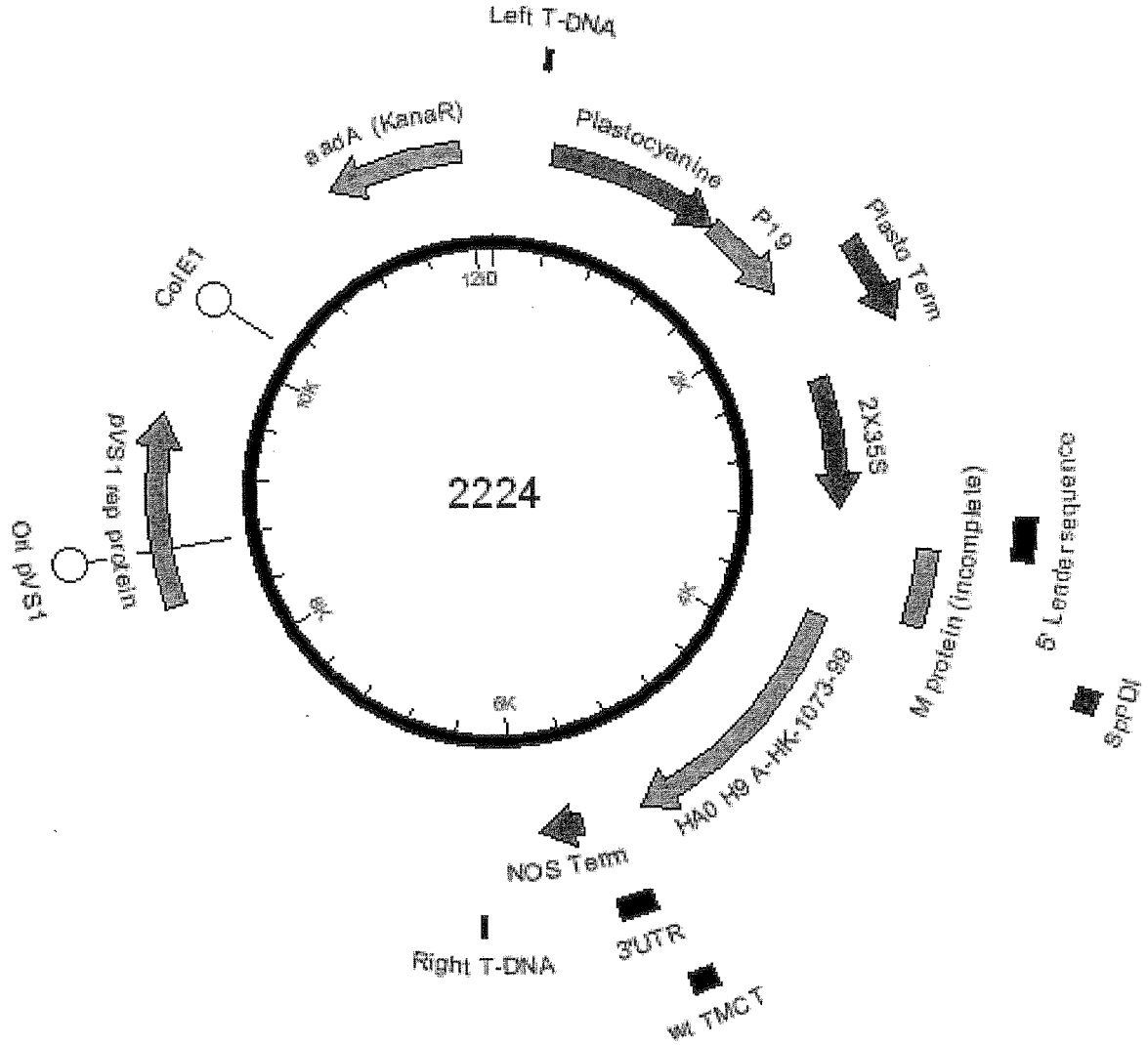


Figure 56E

Schematic representation of construct number 2226

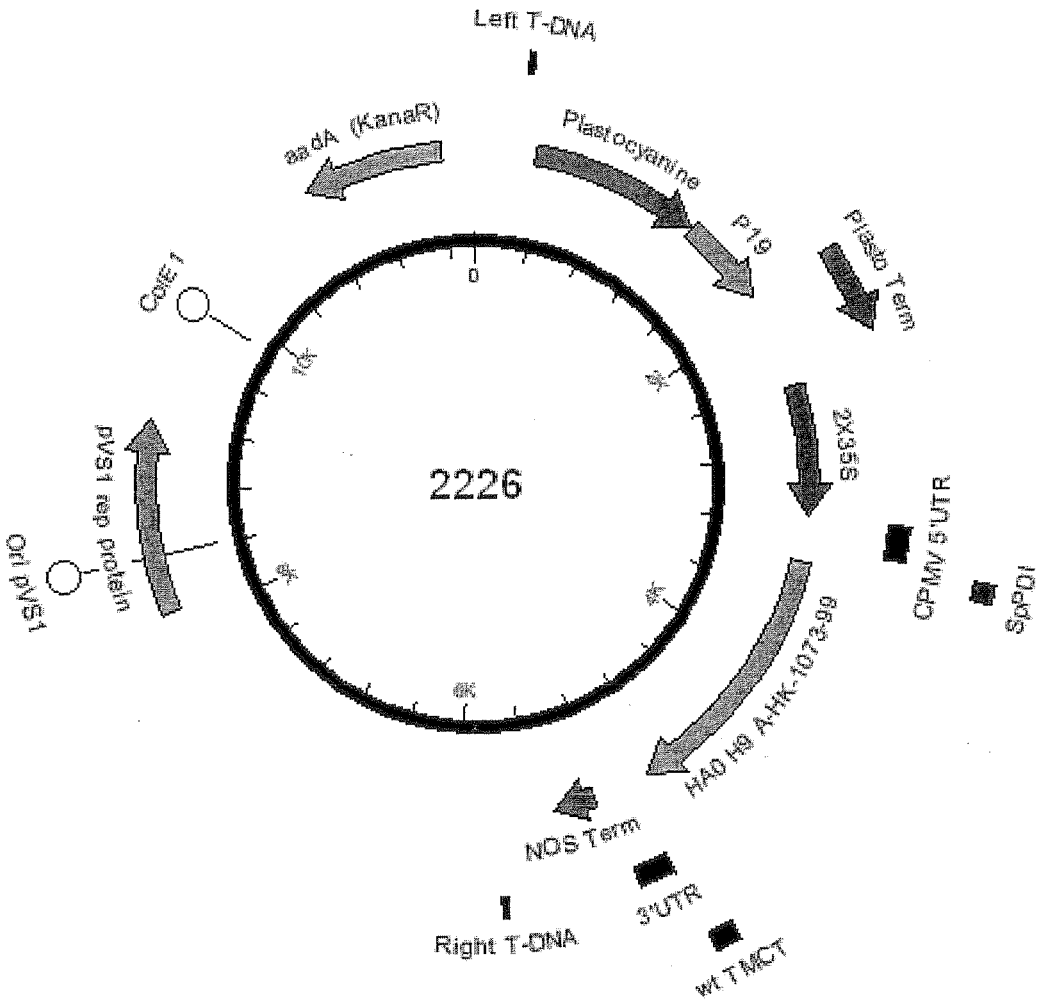


Figure 57E

Schematic representation of construct number 2225

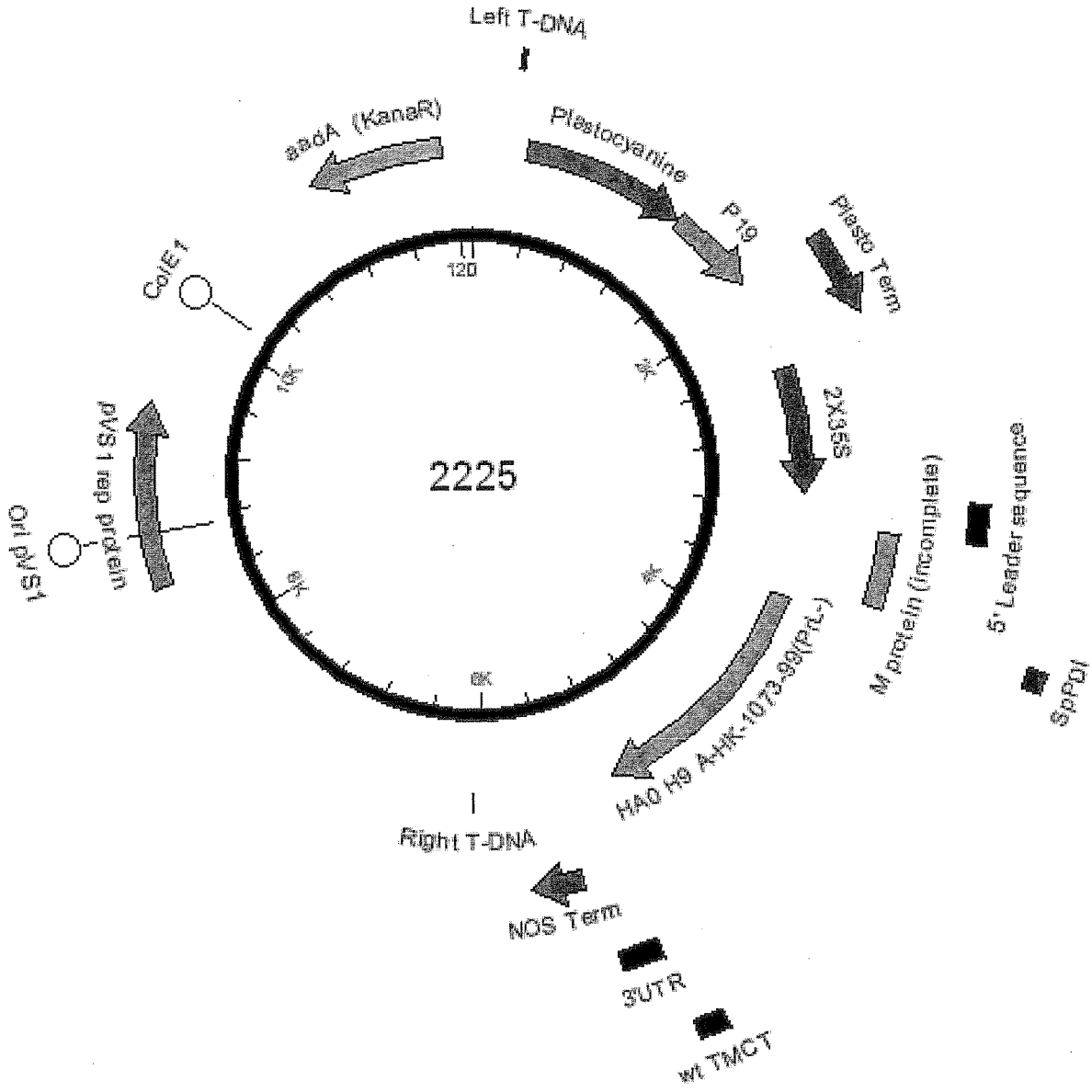


Figure 57F

Schematic representation of construct number 2227

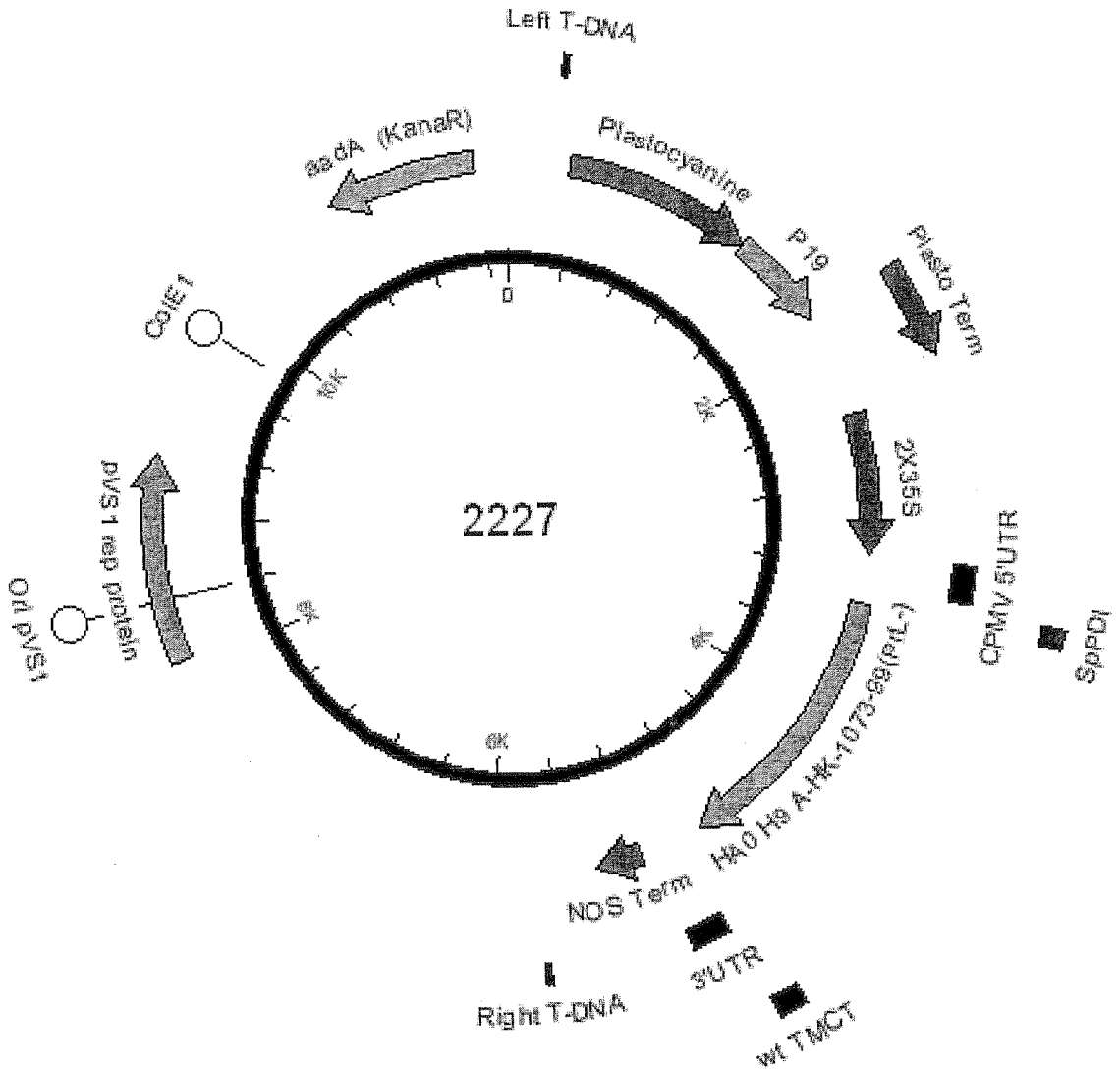
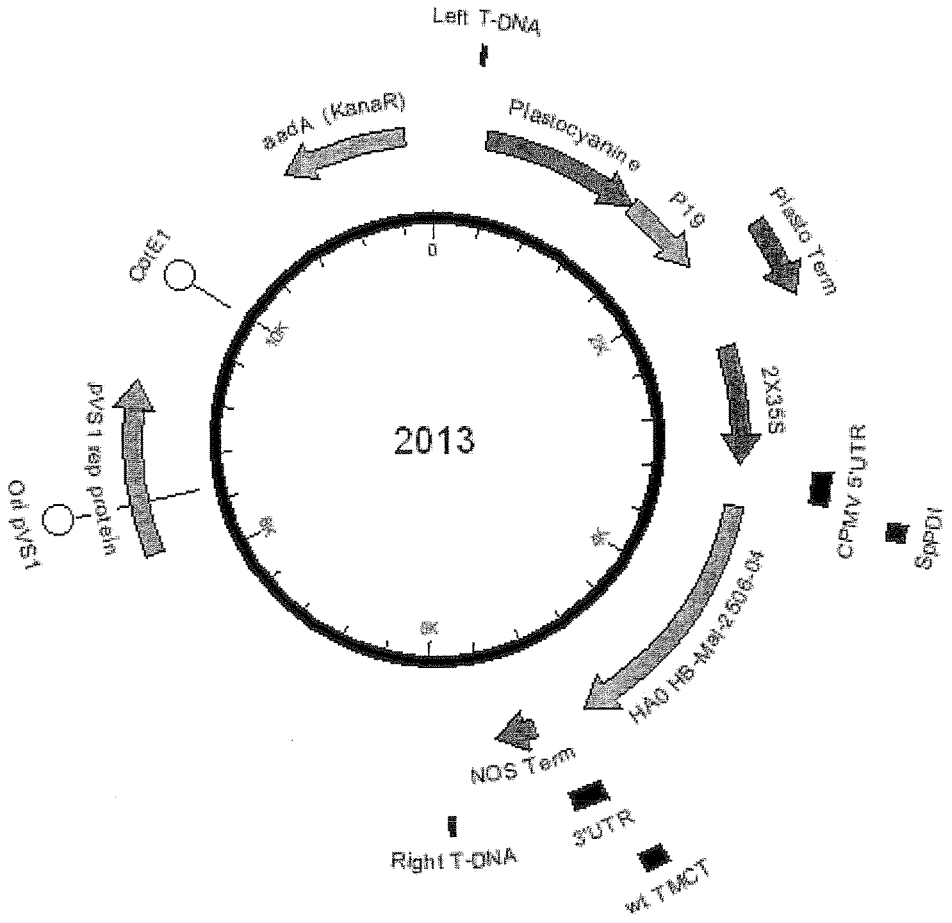


Figure 58D

Schematic representation of construct number 2013



2X35S/CPMV 160+/PDISP/HA B Malaysia with deleted proteolytic loop/NOS (Construct no 2014)

Figure 59A, SEQ ID NO: 165

Nucleotide sequence of PDISP/HA B Malaysia with deleted proteolytic loop

ATGGCGAAAAACGTTGCGATTTTCGGCTTATTGTTTTCTCTTCTTGTGTTGGTTCCTTCTCAGATCTTCGCGGATCGAA
TCTGCACTGGGATAACATCGTCAAACTCACCACATGTTGTCAAAACTGCTACTCAAGGGGAGGTCAATGTGACTGGTGT
AATACCACTGACAACAACACCCACCAAATCTCATTTTGCAAATCTCAAAGGAACAGAAACCAGAGGGAAACTATGCCCA
AAATGCCTCAACTGCACAGATCTGGACGTGGCCTTGGGCAGACCAAAATGCACGGGGAACATACCCTCGGCAAGAGTTT
CAATACTCCATGAAGTCAGACCTGTTACATCTGGGTGCTTTCCTATAATGCACGACAGAACAAAAATTAGACAGCTGCC
TAAACTTCTCAGAGGATACGAACATATCAGGTTATCAACTCATAACGTTATCAATGCAGAAAATGCACCAGGAGGACCC
TACAAAATTGGAACCTCAGGGTCTTGCCCTAACGTTACCAATGGAAACGGATTTTTCGCAACAATGGCTTGGGCCGTCC
CAAAAAACGACAACAACAAAACAGCAACAAATTCATTAACAATAGAAGTACCATACATTTGTACAGAAGGAGAAGACCA
AATTACCGTTTGGGGGTTCCACTCTGATAACGAAACCCAAATGGCAAAGCTCTATGGGGACTCAAAGCCCCAGAAGTTC
ACCTCATCTGCCAACGGAGTGACCACACATTACGTTTCACAGATTGGTGGCTTCCCAAATCAAACAGAAGACGGAGGAC
TACCACAAAGCGGTAGAATTGTTGTTGATTACATGGTGCAAAAATCTGGGAAAACAGGAACAATTACCTATCAAAGAGG
TATTTTATTGCCTCAAAAAGTGTGGTGCGCAAGTGGCAGGAGCAAGGTAATAAAAGGATCGTTGCCTTTAATTGGAGAA
GCAGATTGCCTCCACGAAAAATACGGTGGATTAAACAAAAGCAAGCCTTACTACACAGGGGAACATGCAAAGGCCATAG
GAAATTGCCCAATATGGGTGAAAACACCCTTGAAGCTGGCCAATGGAACCAAATATAGACCTCCTGGTGGAGGATGGGA
AGGAATGATTGCAGGTTGGCACGGATACACATCCCATGGGGCACATGGAGTAGCGGTGGCAGCAGACCTTAAGAGCACT
CAAGAGGCCATAAACAAGATAACAAAAAATCTCAACTCTTTGAGTGAGCTGGAAGTAAAGAATCTTCAAAGACTAAGCG
GTGCCATGGATGAACTCCACAACGAAATACTAGAACTAGACGAGAAAGTGGATGATCTCAGAGCTGATACAATAAGCTC
ACAAATAGAACTCGCAGTCCTGCTTTCCAATGAAGGAATAATAAACAGTGAAGATGAGCATCTCTTGGCGCTTGAAAGA
AAGCTGAAGAAAATGCTGGGCCCCTCTGCTGTAGAGATAGGGAATGGATGCTTTGAAACCAAACACAAGTGCAACCAGA
CCTGTCTCGACAGAATAGCTGCTGGTACCTTTGATGCAGGAGAATTTTCTCTCCCCACTTTTGATTCACTGAATATTAC
TGCTGCATCTTTAAATGACGATGGATTGGATAATCATACTATACTGCTTTACTACTCAACTGCTGCCTCCAGTTTGGCT
GTAACATTGATGATAGCTATCTTTGTTGTTTATATGGTCTCCAGAGACAATGTTTCTTGCTCCATCTGTCTATAA

Figure 59B, SEQ ID NO: 166

HBM250604(PrL-).r

CATTCCTTCCCATCCTCCACCAGGAGGTCTATATTTGGTTCCATTGGC

Figure 59C, SEQ ID NO: 167

HBM250604(PrL-).c

AGACCTCCTGGTGGAGGATGGGAAGGAATGATTGCAGGTTGGCACGGA

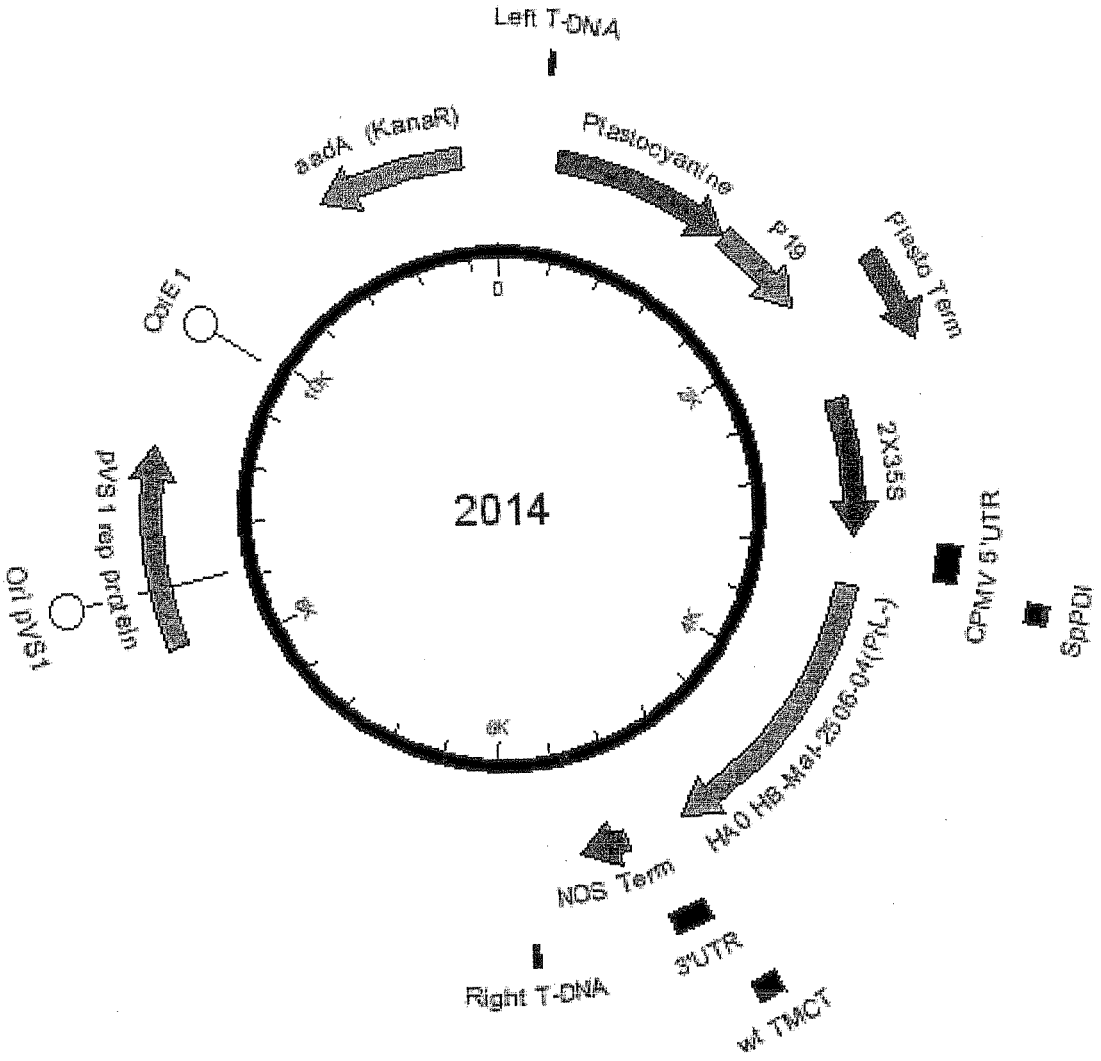
Figure 59D, SEQ ID NO: 168

Amino acid sequence of PDISP/HA B Malaysia with deleted proteolytic loop

MAKNVAIFGLLFSLLVLVPSQIFADRICTGITSSNSPHVVKTATQGEVNVTGVIPLTTTPTKSHFANLKGTETRGKLCPKCLNCTDLDVALG
RPKCTGNIPSARVSILHEVRPVTSGCFPIMHDRTKIRQLPKLLRGYEHIRLSTHNVINAENAPGGPYKIGTSGSCPNVTNGNGFFATMAW
AVPKNDNNKTATNSLTIEVPYICTEGEDQITVWGFHSDNETQMAKLYGDSKPQKFTSSANGVTTHYVSQIGGFPNQTEDGGLPQSGRI
VVDYMVQKSGKTGTITYQRGILLPQKVWCASGRSKVIKGSLPLIGEADCLHEKYGGLNKSKPYYTGEHAKAIGNCPIWVKTPLKLANGTK
YRPPGGGWEGMIAGWHGYTSHGAHGVAVAADLKSTQEAINKITKNLNSLSELEVKNLQRLSGAMDELHNEILELDEKVDDLRADTISS
QIELAVLLSNEGIINSEDEHLLALERKLKKMLGPSAVEIGNGCFETKHKCNQTCLDRIAAGTFDAGEFSLPTFDSLNITAASLNDDGLDNHT
ILLYYSTAASSLAVTLMIAIFVVYMVSRDNVSCSICL*

Figure 59E

Schematic representation of construct number 2014



2X35S/CPMV HT (construct no 2070), HT+ (construct no 2080) and 160+ (-Mprot) (construct no 2090) for PDISP/HA B Massachusetts

Figure 60A, SEQ ID NO: 169

Nucleotide sequence of PDISP/HA B Massachusetts

ATGGCGAAAAACGTTGCGATTTTCGGCTTATTGTTTTCTCTTCTTGTGTTGGTTCCTTCTCAGATCTTCGCCGATCGAATCTGCACTG
GGATAACATCTTCAAACTCACCTCATGTGGTCAAAACAGCTACTCAAGGGGAGGTCAATGTGACTGGTGTGATACCACTAACAAC
AACACCAACAAAATCTTATTTTGCAAATCTCAAAGGAACAAAGACCAGAGGGAAACTATGCCCAGACTGTCTCAACTGTACAGATC
TGGATGTGGCCCTGGGCAGGCCAATGTGTGTGGGAACTACACCTTCTGCGAAAGCTTCAATACTTCACGAAGTCAGACCTGTTAC
ATCCGGGTGCTTCCCTATAATGCACGACAGAACAAAAATCAGGCAACTAGCCAATCTTCTCAGAGGATATGAAAATATCAGGTTAT

CAACCCAAAACGTTATCGATGCAGAAAAGGCACCAGGAGGACCCTACAGACTTGGAACCTCAGGATCTTGCCCTAACGCTACCAG
TAAAAGCGGATTTTTCGCAACAATGGCTTGGGCTGTCCCAAAGGACAACAACAAAAATGCAACGAACCCATTAACAGTAGAAGTA
CCATACATTTGTGCAGAAGGGGAAGACCAAATTACTGTTTGGGGGTTCCATTCAGATAACAAAACCCAAATGAAGAACCTCTATG
GAGACTCAAATCCTCAAAAGTTCACCTCATCTGCTAATGGAGTAACCACACATTATGTTTCTCAGATTGGCGGCTTCCCAGATCAAA
CAGAAGACGGAGGACTACCACAAAGCGGCAGAATTGTCGTTGATTACATGATGCAAAAACCTGGGAAAACAGGAACAATTGTCT
ATCAAAGAGGTGTTTTGTTGCCTCAAAAGGTGTGGTGCGCGAGTGGCAGGAGCAAAGTAATAAAAGGGTCCTTGCCTTTAATTGG
TGAAGCAGATTGCCTTCATGAAAAATACGGTGGATTAAACAAAAGCAAGCCTTACTACACAGGAGAACATGCAAAAGCCATAGG
AAATTGCCCAATATGGGTGAAAACACCTTTGAAGCTTGCCAATGGAACCAAATATAGACCTCCTGCAAAACTATTAAAGGAAAGG
GGTTTCTTCGGAGCTATTGCTGGTTTCCTAGAAGGAGGATGGGAAGGAATGATTGCAGGTTGGCACGGATACACATCTCACGGA
GCACATGGAGTGGCAGTTGCTGCAGACCTTAAGAGCACACAAGAAGCTATAAACAAGATAACAAAAAATCTCAACTCTTTGAGTG
AGCTAGAAGTAAAGAATCTTCAAAGGCTAAGTGGTGCCATGGATGAACTCCACAACGAAATACTCGAGCTGGATGAGAAAGTGG
ATGACCTCAGAGCTGACACTATAAGTTCACAAATAGAACTTGCAGTCTTGCTTTCCAACGAAGGAATAATAAACAGTGAAGACGA
GCATCTATTGGCACTTGAGAGAAAACTAAAGAAAATGCTGGGTCCCTCTGCTGTAGACATAGGAAATGGATGCTTCGAAACCAAA
CACAAATGCAACCAGACCTGCTTAGACAGGATAGCTGCTGGCACCTTTAATGCAGGAGAGTTTTCTCTCCCCACTTTTGATTCATTG
AACATTACTGCTGCATCTTTAAATGATGATGGATTGGATAACCATACTATACTGCTCTATTACTCAACTGCTGCTTCTAGTTTGGCTG
TAACATTGATGCTAGCTATTTTTATTGTTTATATGGTCTCCAGAGACAACGTTTCATGCTCCATCTGTCTATAA

Figure 60B, SEQ ID NO: 170

Amino acid sequence of PDISP/HA B Massachusetts

MAKNVAIFGLLFSLLVLVPSQIFADRICTGITSSNSPHVVKTATQGEVNVTGVIPLTTTPTKSYFANLKGTKTRGKLCPDCLNCTDLDVALG
RPMCVGTTPSAKASILHEVRPVTSGCFPIMHDRTKIRQLANLLRGYENIRLSTQNVIDAEKAPGGPYRLGTSGSCPNATSKSGFFATMA
WAVPKDNNKNATNPLTVEVPYICAEGEDQITVWGFHSDNKTQMKNLYGDSNPQKFTSSANGVTTHYVSQIGGFPDQTEDGGLPQSG
RIVVDYMMQKPGKTGTIVYQRGVLLPQKVWCASGRSKVIKGSLPLIGEADCLHEKYGGLNKSKPYYTGEHAKAIGNCPIWVKTPLKLAN
GTKYRPPAKLLKERGFFGAIAGFLEGGWEGMIAGWHGYTSHGAHGVAVAADLKSTQEAINKITKNLNSLSELEVKNLQRLSGAMDELH
NEILELDEKVDDLRADTISSQIELAVLLSNEGIINSEDEHLLALERKLKKMLGPSAVDIGNGCFETKHKCNQTCLDRIAAGTFNAGEFSLPTF
DSLNITAASLNDDGLDNHTILLYYSTAASSLAVTLMLAIFIVYMVSRDNVSCSICL*

Figure 60C

Schematic representation of construct number 2070

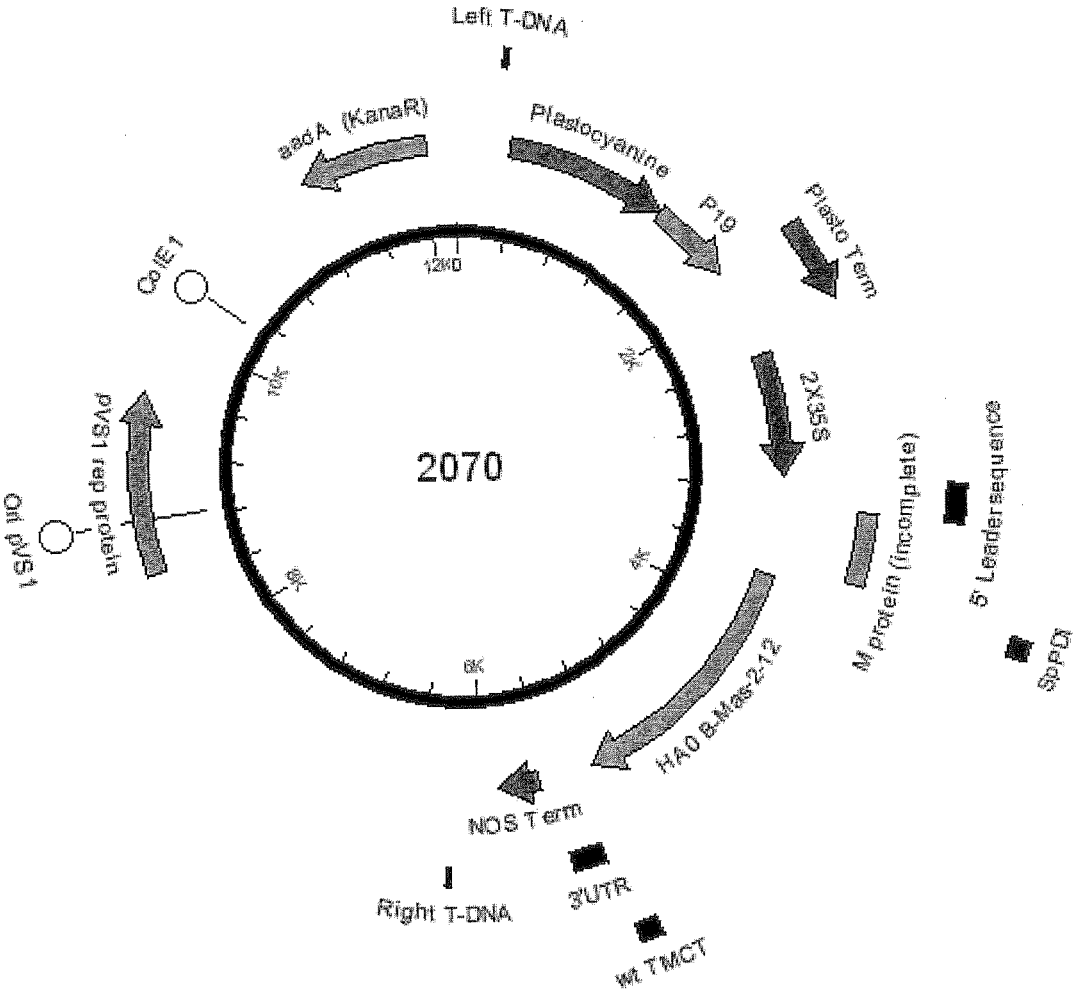


Figure 60D

Schematic representation of construct number 2080

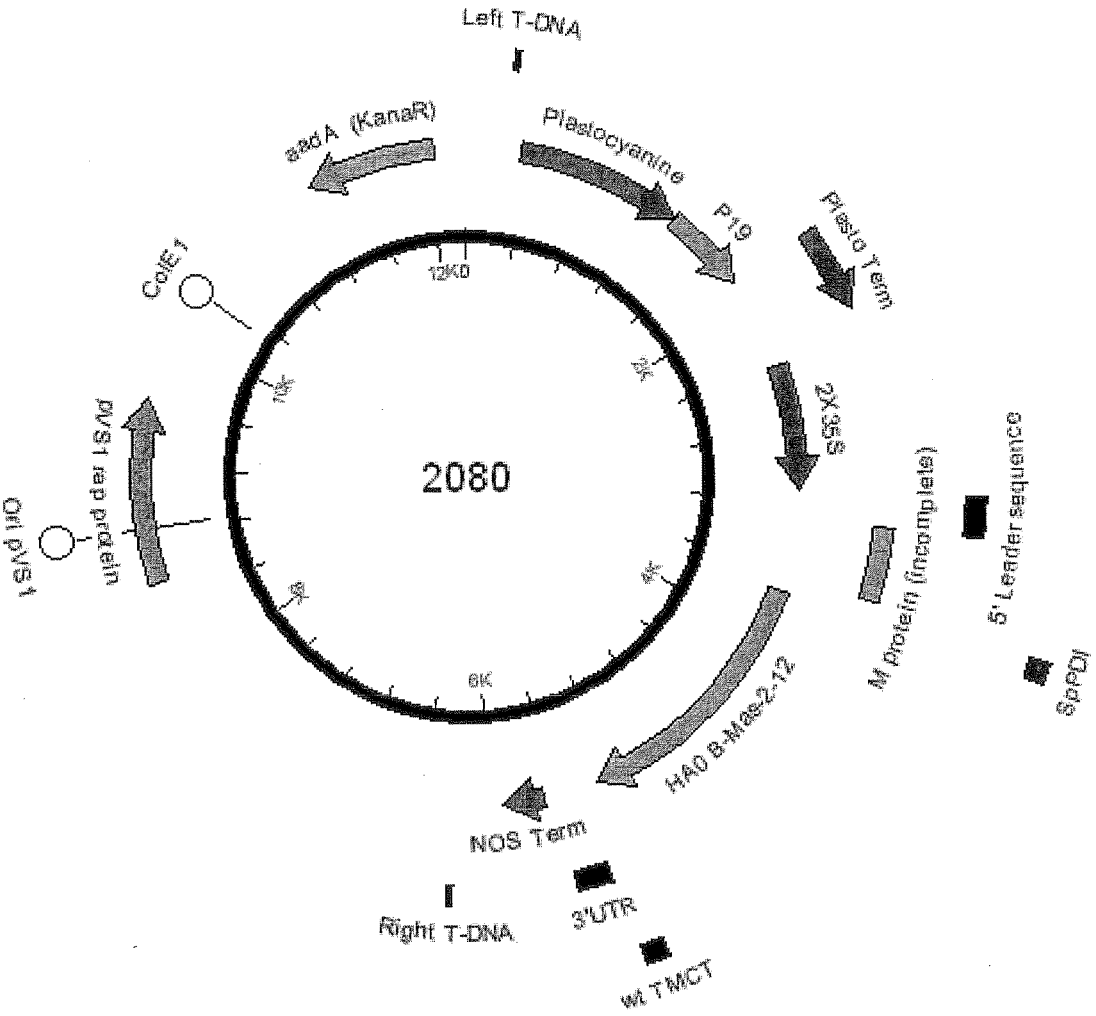


Figure 60E

Schematic representation of construct number 2090

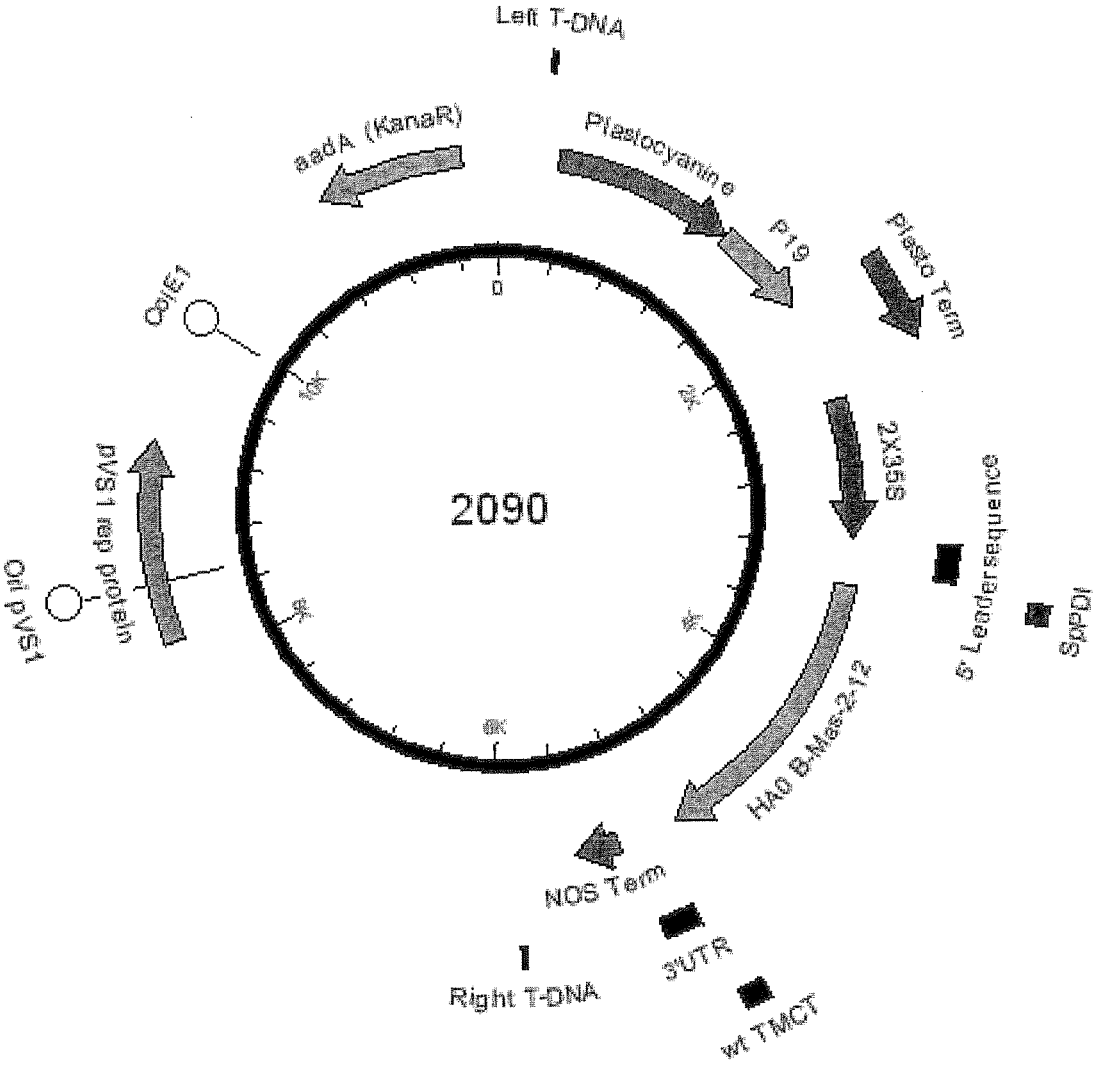


Fig 61G

Schematic representation of construct number 2102

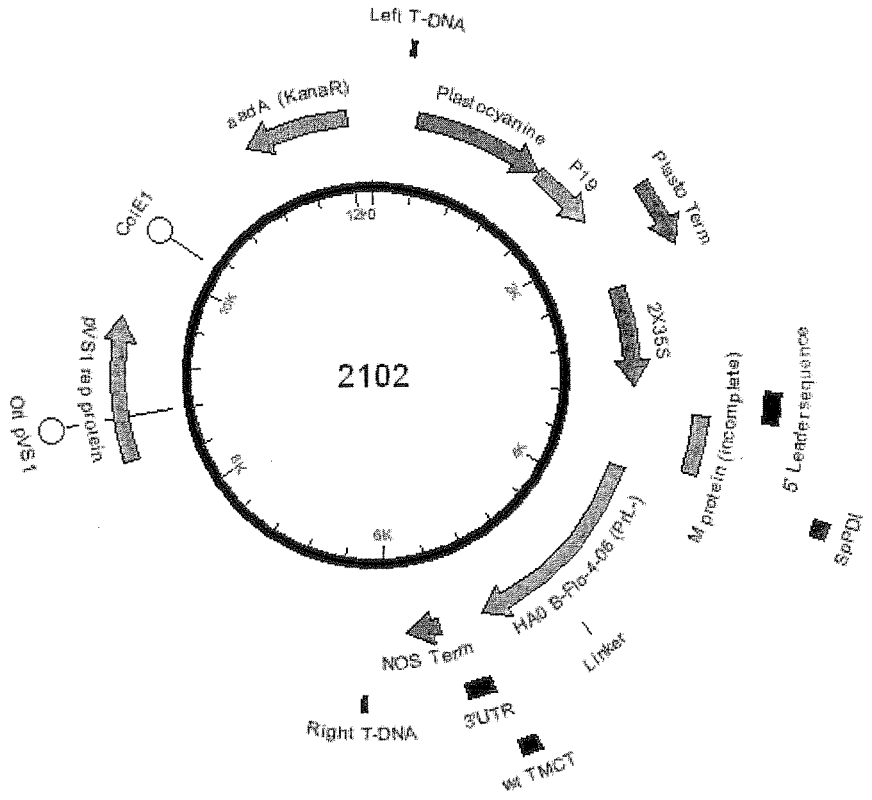


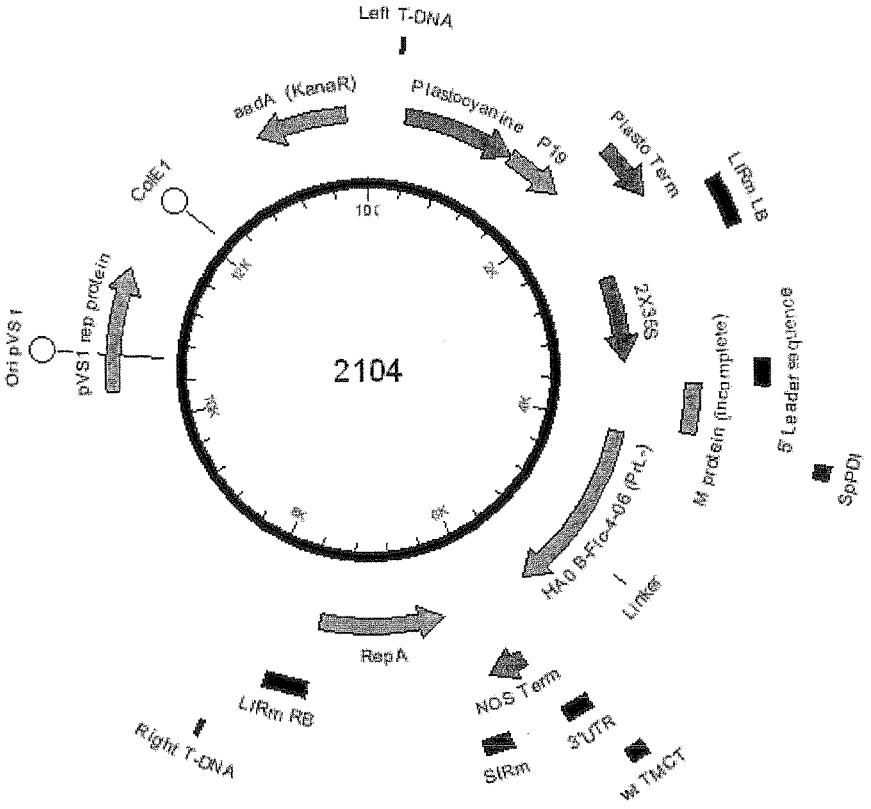
Fig 61H SEQ ID NO: 196

Expression cassette number 2104 from left to right LIR. PDISP/ HA B Florida with deleted proteolytic loop nucleotide sequence is underlined.

TGTTGTTGTGACTCCGAGGGGTTGCCTCAAACTCTATCTTATAACCGGCGTGGAGGCATGGAGGCAGGGGTATTTTGGT
CATTTTAATAGATAGTGGAAAATGACGTGGAATTTACTTAAAGACGAAGTCTTTGCGACAAGGGGGGGCCCACGCCGAA
TTTAATATTACCGGCGTGGCCCCCCCTTATCGCGAGTGCTTTAGCACGAGCGGTCCAGATTTAAAGTAGAAAATTTCCC
GCCCACTAGGGTTAAAGGTGTTCACACTATAAAAGCATATACGATGTGATGGTATTTGGTCGACAAGCTTGCATGCCGG
TCAACATGGTGGAGCACGACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAAAGGGCAATTGA
GACTTTTCAACAAAGGGTAATATCCGGAAACCTCCTCGGATTCCATTGCCCAGCTATCTGTCACTTTATTGTGAAGATA
GTGGAAAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAAAGGCCATCGTTGAAGATGCCTCTGCCGACA
GTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATCGTGGAAAAAGAAGACGTTCCAACCACGTCTTCAAAGCAAGT
GGATTGATGTGATAACATGGTGGAGCACGACACACTTGTCTACTCCAAAAATATCAAAGATACAGTCTCAGAAGACCAA
AGGGCAATTGAGACTTTTCAACAAAGGGTAATATCCGGAAACCTCCTCGGATTCCATTGCCCAGCTATCTGTCACTTTA
TTGTGAAGATAGTGGAAAAGGAAGGTGGCTCCTACAAATGCCATCATTGCGATAAAGGAAAGGCCATCGTTGAAGATGC
CTCTGCCGACAGTGGTCCCAAAGATGGACCCCCACCCACGAGGAGCATCGTGGAAAAAGAAGACGTTCCAACCACGTCT
TCAAAGCAAGTGGATTGATGTGATATCTCCACTGACGTAAGGGATGACGCACAATCCCACTATCCTTCGCAAGACCCTT
CCTCTATATAAGGAAGTTCATTTCATTTGGAGAGGTATTAAAATCTTAATAGGTTTTGATAAAAGCGAACGTGGGGAAA
CCCGAACCAAACCTTCTTCTAAACTCTCTCTCATCTCTCTTAAAGCAAACTTCTCTCTTGTCTTTCTTGCGTGAGCGAT
CTTCAACGTTGTCAGATCGTGCTTCGGCACCAGTACAACGTTTTCTTTCACTGAAGCGAAATCAAAGATCTCTTTGTGG
ACACGTAGTGCGGCGCCATTAAATAACGTGTACTTGTCCTATTCTTGTCGGTGTGGTCTTGGGAAAAGAAAGCTTGCTG
GAGGCTGCTGTTCAGCCCCATACATTACTTGTTACGATTCTGCTGACTTTCGGCGGGTGCAATATCTCTACTTCTGCTT
GACGAGGTATTGTTGCCTGTACTTCTTTCTTCTTCTTCTTGCTGATTGGTTCTATAAGAAATCTAGTATTTTCTTTGAA
ACAGAGTTTTCCCGTGGTTTTCGAACTTGGAGAAAGATTGTTAAGCTTCTGTATATTCTGCCCAAATTTGTCGGGCCCA
ATACCGCGGAGAAAATGGCGAAAAACGTTGCGATTTTCGGCTTATTGTTTTCTCTTCTTGTGTTGGTTCCTTCTCAGAT
CTTCGCGGATCGAATCTGCACTGGAATAACATCTTCAAACTCACCTCATGTGGTCAAAACAGCCACTCAAGGGGAGGTC
AATGTGACTGGTGTGATACCACTAACAACAACACCAACAAAATCTTATTTTGCAAATCTCAAAGGAACAAGGACCAGAG
GGAAACTATGCCCAGACTGTCTCAACTGCACAGATCTGGATGTGGCTTTGGGCAGACCAATGTGTGTGGGGACCACACC
TTCGGCGAAGGCTTCAATACTCCACGAAGTCAAACCTGTTACATCCGGGTGCTTTCCTATAATGCACGACAGAACAAAA

Fig 61I

Schematic representation of construct number 2104



2X35S/CPMV HT+/ PDISP/B Florida +H1 California TMCT with proteolytic loop deleted / NOS (Construct number 2106) and 2X35S/CPMV HT+/ BeYDV/PDISP/B Florida +H1 California TMCT with proteolytic loop deleted/ NOS (Construct number 2108)

FIG 62A SEQ ID NO: 197

IF-H1cTMCT.S1-4r (Construct 2106 and 2108)

ACTAAAGAAAATAGGCCTTTAAATACATATTCTACACTGTAGAGAC

FIG 62B SEQ ID NO: 198

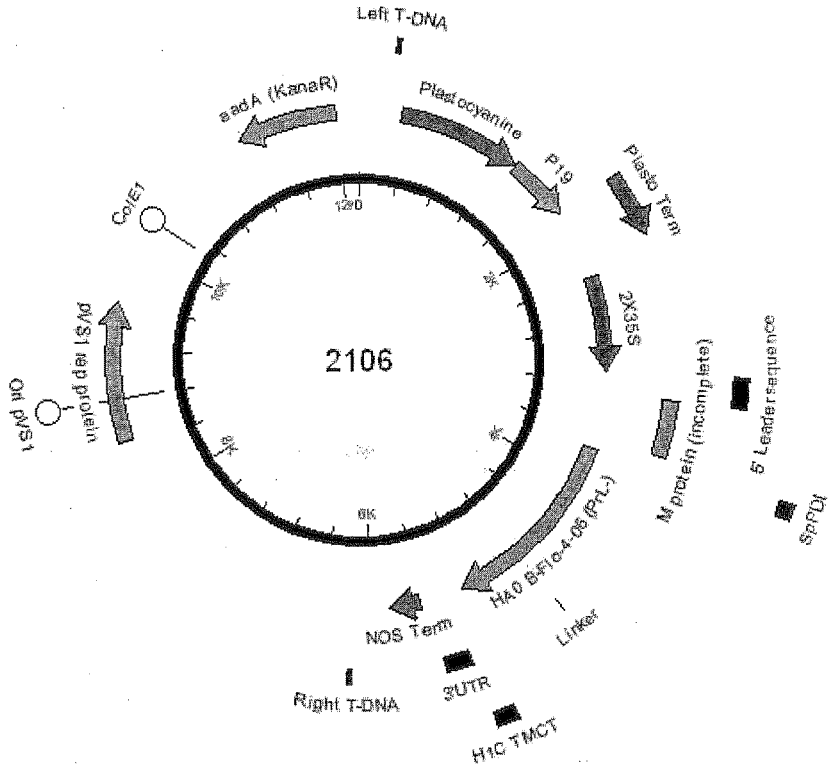
Nucleotide sequence of PDISP/HA B Florida+H1Cal TMCT with deleted proteolytic loop (construct 2106 and 2108)

ATGGCGAAAAACGTTGCGATTTTCGGCTTATTGTTTTCTCTTCTTGTGTTGGTTCCTTCTCAGATCTTCGCGGATCGAA
TCTGCACTGGAATAACATCTTCAAACTCACCTCATGTGGTCAAAACAGCCACTCAAGGGGAGGTCAATGTGACTGGTGT
GATACCACTAACAACAACACCAACAAAATCTTATTTTGCAAATCTCAAAGGAACAAGGACCAGAGGGAAACTATGCCCA
GACTGTCTCAACTGCACAGATCTGGATGTGGCTTTGGGCAGACCAATGTGTGTGGGGACCACACCTTCGGCGAAGGCTT
CAATACTCCACGAAGTCAAACCTGTTACATCCGGGTGCTTTCCTATAATGCACGACAGAACAAAAATCAGGCAACTACC
CAATCTTCTCAGAGGATATGAAAATATCAGGCTATCAACCCAAAACGTCATCGATGCGGAAAAGGCACCAGGAGGACCC
TACAGACTTGGAACCTCAGGATCTTGCCCTAACGCTACCAGTAAGAGCGGATTTTTCGCAACAATGGCTTGGGCTGTCC
CAAAGGACAACAACAAAAATGCAACGAACCCACTAACAGTAGAAGTACCATACATTTGTACAGAAGGGGAAGACCAAAT
CACTGTTTGGGGGTTCCATTCAGATAACAAAACCCAAATGAAGAACCTCTATGGAGACTCAAATCCTCAAAAGTTCACC
TCATCTGCTAATGGAGTAACCACACACTATGTTTCTCAGATTGGCAGCTTCCCAGATCAAACAGAAGACGGAGGACTAC
CACAAAGCGGCAGGATTGTTGTTGATTACATGATGCAAAAACCTGGGAAAACAGGAACAATTGTCTACCAAAGAGGTGT
TTTGTTGCCTCAAAAGGTGTGGTGCGCGAGTGGCAGGAGCAAAGTAATAAAAGGGTCCTTGCCTTTAATTGGTGAAGCA
GATTGCCTTCATGAAAAATACGGTGGATTAAACAAAAGCAAGCCTTACTACACAGGAGAACATGCAAAAGCCATAGGAA
ATTGCCCAATATGGGTGAAAACACCTTTGAAGCTCGCCAATGGAACCAAATATAGACCTCCTGGTGGAGGATGGGAAGG
AATGATTGCAGGCTGGCACGGATACACATCTCACGGAGCACATGGAGTGGCAGTGGCGGCGGACCTTAAGAGTACGCAA

CAAAAGCCATAGGAAATTGCCCAATATGGGTGAAAACACCTTTGAAGCTCGCCAATGGAACCAAATATAGACCTCCTGG
TGGAGGATGGGAAGGAATGATTGCAGGCTGGCACGGATACACATCTCACGGAGCACATGGAGTGGCAGTGGCGGCGGAC
CTTAAGAGTACGCAAGAAGCTATAAACAAGATAACAAAAAATCTCAATTCTTTGAGTGAGCTAGAAGTAAAGAATCTTC
AAAGACTAAGTGGTGCCATGGATGAACTCCACAACGAAATACTCGAGCTGGATGAGAAAGTGGATGATCTCAGAGCTGA
CACTATAAGCTCGCAAATAGAACTTGCAGTCTTGCTTTCCAACGAAGGAATAATAAACAGTGAAGATGAGCATCTATTG
GCACTTGAGAGAAAACTAAAGAAAATGCTGGGTCCCTCTGCTGTAGAGATAGGAAATGGATGCTTCGAAACCAAACACA
AGTGCAACCAGACCTGCTTAGACAGGATAGCTGCTGGCACCTTTAATGCAGGAGAATTTTCTCTCCCCACTTTTGATTC
ACTGAACATTACTGCTGCATCTTTAAATGATGATGGATTGGATAACTACCAGATTTTGGCGATCTATTCAACTGTCGCC
AGTTCATTGGTACTGGTAGTCTCCCTGGGGGCAATCAGTTTCTGGATGTGCTCTAATGGGTCTCTACAGTGTAGAATAT
GTATTTAAAGGCCTATTTTCTTTAGTTTGAATTTACTGTTATTCGGTGTGCATTTCTATGTTTGGTGAGCGGTTTTCTG
TGCTCAGAGTGTGTTTATTTTATGTAATTTAATTTCTTTGTGAGCTCCTGTTTAGCAGGTCGTCCCTTCAGCAAGGACA
CAAAAAGATTTTAATTTTATTAAAAAAAAAAAAAAAAAAAGACCGGGAATTCGATATCAAGCTTATCGACCTGCAGATCG
TTCAAACATTTGGCAATAAAGTTTCTTAAGATTGAATCCTGTTGCCGGTCTTGCGATGATTATCATATAATTTCTGTTG
AATTACGTTAAGCATGTAATAATTAACATGTAATGCATGACGTTATTTATGAGATGGGTTTTTATGATTAGAGTCCCGC
AATTATACATTTAATACGCGATAGAAAACAAAATATAGCGCGCAAACTAGGATAAATTATCGCGCGCGGTGTCATCTAT
GTTACTAGAT

FIG 62E

Schematic representation of construct number 2106



ACTTTAGATAAACTCGTATGAGGAGAGGCACGTTCAGTGACTCGACGATTCCCGAGCAAAAAAAGTCTCCCCGTCACAC
ATATAGTGGGTGACGCAATTATCTTTAAAGTAATCCTTCTGTTGACTTGTCATTGATAACATCCAGTCTTCGTCAGGAT
TGCAAAGAATTATAGAAGGGATCCCACCTTTTATTTTCTTCTTTTTTCCATATTTAGGGTTGACAGTGAAATCAGACTG
GCAACCTATTAATTGCTTCCACAATGGGACGAACTTGAAGGGGATGTCGTCGATGATATTATAGGTGGCGTGTTCATCG
TAGTTGGTGAAATCGATGGTACCGTTCCAATAGTTGTGTCGTCCGAGACTTCTAGCCCAGGTGGTCTTTCCGGTACGAG
TTGGTCCGCAGATGTAGAGGCTGGGGTGTCGGATTCCATTCCTTCCATTGTCCTGGTTAAATCGGCCATCCATTCAAGG
TCAGATTGAGCTTGTTGGTATGAGACAGGATGTATGTAAGTATAAGCGTCTATGCTTACATGGTATAGATGGGTTTCCC
TCCAGGAGTGTAGATCTTCGTGGCAGCGAAGATCTGATTCTGTGAAGGGCGACACATACGGTTCAGGTTGTGGAGGGAA
TAATTTGTTGGCTGAATATTCCAGCCATTGAAGTTTTGTTGCCCATTCATGAGGGAATTCTTCCTTGATCATGTCAAGA
TATTCCTCCTTAGACGTTGCAGTCTGGATAATAGTTCTCCATCGTGCGTCAGATTTGCGAGGAGAGACCTTATGATCTC
GGAAATCTCCTCTGGTTTTAATATCTCCGTCCTTTGATATGTAATCAAGGACTTGTTTAGAGTTTCTAGCTGGCTGGAT
ATTAGGGTGATTTCCTTCAAAATCGAAAAAAGAAGGATCCCTAATACAAGGTTTTTTATCAAGCTGGAGAAGAGCATGA
TAGTGGGTAGTGCCATCTTGATGAAGCTCAGAAGCAACACCAAGGAAGAAAATAAGAAAAGGTGTGAGTTTCTCCCAGA
GAAACTGGAATAAATCATCTCTTTGAGATGAGCACTTGGGATAGGTAAGGAAAACATATTTAGATTGGAGTCTGAAGTT
CTTACTAGCAGAAGGCATGTTGTTGTGACTCCGAGGGGTTGCCTCAAACTCTATCTTATAACCGGCGTGGAGGCATGGA
GGCAGGGGTATTTTGGTCATTTTAATAGATAGTGGAAAATGACGTGGAATTTACTTAAAGACGAAGTCTTTGCGACAAG
GGGGGGCCCACGCCGAATTTAATATTACCGGCGTGGCCCCCCCTTATCGCGAGTGCTTTAGCACGAGCGGTCCAGATTT
AAAGTAGAAAATTTCCCGCCCACTAGGGTTAAAGGTGTTCACACTATAAAAGCATATACGATGTGATGGTATTTG

FIG 62G

Schematic representation of construct number 2108

