Figure 1

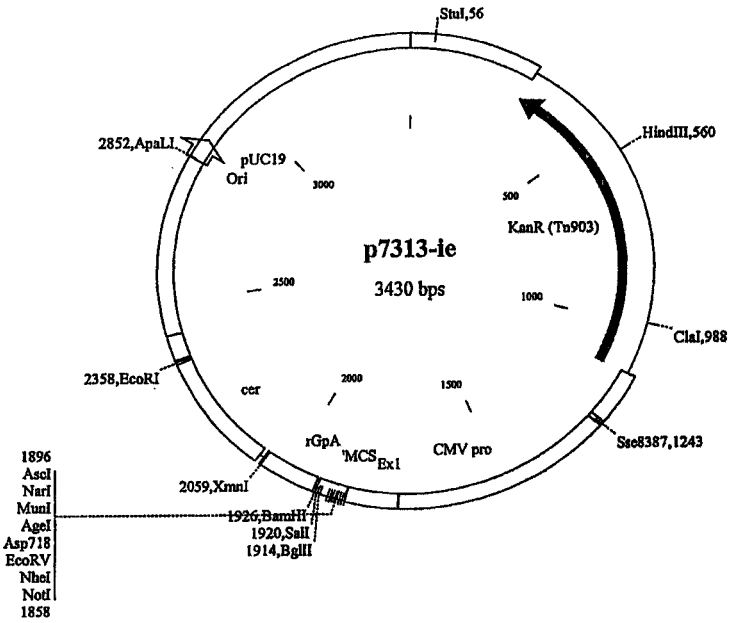

StuI,56
HindIII,560
ClaI,988
Ste8387,1243
CMV pro
rGpA
MCS
Ex1
2059,XmnI
1926,BamHI
1920,SalI
1914,BglII
2358,EcoRI
ccr
2852,ApaLI
pUC19
Ori
KanR (Tn903)
p7313-ie
3430 bps
500
1000
1500
2000
2500
3000
1896
AscI
NarI
MunI
AgeI
Asp718
EcoRV
NheI
NotI
1858

Figure 2

Sequence of p55 gag insert in pGagOptrpr2

ATGGGTGCCCGAGCTTCGGTACTGTCTGGTGGAGAGCTGGACAGATGGGAGAAAATT
AGGCTGCGCCCGGGAGGCAAAAAGAAATACAAGCTCAAGCATATCGTGTGGGCCTCG
AGGGAGCTTGAACGGTTTGCCGTGAACCCAGGCCTGCTGGAAACATCTGAGGGATGT
CGCCAGATCCTGGGGCAATTGCAGCCATCCCTCCAGACCGGGAGTGAAGAGCTGAGG
TCCTTGTATAACACAGTGGCTACCCTCTACTGCGTACACCAGAGGATCGAGATTAAG
GATACCAAGGAGGCCTTGGACAAAATTGAGGAGGAGCAAAACAAGAGCAAGAAGAAG
GCCCAGCAGGCAGCTGCTGACACTGGGCATAGCAACCAGGTATCACAGAACTATCCT
ATTGTCCAAAACATTCAGGGCCAGATGGTTCATCAGGCCATCAGCCCCCGGACGCTC
AATGCCTGGGTGAAGGTTGTCGAAGAGAAGGCCTTTTCTCCTGAGGTTATCCCCATG
TTCTCCGCTTTGAGTGAGGGGGCCACTCCTCAGGACCTCAATACAATGCTTAATACC
GTGGGCGGCCATCAGGCCGCCATGCAAATGTTGAAGGAGACTATCAACGAGGAGGCA
GCCGAGTGGGACAGAGTGCATCCCGTCCACGCTGGCCCAATCGCGCCCGGACAGATG
CGGGAGCCTCGCGGCTCTGACATTGCCGGCACCACCTCTACACTGCAAGAGCAAATC
GGATGGATGACCAACAATCCTCCCATCCCAGTTGGAGAAATCTATAAACGGTGGATC
ATTCTCGGTCTCAATAAAATTGTTAGAATGTACTCTCCGACATCCATCCTTGACATT
AGACAGGGACCCAAAGAGCCTTTTAGGGATTACGTCGACCGGTTTTATAAGACCCTG
CGAGCAGAGCAGGCCTCTCAGGAGGTCAAAAACTGGATGACGGAGACACTCCTGGTA
CAGAACGCTAACCCCGACTGCAAAACAATCTTGAAGGCACTAGGCCCGGCTGCCACC
CTGGAAGAGATGATGACCGCCTGTCAGGGAGTAGGCGGACCCGGACACAAAGCCAGA
GTGTTGGCCGAAGCCATGAGCCAGGTGACGAACTCCGCAACCATCATGATGCAGAGA
GGGAACTTCCGCAATCAGCGGAAGATCGTGAAGTGTTTCAATTGCGGCAAGGAGGGT
CATACCGCCCGCAACTGTCGGGCCCCTAGGAAGAAAGGGTGTTGGAAGTGCGGCAAG
GAGGGACACCAGATGAAAGACTGTACAGAACGACAGGCCAATTTTCTTGGAAAGATT
TGGCCGAGCTACAAGGGGAGACCTGGTAATTTCCTGCAAAGCAGGCCCGAGCCCACC
GCCCCCCCTGAGGAATCCTTCAGGTCCGGAGTGGAGACCACAACGCCTCCCCAAAAA
CAGGAACCAATCGACAAGGAGCTGTACCCTTTAACTTCTCTGCGTTCTCTCTTTGGC
AACGACCCGTCGTCTCAATAA [SEQ ID NO: 50]

MGARASVLSG GELDRWEKIR LRPGGKKKYK LKHIVWASRE LERFAVNPGL
LETSEGCRQI LGQLQPSLQT GSEELRSLYN TVATLYCVHQ RIEIKDTKEA
LDKIEEEQNK SKKKAQQAAA DTGHSNQVSQ NYPIVQNIQG QMVHQAISPR
TLNAWVKVVE EKAFSPEVIP MFSALSEGAT PQDLNTMLNT VGGHQAAMQM
LKETINEEAA EWDRVHPVHA GPIAPGQMRE PRGSDIAGTT STLQEQIGWM
TNNPPIPVGE IYKRWIILGL NKIVRMYSPT SILDIRQGPK EPFRDYVDRF
YKTLRAEQAS QEVKNWMTET LLVQNANPDC KTILKALGPA ATLEEMMTAC
QGVGGPGHKA RVLAEAMSQV TNSATIMMQR GNFRNQRKIV KCFNCGKEGH
TARNCRAPRK KGCWKCGKEG HQMKDCTERQ ANFLGKIWPS YKGRPGNFLQ
SRPEPTAPPE ESFRSGVETT TPPQKQEPID KELYPLTSLR SLFGNDPSSQ
*
[SEQ ID NO: 51]

Figure 3

Sequence of the p17/24trNEF insert in p17/24trNEF1

ATGGGTGCGAGAGCGTCAGTATTAAGCGGGGGAGAATTAGATCGATGGGAAAAAATT
CGGTTAAGGCCAGGGGGAAAGAAAAAATATAAATTAAAACATATAGTATGGGCAAGC
AGGGAGCTAGAACGATTCGCAGTTAATCCTGGCCTGTTAGAAACATCAGAAGGCTGT
AGACAAATACTGGGACAGCTACAACCATCCCTTCAGACAGGATCAGAAGAACTTAGA
TCATTATATAATACAGTAGCAACCCTCTATTGTGTGCATCAAAGGATAGAGATAAAA
GACACCAAGGAAGCTTTAGACAAGATAGAGGAAGAGCAAAACAAAAGTAAGAAAAAA
GCACAGCAAGCAGCAGCTGACACAGGACACAGCAATCAGGTCAGCCAAAATTACCCT
ATAGTGCAGAACATCCAGGGGCAAATGGTACATCAGGCCATATCACCTAGAACTTTA
AATGCATGGGTAAAAGTAGTAGAAGAGAAGGCTTTCAGCCCAGAAGTGATACCCATG
TTTTCAGCATTATCAGAAGGAGCCACCCCACAAGATTTAAACACCATGCTAAACACA
GTGGGGGGGACATCAAGCAGCCATGCAAATGTTAAAAGAGACCATCAATGAGGAAGCT
GCAGAATGGGATAGAGTGCATCCAGTGCATGCAGGGCCTATTGCACCAGGCCAGATG
AGAGAACCAAGGGGAAGTGACATAGCAGGAACTACTAGTACCCTTCAGGAACAAATA
GGATGGATGACAAATAATCCACCTATCCCAGTAGGAGAAATTTATAAAAGATGGATA
ATCCTGGGATTAAATAAAATAGTAAGAATGTATAGCCCTACCAGCATTCTGGACATA
AGACAAGGACCAAAAGAACCCTTTAGAGACTATGTAGACCGGTTCTATAAAACTCTA
AGAGCCGAGCAAGCTTCACAGGAGGTAAAAAATTGGATGACAGAAACCTTGTTGGTC
CAAAATGCGAACCCAGATTGTAAGACTATTTTAAAAGCATTGGGACCAGCGGCTACA
CTAGAAGAAATGATGACAGCATGTCAGGGAGTAGGAGGACCCGGCCATAAGGCAAGA
GTTTTGGTGGGTTTTCCAGTCACACCTCAGGTACCTTTAAGACCAATGACTTACAAG
GCAGCTGTAGATCTTAGCCACTTTTTAAAAGAAAAGGGGGGACTGGAAGGGCTAATT
CACTCCCAAAGAAGACAAGATATCCTTGATCTGTGGATCTACCACACACAAGGCTAC
TTCCCTGATTGGCAGAACTACACACCAGGGCCAGGGGTCAGATATCCACTGACCTTT
GGATGGTGCTACAAGCTAGTACCAGTTGAGCCAGATAAGGTAGAAGAGGCCAATAAA
GGAGAGAACACCAGCTTGTTACACCCTGTGAGCCTGCATGGGATGGATGACCCGGAG
AGAGAAGTGTTAGAGTGGAGGTTTGACAGCCACCTAGCATTTCATCACGTGGCCCGA
GAGCTGCATCCGGAGTACTTCAAGAACTGCTGA [SEQ ID NO: 52]

MGARASVLSG GELDRWEKIR LRPGGKKKYK LKHIVWASRE LERFAVNPGL
LETSEGCRQI LGQLQPSLQT GSEELRSLYN TVATLYCVHQ RIEIKDTKEA
LDKIEEEQNK SKKKAQQAAA DTGHSNQVSQ NYPIVQNIQG QMVHQAISPR
TLNAWVKVVE EKAFSPEVIP MFSALSEGAT PQDLNTMLNT VGGHQAAMQM
LKETINEEAA EWDRVHPVHA GPIAPGQMRE PRGSDIAGTT STLQEQIGWM
TNNPPIPVGE IYKRWIILGL NKIVRMYSPT SILDIRQGPK EPFRDYVDRF
YKTLRAEQAS QEVKNWMTET LLVQNANPDC KTILKALGPA ATLEEMMTAC
QGVGGPGHKA RVLVGFPVTP QVPLRPMTYK AAVDLSHFLK EKGGLEGLIH
SQRRQDILDL WIYHTQGYFP DWQNYTPGPG VRYPLTFGWC YKLVPVEPDK
VEEANKGENT SLLHPVSLHG MDDPEREVLE WRFDSHLAFH HVARELHPEY
FKNC*
[SEQ ID NO: 53]

Figure 4

Sequence of the p17/24opt/trNef insert in p17/24opt/trNef1

ATGGGTGCCCGAGCTTCGGTACTGTCTGGTGGAGAGCTGGACAGATGGGAGAAAATT
AGGCTGCGCCCGGGAGGCAAAAAGAAATACAAGCTCAAGCATATCGTGTGGGCCTCG
AGGGAGCTTGAACGGTTTGCCGTGAACCCAGGCCTGCTGGAAACATCTGAGGGATGT
CGCCAGATCCTGGGGCAATTGCAGCCATCCCTCCAGACCGGGAGTGAAGAGCTGAGG
TCCTTGTATAACACAGTGGCTACCCTCTACTGCGTACACCAGAGGATCGAGATTAAG
GATACCAAGGAGGCCTTGGACAAAATTGAGGAGGAGCAAAACAAGAGCAAGAAGAAG
GCCCAGCAGGCAGCTGCTGACACTGGGCATAGCAACCAGGTATCACAGAACTATCCT
ATTGTCCAAAACATTCAGGGCCAGATGGTTCATCAGGCCATCAGCCCCCGGACGCTC
AATGCCTGGGTGAAGGTTGTCGAAGAGAAGGCCTTTTCTCCTGAGGTTATCCCCATG
TTCTCCGCTTTGAGTGAGGGGGCCACTCCTCAGGACCTCAATACAATGCTTAATACC
GTGGGCGGCCATCAGGCCGCCATGCAAATGTTGAAGGAGACTATCAACGAGGAGGCA
GCCGAGTGGGACAGAGTGCATCCCGTCCACGCTGGCCCAATCGCGCCCGGACAGATG
CGGGAGCCTCGCGGCTCTGACATTGCCGGCACCACCTCTACACTGCAAGAGCAAATC
GGATGGATGACCAACAATCCTCCCATCCCAGTTGGAGAAATCTATAAACGGTGGATC
ATTCTCGGTCTCAATAAAATTGTTAGAATGTACTCTCCGACATCCATCCTTGACATT
AGACAGGGACCCAAAGAGCCTTTTAGGGATTACGTCGACCGGTTTTATAAGACCCTG
CGAGCAGAGCAGGCCTCTCAGGAGGTCAAAAACTGGATGACGGAGACACTCCTGGTA
CAGAACGCTAACCCCGACTGCAAAACAATCTTGAAGGCACTAGGCCCGGCTGCCACC
CTGGAAGAGATGATGACCGCCTGTCAGGGAGTAGGCGGACCCGGACACAAAGCCAGA
GTGTTGATGGTGGGTTTTCCAGTCACACCTCAGGTACCTTTAAGACCAATGACTTAC
AAGGCAGCTGTAGATCTTAGCCACTTTTTAAAAGAAAAGGGGGGACTGGAAGGGCTA
ATTCACTCCCAAAGAAGACAAGATATCCTTGATCTGTGGATCTACCACACACAAGGC
TACTTCCCTGATTGGCAGAACTACACACCAGGGCCAGGGGTCAGATATCCACTGACC
TTTGGATGGTGCTACAAGCTAGTACCAGTTGAGCCAGATAAGGTAGAAGAGGCCAAT
AAAGGAGAGAACACCAGCTTGTTACACCCTGTGAGCCTGCATGGGATGGATGACCCG
GAGAGAGAAGTGTTAGAGTGGAGGTTTGACAGCCACCTAGCATTTCATCACGTGGCC
CGAGAGCTGCATCCGGAGTACTTCAAGAACTGCTGA [SEQ ID NO: 54]

MGARASVLSG GELDRWEKIR LRPGGKKKYK LKHIVWASRE LERFAVNPGL
LETSEGCRQI LGQLQPSLQT GSEELRSLYN TVATLYCVHQ RIEIKDTKEA
LDKIEEEQNK SKKKAQQAAA DTGHSNQVSQ NYPIVQNIQG QMVHQAISPR
TLNAWVKVVE EKAFSPEVIP MFSALSEGAT PQDLNTMLNT VGGHQAAMQM
LKETINEEAA EWDRVHPVHA GPIAPGQMRE PRGSDIAGTT STLQEQIGWM
TNNPPIPVGE IYKRWIILGL NKIVRMYSPT SILDIRQGPK EPFRDYVDRF
YKTLRAEQAS QEVKNWMTET LLVQNANPDC KTILKALGPA ATLEEMMTAC
QGVGGPGHKA RVLMVGFPVT PQVPLRPMTY KAAVDLSHFL KEKGGLEGLI
HSQRRQDILD LWIYHTQGYF PDWQNYTPGP GVRYPLTFGW CYKLVPVEPD
KVEEANKGEN TSLLHPVSLH GMDDPEREVL EWRFDSHLAF HHVARELHPE
YFKNC*
[SEQ ID NO: 55]

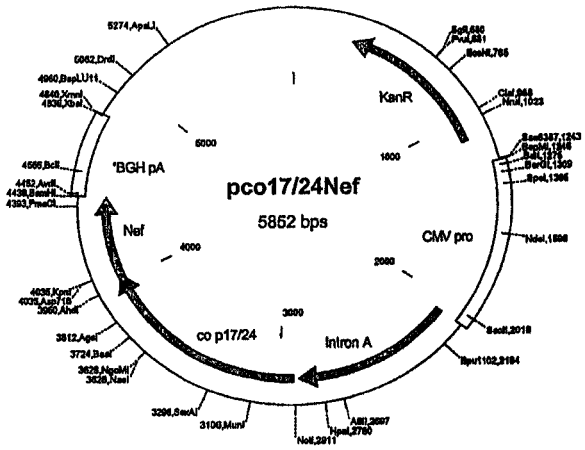

pco17/24Nef
5852 bps
KanR
CMV pro
Intron A
co p17/24
Nef
'BGH pA
1000
2000
3000
4000
5000

Figure 5

Sequence of RT insert of p7077-RT3:

ATGGGCCCCATCAGTCCCATCGAGACCGTGCCGGTGAAGCTGAAACCCGGGATGGAC
GGCCCCAAGGTCAAGCAGTGGCCACTCACCGAGGAGAAGATCAAGGCCCTGGTGGAG
ATCTGCACCGAGATGGAGAAAGAGGGCAAGATCAGCAAGATCGGGCCTGAGAACCCA
TACAACACCCCCGTGTTTGCCATCAAGAAGAAGGACAGCACCAAGTGGCGCAAGCTG
GTGGATTTCCGGGAGCTGAATAAGCGGACCCAGGATTTCTGGGAGGTCCAGCTGGGC
ATCCCCCATCCGGCCGGCCTGAAGAAGAAGAAGAGCGTGACCGTGCTGGACGTGGGC
GACGCTTACTTCAGCGTCCCTCTGGACGAGGACTTTAGAAAGTACACCGCCTTTACC
ATCCCATCTATCAACAACGAGACCCCTGGCATCAGATATCAGTACAACGTCCTCCCC
CAGGGCTGGAAGGGCTCTCCCGCCATTTTCCAGAGCTCCATGACCAAGATCCTGGAG
CCGTTTCGGAAGCAGAACCCCGATATCGTCATCTACCAGTACATGGACGACCTGTAC
GTGGGCTCTGACCTGGAAATCGGGCAGCATCGCACGAAGATTGAGGAGCTGAGGCAG
CATCTGCTGAGATGGGGCCTGACCACTCCGGACAAGAAGCATCAGAAGGAGCCGCCA
TTCCTGTGGATGGGCTACGAGCTCCATCCCGACAAGTGGACCGTGCAGCCTATCGTC
CTCCCCGAGAAGGACAGCTGGACCGTGAACGACATCCAGAAGCTGGTGGGCAAGCTC
AACTGGGCTAGCCAGATCTATCCCGGGATCAAGGTGCGCCAGCTCTGCAAGCTGCTG
CGCGGCACCAAGGCCCTGACCGAGGTGATTCCCCTCACGGAGGAAGCCGAGCTCGAG
CTGGCTGAGAACCGGGAGATCCTGAAGGAGCCCGTGCACGGCGTGTACTATGACCCC
TCCAAGGACCTGATCGCCGAAATCCAGAAGCAGGGCCAGGGGCAGTGGACATACCAG
ATTTACCAGGAGCCTTTCAAGAACCTCAAGACCGGCAAGTACGCCCGCATGAGGGGC
GCCCACACCAACGATGTCAAGCAGCTGACCGAGGCCGTCCAGAAGATCACGACCGAG
TCCATCGTGATCTGGGGGAAGACACCCAAGTTCAAGCTGCCTATCCAGAAGGAGACC
TGGGAGACGTGGTGGACCGAATATTGGCAGGCCACCTGGATTCCCGAGTGGGAGTTC
GTGAATACACCTCCTCTGGTGAAGCTGTGGTACCAGCTCGAGAAGGAGCCCATCGTG
GGCGCGGAGACATTCTACGTGGACGGCGCGGCCAACCGCGAAACAAAGCTCGGGAAG
GCCGGGTACGTCACCAACCGGGGCCGCCAGAAGGTCGTCACCCTGACCGACACCACC
AACCAGAAGACGGAGCTGCAGGCCATCTATCTCGCTCTCCAGGACTCCGGCCTGGAG
GTGAACATCGTGACGGACAGCCAGTACGCGCTGGGCATTATTCAGGCCCAGCCGGAC
CAGTCCGAGAGCGAACTGGTGAACCAGATTATCGAGCAGCTGATCAAGAAAGAGAAG
GTCTACCTCGCCTGGGTCCCGGCCCATAAGGGCATTGGCGGCAACGAGCAGGTCGAC
AAGCTGGTGAGTGCGGGGATTAGAAAGGTGCTGTAA [SEQ ID NO: 56]

MGPISPIETV SVKLKPGMDG PKVKQWPLTE EKIKALVEIC TEMEKEGKIS
KIGPENPYNT PVFAIKKKDS TKWRKLVDFR ELNKRTQDFW EVQLGIPHPA
GLKKKKSVTV LDVGDAYFSV PLDEDFRKYT AFTIPSINNE TPGIRYQYNV
LPQGWKGSPA IFQSSMTKIL EPFRKQNPDI VIYQYMDDLY VGSDLEIGQH
RTKIEELRQH LLRWGLTTPD KKHQKEPPFL WMGYELHPDK WTVQPIVLPE
KDSWTVNDIQ KLVGKLNWAS QIYPGIKVRQ LCKLLRGTKA LTEVIPLTEE
AELELAENRE ILKEPVHGVY YDPSKDLIAE IQKQGQGQWT YQIYQEPFKN
LKTGKYARMR GAHTNDVKQL TEAVQKITTE SIVIWGKTPK FKLPIQKETW
ETWWTEYWQA TWIPEWEFVN TPPLVKLWYQ LEKEPIVGAE TFYVDGAANR
ETKLGKAGYV TNRGRQKVVT LTDTTNQKTE LQAIYLALQD SGLEVNIVTD
SQYALGIIQA QPDQSESELV NQIIEQLIKK EKVYLAWVPA HKGIGGNEQV

DKLVSAGIRK VL*

[SEQ ID NO: 57]

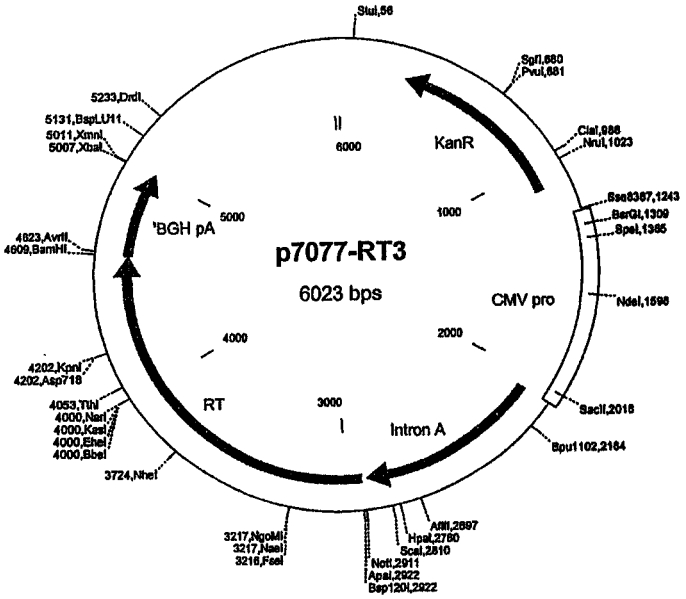


Figure 6

Sequence of the coding insert in p73i-RT3:

ATGGGCCCCATCAGTCCCATCGAGACCGTGCCGGTGAAGCTGAAACCCGGGATGGAC
GGCCCCAAGGTCAAGCAGTGGCCACTCACCGAGGAGAAGATCAAGGCCCTGGTGGAG
ATCTGCACCGAGATGGAGAAAGAGGGCAAGATCAGCAAGATCGGGCCTGAGAACCCA
TACAACACCCCCGTGTTTGCCATCAAGAAGAAGGACAGCACCAAGTGGCGCAAGCTG
GTGGATTTCCGGGAGCTGAATAAGCGGACCCAGGATTTCTGGGAGGTCCAGCTGGGC
ATCCCCCATCCGGCCGGCCTGAAGAAGAAGAAGAGCGTGACCGTGCTGGACGTGGGC
GACGCTTACTTCAGCGTCCCTCTGGACGAGGACTTTAGAAAGTACACCGCCTTTACC
ATCCCATCTATCAACAACGAGACCCCTGGCATCAGATATCAGTACAACGTCCTCCCC
CAGGGCTGGAAGGGCTCTCCCGCCATTTTCCAGAGCTCCATGACCAAGATCCTGGAG
CCGTTTCGGAAGCAGAACCCCGATATCGTCATCTACCAGTACATGGACGACCTGTAC
GTGGGCTCTGACCTGGAAATCGGGCAGCATCGCACGAAGATTGAGGAGCTGAGGCAG
CATCTGCTGAGATGGGGCCTGACCACTCCGGACAAGAAGCATCAGAAGGAGCCGCCA
TTCCTGTGGATGGGCTACGAGCTCCATCCCGACAAGTGGACCGTGCAGCCTATCGTC
CTCCCCGAGAAGGACAGCTGGACCGTGAACGACATCCAGAAGCTGGTGGGCAAGCTC
AACTGGGCTAGCCAGATCTATCCCGGGATCAAGGTGCGCCAGCTCTGCAAGCTGCTG
CGCGGCACCAAGGCCCTGACCGAGGTGATTCCCCTCACGGAGGAAGCCGAGCTCGAG
CTGGCTGAGAACCGGGAGATCCTGAAGGAGCCCGTGCACGGCGTGTACTATGACCCC
TCCAAGGACCTGATCGCCGAAATCCAGAAGCAGGGCCAGGGGCAGTGGACATACCAG
ATTTACCAGGAGCCTTTCAAGAACCTCAAGACCGGCAAGTACGCCCGCATGAGGGGC
GCCCACACCAACGATGTCAAGCAGCTGACCGAGGCCGTCCAGAAGATCACGACCGAG
TCCATCGTGATCTGGGGGAAGACACCCAAGTTCAAGCTGCCTATCCAGAAGGAGACC
TGGGAGACGTGGTGGACCGAATATTGGCAGGCCACCTGGATTCCCGAGTGGGAGTTC
GTGAATACACCTCCTCTGGTGAAGCTGTGGTACCAGCTCGAGAAGGAGCCCATCGTG
GGCGCGGAGACATTCTACGTGGACGGCGCGGCCAACCGCGAAACAAAGCTCGGGAA
GGCCGGGTACGTCACCAACCGGGGCCGCCAGAAGGTCGTCACCCTGACCGACACCAC
CAACCAGAAGACGGAGCTGCAGGCCATCTATCTCGCTCTCCAGGACTCCGGCCTGGA
GGTGAACATCGTGACGGACAGCCAGTACGCGCTGGGCATTATTCAGGCCCAGCCGGA
CCAGTCCGAGAGCGAACTGGTGAACCAGATTATCGAGCAGCTGATCAAGAAAGAGAA
GGTCTACCTCGCCTGGGTCCCGGCCCATAAGGGCATTGGCGGCAACGAGCAGGTCGA
CAAGCTGGTGAGTGCGGGGATTAGAAAGGTGCTGTAA [SEQ ID NO: 58]

MGPISPIETV SVKLKPGMDG PKVKQWPLTE EKIKALVEIC TEMEKEGKIS
KIGPENPYNT PVFAIKKKDS TKWRKLVDFR ELNKRTQDFW EVQLGIPHPA
GLKKKKSVTV LDVGDAYFSV PLDEDFRKYT AFTIPSINNE TPGIRYQYNV
LPQGWKGSPA IFQSSMTKIL EPFRKQNPDI VIYQYMDDLY VGSDLEIGQH
RTKIEELRQH LLRWGLTTPD KKHQKEPPFL WMGYELHPDK WTVQPIVLPE
KDSWTVNDIQ KLVGKLNWAS QIYPGIKVRQ LCKLLRGTKA LTEVIPLTEE
AELELAENRE ILKEPVHGVY YDPSKDLIAE IQKQGQGQWT YQIYQEPFKN
LKTGKYARMR GAHTNDVKQL TEAVQKITTE SIVIWGKTPK FKLPIQKETW
ETWWTEYWQA TWIPEWEFVN TPPLVKLWYQ LEKEPIVGAE TFYVDGAANR
ETKLGKAGYV TNRGRQKVVT LTDTTNQKTE LQAIYLALQD SGLEVNIVTD
SQYALGIIQA QPDQSESELV NQIIEQLIKK EKVYLAWVPA HKGIGGNEQV

DKLVSAGIRK VL*
[SEQ ID NO: 59]

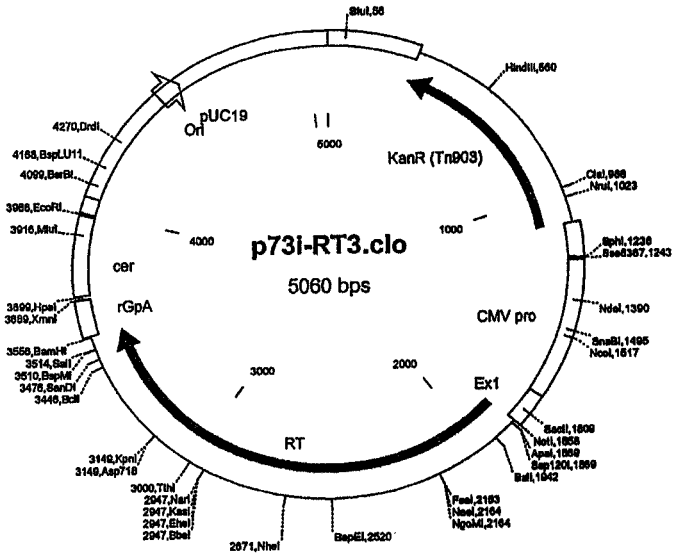


Figure 7

Sequence of Nef insert in 7077trNef20

ATGGTGGGTTTTCCAGTCACACCTCAGGTACCTTTAAGACCAATGACTTACAAGGCA
GCTGTAGATCTTAGCCACTTTTTAAAAGAAAAGGGGGGACTGGAAGGGCTAATTCAC
TCCCAAAGAAGACAAGATATCCTTGATCTGTGGATCTACCACACACAAGGCTACTTC
CCTGATTGGCAGAACTACACACCAGGGCCAGGGGTCAGATATCCACTGACCTTTGGA
TGGTGCTACAAGCTAGTACCAGTTGAGCCAGATAAGGTAGAAGAGGCCAATAAAGGA
GAGAACACCAGCTTGTTACACCCTGTGAGCCTGCATGGGATGGATGACCCGGAGAGA
GAAGTGTTAGAGTGGAGGTTTGACAGCCACCTAGCATTTCATCACGTGGCCCGAGAG
CTGCATCCGGAGTACTTCAAGAACTGCTGA [SEQ ID NO: 60]

MVGFPVTPQV PLRPMTYKAA VDLSHFLKEK GGLEGLIHSQ RRQDILDLWI
YHTQGYFPDW QNYTPGPGVR YPLTFGWCYK LVPVEPDKVE EANKGENTSL
LHPVSLHGMD DPEREVLEWR FDSVLAFHHV ARELHPEYFK NC*
[SEQ ID NO: 61]

Figure 8

Sequence of RT insert in 7077RT8

ATGGGCCCCATTAGCCCTATTGAGACTGTGTCAGTAAAATTAAAGCCAGGAATGGAT
GGCCCAAAAGTTAAACAATGGCCATTGACAGAAGAAAAAATAAAAGCATTAGTAGAA
ATTTGTACAGAGATGGAAAAGGAAGGGAAAATTTCAAAAATTGGGCCTGAAAATCCA
TACAATACTCCAGTATTTGCCATAAAGAAAAAAGACAGTACTAAATGGAGAAAATTA
GTAGATTTCAGAGAACTTAATAAGAGAACTCAAGACTTCTGGGAAGTTCAATTAGGA
ATACCACATCCCGCAGGGTTAAAAAAGAAAAAATCAGTAACAGTACTGGATGTGGGT
GATGCATATTTTTCAGTTCCCTTAGATGAAGACTTCAGGAAATATACTGCATTTACC
ATACCTAGTATAAACAATGAGACACCAGGGATTAGATATCAGTACAATGTGCTTCCA
CAGGGATGGAAAGGATCACCAGCAATATTCCAAAGTAGCATGACAAAAATCTTAGAG
CCTTTTAGAAAACAAAATCCAGACATAGTTATCTATCAATACATGGATGATTTGTAT
GTAGGATCTGACTTAGAAATAGGGCAGCATAGAACAAAAATAGAGGAGCTGAGACAA
CATCTGTTGAGGTGGGGACTTACCACACCAGACAAAAAACATCAGAAAGAACCTCCA
TTCCTTTGGATGGGTTATGAACTCCATCCTGATAAATGGACAGTACAGCCTATAGTG
CTGCCAGAAAAAGACAGCTGGACTGTCAATGACATACAGAAGTTAGTGGGGAAATTG
AATTGGGCAAGTCAGATTTACCCAGGGATTAAAGTAAGGCAATTATGTAAACTCCTT
AGAGGAACCAAAGCACTAACAGAAGTAATACCACTAACAGAAGAAGCAGAGCTAGAA
CTGGCAGAAAACAGAGAGATTCTAAAAGAACCAGTACATGGAGTGTATTATGACCCA
TCAAAAGACTTAATAGCAGAAATACAGAAGCAGGGGCAAGGCCAATGGACATATCAA
ATTTATCAAGAGCCATTTAAAAATCTGAAAACAGGAAAATATGCAAGAATGAGGGGT
GCCCACACTAATGATGTAAAACAATTAACAGAGGCAGTGCAAAAAATAACCACAGAA
AGCATAGTAATATGGGGAAAGACTCCTAAATTTAAACTGCCCATACAAAAGGAAACA
TGGGAAACATGGTGGACAGAGTATTGGCAAGCCACCTGGATTCCTGAGTGGGAGTTT
GTTAATACCCCTCCCTTAGTGAAATTATGGTACCAGTTAGAGAAAGAACCCATAGTA
GGAGCAGAAACCTTCTATGTAGATGGGGCAGCTAACAGGGAGACTAAATTAGGAAAA
GCAGGATATGTTACTAATAGAGGAAGACAAAAAGTTGTCACCCTAACTGACACAACA
AATCAGAAGACTGAGTTACAAGCAATTTATCTAGCTTTGCAGGATTCGGGATTAGAA
GTAAACATAGTAACAGACTCACAATATGCATTAGGAATCATTCAAGCACAACCAGAT
CAAAGTGAATCAGAGTTAGTCAATCAAATAATAGAGCAGTTAATAAAAAAGGAAAAG
GTCTATCTGGCATGGGTACCAGCACACAAAGGAATTGGAGGAAATGAACAAGTAGAT
AAATTAGTCAGTGCTGGAATCAGGAAAGTACTATTTTTAGATTAA
[SEQ ID NO: 62]

MGPISPIETV SVKLKPGMDG PKVKQWPLTE EKIKALVEIC TEMEKEGKIS
KIGPENPYNT PVFAIKKKDS TKWRKLVDFR ELNKRTQDFW EVQLGIPHPA
GLKKKKSVTV LDVGDAYFSV PLDEDFRKYT AFTIPSINNE TPGIRYQYNV
LPQGWKGSPA IFQSSMTKIL EPFRKQNPDI VIYQYMDDLY VGSDLEIGQH
RTKIEELRQH LLRWGLTTPD KKHQKEPPFL WMGYELHPDK WTVQPIVLPE
KDSWTVNDIQ KLVGKLNWAS QIYPGIKVRQ LCKLLRGTKA LTEVIPLTEE
AELELAENRE ILKEPVHGVY YDPSKDLIAE IQKQGQGQWT YQIYQEPFKN
LKTGKYARMR GAHTNDVKQL TEAVQKITTE SIVIWGKTPK FKLPIQKETW
ETWWTEYWQA TWIPEWEFVN TPPLVKLWYQ LEKEPIVGAE TFYVDGAANR
ETKLGKAGYV TNRGRQKVVT LTDTTNQKTE LQAIYLALQD SGLEVNIVTD
SQYALGIIQA QPDQSESELV NQIIEQLIKK EKVYLAWVPA HKGIGGNEQV
DKLVSAGIRK VLFLD*

[SEQ ID NO: 63]

Figure 9

Sequence of the p17/24opt/RT/trNef insert in p17/24opt/RT/trNef13

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AGGCTGCGCCCGGGAGGCAAAAAGAAATACAAGCTCAAGCATATCGTGTGGGCCTCG
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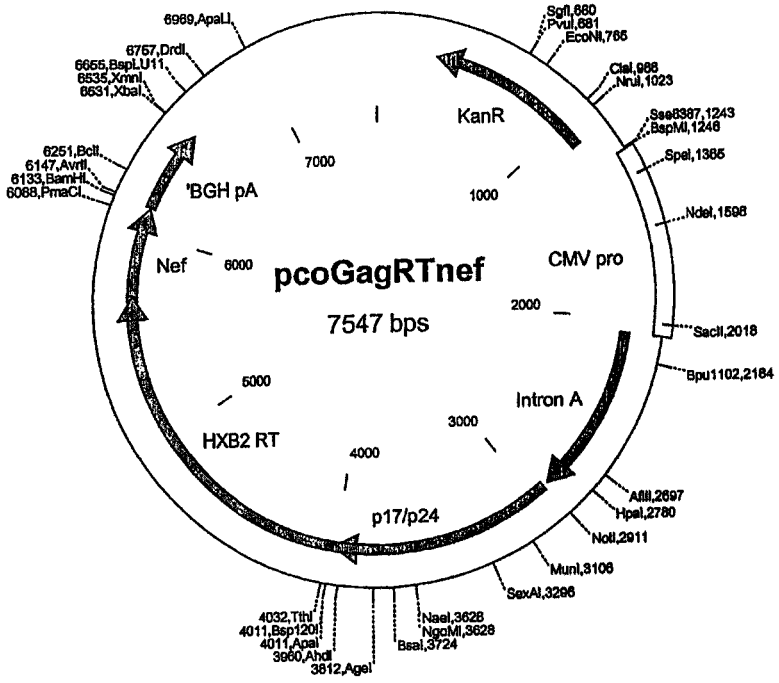

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4011,Bsp120I
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6251,BclI
6147,AvrII
6133,BamHI
6088,PmaCI
6655,BspLU11I
6535,XmnI
6631,XbaI
6767,DrdI
6969,ApaLI

Figure 10

Sequence of the p17/p24opt(cor)/RT/trNef coding insert in WRG7077:

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GGAAAAGCAGGATATGTTACTAATAGAGGAAGACAAAAAGTTGTCACCCTAACTGAC
ACAACAAATCAGAAGACTGAGTTACAAGCAATTTATCTAGCTTTGCAGGATTCGGGA
TTAGAAGTAAACATAGTAACAGACTCACAATATGCATTAGGAATCATTCAAGCACAA
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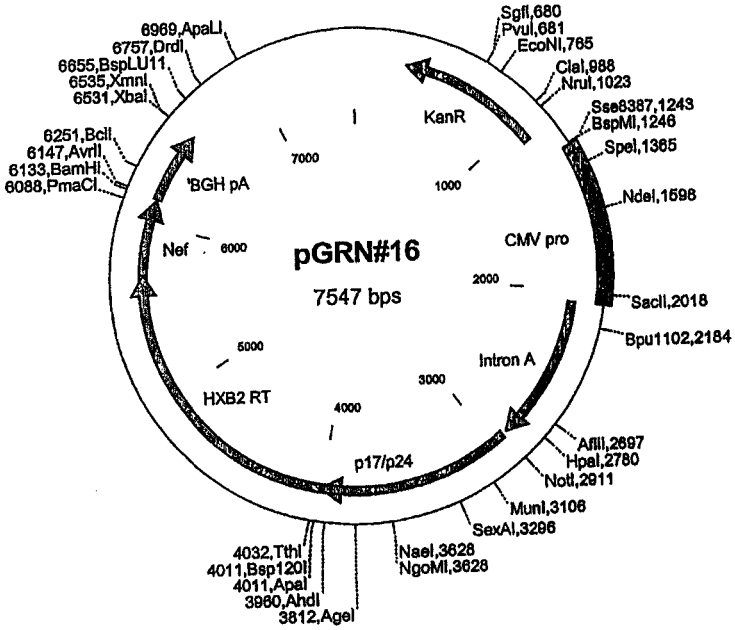

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PvuI,681
EcoNI,765
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SpeI,1365
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6147,AvrII
6133,BamHI
6088,PmaCI

Figure 11

Sequence of the p17/p24(opt)/RT(opt)trNef insert in p73i-GRN2:

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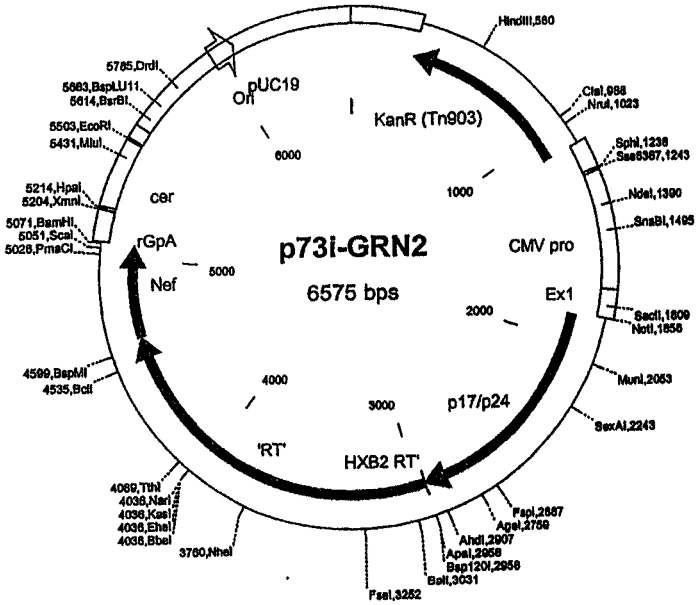

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6000
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SphI,1238
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SacII,1809
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MunI,2053
SexAI,2243
FspI,2667
AgeI,2756
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ApaI,2958
Bsp120I,2958
BsiI,3031
PsaI,3252
3760,NheI
4069,TthI
4036,NarI
4036,KasI
4036,EheI
4036,BbeI
4599,BspMI
4535,BclI
5071,BamHI
5051,ScaI
5028,PmaCI
5214,HpaI
5204,XmnI
5503,EcoRI
5431,MluI
5663,BspLU11
5614,BsrBI
5785,DrdI

Figure 12

Sequence of the p17/p24opt/trNef insert in p73i-GN2:

ATGGGTGCCCGAGCTTCGGTACTGTCTGGTGGAGAGCTGGACAGATGGGAGAAAATT
AGGCTGCGCCCGGGAGGCAAAAAGAAATACAAGCTCAAGCATATCGTGTGGGCCTCG
AGGGAGCTTGAACGGTTTGCCGTGAACCCAGGCCTGCTGGAAACATCTGAGGGATGT
CGCCAGATCCTGGGGCAATTGCAGCCATCCCTCCAGACCGGGAGTGAAGAGCTGAGG
TCCTTGTATAACACAGTGGCTACCCTCTACTGCGTACACCAGAGGATCGAGATTAAG
GATACCAAGGAGGCCTTGGACAAAATTGAGGAGGAGCAAAACAAGAGCAAGAAGAAG
GCCCAGCAGGCAGCTGCTGACACTGGGCATAGCAACCAGGTATCACAGAACTATCCT
ATTGTCCAAAACATTCAGGGCCAGATGGTTCATCAGGCCATCAGCCCCCGGACGCTC
AATGCCTGGGTGAAGGTTGTCGAAGAGAAGGCCTTTTCTCCTGAGGTTATCCCCATG
TTCTCCGCTTTGAGTGAGGGGGCCACTCCTCAGGACCTCAATACAATGCTTAATACC
GTGGGCGGCCATCAGGCCGCCATGCAAATGTTGAAGGAGACTATCAACGAGGAGGCA
GCCGAGTGGGACAGAGTGCATCCCGTCCACGCTGGCCCAATCGCGCCCGGACAGATG
CGGGAGCCTCGCGGCTCTGACATTGCCGGCACCACCTCTACACTGCAAGAGCAAATC
GGATGGATGACCAACAATCCTCCCATCCCAGTTGGAGAAATCTATAAACGGTGGATC
ATTCTCGGTCTCAATAAAATTGTTAGAATGTACTCTCCGACATCCATCCTTGACATT
AGACAGGGACCCAAAGAGCCTTTTAGGGATTACGTCGACCGGTTTTATAAGACCCTG
CGAGCAGAGCAGGCCTCTCAGGAGGTCAAAAACTGGATGACGGAGACACTCCTGGTA
CAGAACGCTAACCCCGACTGCAAAACAATCTTGAAGGCACTAGGCCCGGCTGCCACC
CTGGAAGAGATGATGACCGCCTGTCAGGGAGTAGGCGGACCCGGACACAAAGCCAGA
GTGTTGATGGTGGGTTTTCCAGTCACACCTCAGGTACCTTTAAGACCAATGACTTAC
AAGGCAGCTGTAGATCTTAGCCACTTTTTAAAAGAAAAGGGGGGACTGGAAGGGCTA
ATTCACTCCCAAAGAAGACAAGATATCCTTGATCTGTGGATCTACCACACACAAGGC
TACTTCCCTGATTGGCAGAACTACACACCAGGGCCAGGGGTCAGATATCCACTGACC
TTTGGATGGTGCTACAAGCTAGTACCAGTTGAGCCAGATAAGGTAGAAGAGGCCAAT
AAAGGAGAGAACACCAGCTTGTTACACCCTGTGAGCCTGCATGGGATGGATGACCCG
GAGAGAGAAGTGTTAGAGTGGAGGTTTGACAGCCGCCTAGCATTTCATCACGTGGCC
CGAGAGCTGCATCCGGAGTACTTCAAGAACTGCTGA [SEQ ID NO: 70]

MGARASVLSG GELDRWEKIR LRPGGKKKYK LKHIVWASRE LERFAVNPGL
LETSEGCRQI LGQLQPSLQT GSEELRSLYN TVATLYCVHQ RIEIKDTKEA
LDKIEEEQNK SKKKAQQAAA DTGHSNQVSQ NYPIVQNIQG QMVHQAISPR
TLNAWVKVVE EKAFSPEVIP MFSALSEGAT PQDLNTMLNT VGGHQAAMQM
LKETINEEAA EWDRVHPVHA GPIAPGQMRE PRGSDIAGTT STLQEQIGWM
TNNPPIPVGE IYKRWIILGL NKIVRMYSPT SILDIRQGPK EPFRDYVDRF
YKTLRAEQAS QEVKNWMTET LLVQNANPDC KTILKALGPA ATLEEMMTAC
QGVGGPGHKA RVLMVGFPVT PQVPLRPMTY KAAVDLSHFL KEKGGLEGLI
HSQRRQDILD LWIYHTQGYF PDWQNYTPGP GVRYPLTFGW CYKLVPVEPD
KVEEANKGEN TSLLHPVSLH GMDDPEREVL EWRFDSRLAF HHVARELHPE
YFKNC* [SEQ ID NO: 71]

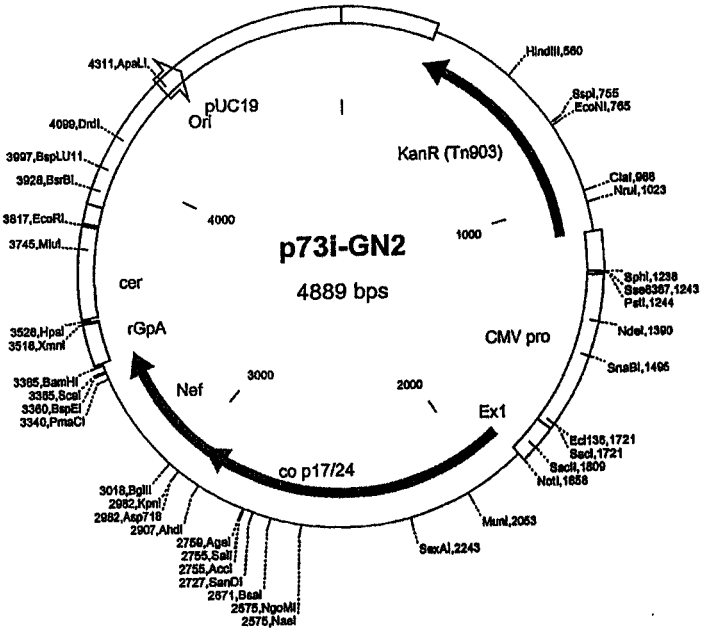

p73i-GN2
4889 bps
pUC19 Ori
KanR (Tn903)
CMV pro
Ex1
co p17/24
Nef
rGpA
cer
1
1000
2000
3000
4000
HindIII,560
BspI,755
EcoNI,765
ClaI,988
NruI,1023
SphI,1238
Sse8387,1243
PstI,1244
NdeI,1390
SnaBI,1496
Ecl136,1721
SacI,1721
SacII,1809
NotI,1858
MunI,2053
SexAI,2243
2575,NaeI
2575,NgoMI
2671,BsaI
2727,SanDI
2755,AccI
2755,SalI
2759,AgeI
2907,AhdI
2982,Asp718
2982,KpnI
3018,BglII
3340,PmaCI
3360,BspEI
3365,ScaI
3365,BamHI
3516,XmnI
3526,HpaI
3745,MluI
3817,EcoRI
3928,BsrBI
3997,BspLU11I
4099,DrdI
4311,ApaLI

Figure 13

Sequence of RT w229k:

ATGGGCCCCATCAGTCCCATCGAGACCGTGCCGGTGAAGCTGAAACCCGGGATGGACGGCCC

CAAGGTCAAGCAGTGGCCACTCACCGAGGAGAAGATCAAGGCCCTGGTGGAGATCTGCACCG

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GACTTTAGAAAGTACACCGCCTTTACCATCCCATCTATCAACAACGAGACCCCTGGCATCAG

ATATCAGTACAACGTCCTCCCCCAGGGCTGGAAGGGCTCTCCCGCCATTTTCCAGAGCTCCA

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GACGACCTGTACGTGGGCTCTGACCTGGAAATCGGGCAGCATCGCACGAAGATTGAGGAGCT

GAGGCAGCATCTGCTGAGATGGGGCCTGACCACTCCGGACAAGAAGCATCAGAAGGAGCCGC

CATTCCTgaaGATGGGCTACGAGCTCCATCCCGACAAGTGGACCGTGCAGCCTATCGTCCTC

CCCGAGAAGGACAGCTGGACCGTGAACGACATCCAGAAGCTGGTGGGCAAGCTCAACTGGGC

TAGCCAGATCTATCCCGGGATCAAGGTGCGCCAGCTCTGCAAGCTGCTGCGCGGCACCAAGG

CCCTGACCGAGGTGATTCCCCTCACGGAGGAAGCCGAGCTCGAGCTGGCTGAGAACCGGGAG

ATCCTGAAGGAGCCCGTGCACGGCGTGTACTATGACCCCTCCAAGGACCTGATCGCCGAAAT

CCAGAAGCAGGGCCAGGGGCAGTGGACATACCAGATTTACCAGGAGCCTTTCAAGAACCTCA

AGACCGGCAAGTACGCCCGCATGAGGGGCGCCCACACCAACGATGTCAAGCAGCTGACCGAG

GCCGTCCAGAAGATCACGACCGAGTCCATCGTGATCTGGGGGAAGACACCCAAGTTCAAGCT

GCCTATCCAGAAGGAGACCTGGGAGACGTGGTGGACCGAATATTGGCAGGCCACCTGGATTC

CCGAGTGGGAGTTCGTGAATACACCTCCTCTGGTGAAGCTGTGGTACCAGCTCGAGAAGGAG

CCCATCGTGGGCGCGGAGACATTCTACGTGGACGGCGCGGCCAACCGCGAAACAAAGCTCGG

GAAGGCCGGGTACGTCACCAACCGGGGCCGCCAGAAGGTCGTCACCCTGACCGACACCACCA

ACCAGAAGACGGAGCTGCAGGCCATCTATCTCGCTCTCCAGGACTCCGGCCTGGAGGTGAAC

ATCGTGACGGACAGCCAGTACGCGCTGGGCATTATTCAGGCCCAGCCGGACCAGTCCGAGAG

CGAACTGGTGAACCAGATTATCGAGCAGCTGATCAAGAAAGAGAAGGTCTACCTCGCCTGGG

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AGAAAGGTGCTGTAA [SEQ ID NO: 72]

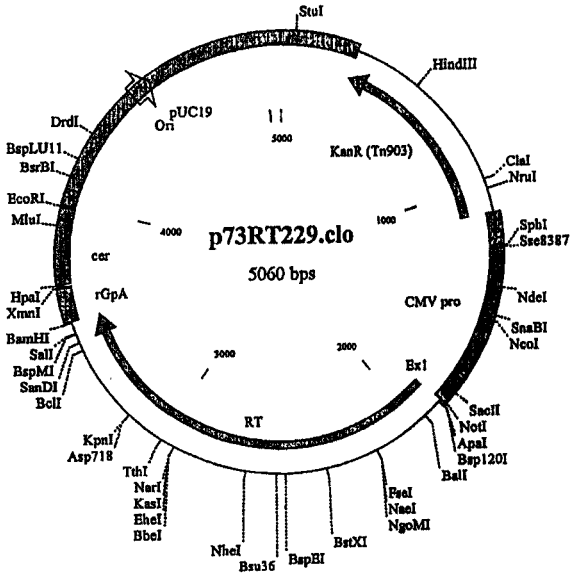
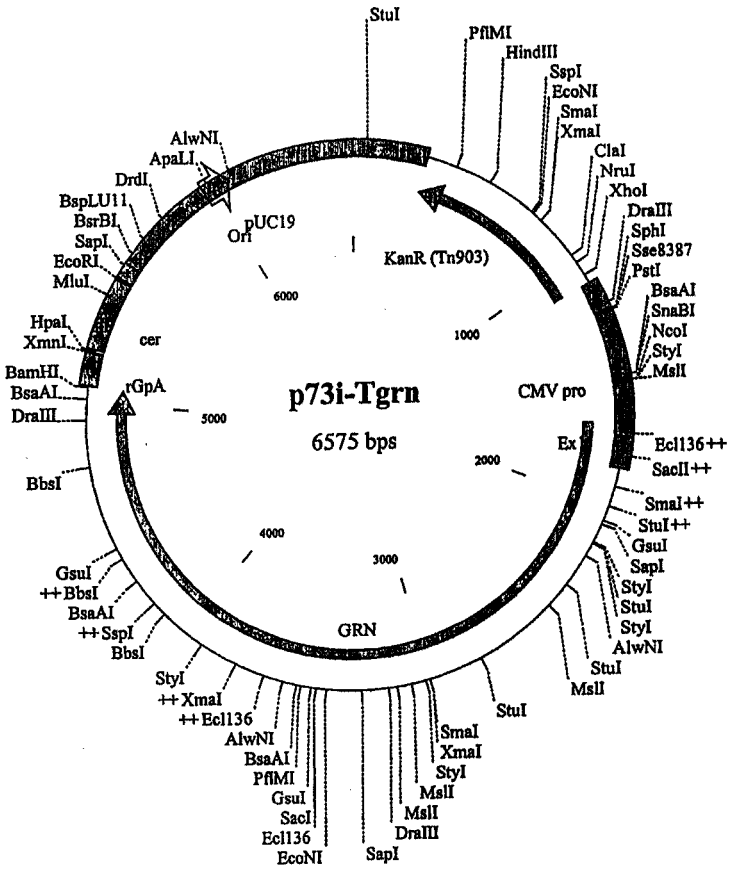


Figure 14



Sequence:

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AGGGAGCTTGAACGGTTTGCCGTGAACCCAGGCCTGCTGGAAACATCTGAGGGATGT
CGCCAGATCCTGGGGCAATTGCAGCCATCCCTCCAGACCGGGAGTGAAGAGCTGAGG
TCCTTGTATAACACAGTGGCTACCCTCTACTGCGTACACCAGAGGATCGAGATTAAG
GATACCAAGGAGGCCTTGGACAAAATTGAGGAGGAGCAAAACAAGAGCAAGAAGAAG
GCCCAGCAGGCAGCTGCTGACACTGGGCATAGCAACCAGGTATCACAGAACTATCCT
ATTGTCCAAAACATTCAGGGCCAGATGGTTCATCAGGCCATCAGCCCCCGGACGCTC
AATGCCTGGGTGAAGGTTGTCGAAGAGAAGGCCTTTTCTCCTGAGGTTATCCCCATG
TTCTCCGCTTTGAGTGAGGGGGCCACTCCTCAGGACCTCAATACAATGCTTAATACC
GTGGGCGGCCATCAGGCCGCCATGCAAATGTTGAAGGAGACTATCAACGAGGAGGCA
GCCGAGTGGGACAGAGTGCATCCCGTCCACGCTGGCCCAATCGCGCCCGGACAGATG
CGGGAGCCTCGCGGCTCTGACATTGCCGGCACCACCTCTACACTGCAAGAGCAAATC
GGATGGATGACCAACAATCCTCCCATCCCAGTTGGAGAAATCTATAAACGGTGGATC

ATCCTGGGCCTGAACAAGATCGTGCGCATGTACTCTCCGACATCCATCCTTGACATT
AGACAGGGACCCAAAGAGCCTTTTAGGGATTACGTCGACCGGTTTTATAAGACCCTG
CGAGCAGAGCAGGCCTCTCAGGAGGTCAAAAACTGGATGACGGAGACACTCCTGGTA
CAGAACGCTAACCCCGACTGCAAAACAATCTTGAAGGCACTAGGCCCGGCTGCCACC
CTGGAAGAGATGATGACCGCCTGTCAGGGAGTAGGCGGACCCGGACACAAAGCCAGA
GTGTTGATGGGCCCCATCAGTCCCATCGAGACCGTGCCGGTGAAGCTGAAACCCGGG
ATGGACGGCCCCAAGGTCAAGCAGTGGCCACTCACCGAGGAGAAGATCAAGGCCCTG
GTGGAGATCTGCACCGAGATGGAGAAAGAGGGCAAGATCAGCAAGATCGGGCCTGAG
AACCCATACAACACCCCCGTGTTTGCCATCAAGAAGAAGGACAGCACCAAGTGGCGC
AAGCTGGTGGATTTCCGGGAGCTGAATAAGCGGACCCAGGATTTCTGGGAGGTCCAG
CTGGGCATCCCCCATCCGGCCGGCCTGAAGAAGAAGAAGAGCGTGACCGTGCTGGAC
GTGGGCGACGCTTACTTCAGCGTCCCTCTGGACGAGGACTTTAGAAAGTACACCGCC
TTTACCATCCCATCTATCAACAACGAGACCCCTGGCATCAGATATCAGTACAACGTC
CTCCCCCAGGGCTGGAAGGGCTCTCCCGCCATTTTCCAGAGCTCCATGACCAAGATC
CTGGAGCCGTTTCGGAAGCAGAACCCCGATATCGTCATCTACCAGTACATGGACGAC
CTGTACGTGGGCTCTGACCTGGAAATCGGGCAGCATCGCACGAAGATTGAGGAGCTG
AGGCAGCATCTGCTGAGATGGGGCCTGACCACTCCGGACAAGAAGCATCAGAAGGAG
CCGCCATTCCTgaaGATGGGCTACGAGCTCCATCCCGACAAGTGGACCGTGCAGCCT
ATCGTCCTCCCCGAGAAGGACAGCTGGACCGTGAACGACATCCAGAAGCTGGTGGGC
AAGCTCAACTGGGCTAGCCAGATCTATCCCGGGATCAAGGTGCGCCAGCTCTGCAAG
CTGCTGCGCGGCACCAAGGCCCTGACCGAGGTGATTCCCCTCACGGAGGAAGCCGAG
CTCGAGCTGGCTGAGAACCGGGAGATCCTGAAGGAGCCCGTGCACGGCGTGTACTAT
GACCCCTCCAAGGACCTGATCGCCGAAATCCAGAAGCAGGGCCAGGGGCAGTGGACA
TACCAGATTTACCAGGAGCCTTTCAAGAACCTCAAGACCGGCAAGTACGCCCGCATG
AGGGGCGCCCACACCAACGATGTCAAGCAGCTGACCGAGGCCGTCCAGAAGATCACG
ACCGAGTCCATCGTGATCTGGGGGAAGACACCCAAGTTCAAGCTGCCTATCCAGAAG
GAGACCTGGGAGACGTGGTGGACCGAATATTGGCAGGCCACCTGGATTCCCGAGTGG
GAGTTCGTGAATACACCTCCTCTGGTGAAGCTGTGGTACCAGCTCGAGAAGGAGCCC
ATCGTGGGCGCGGAGACATTCTACGTGGACGGCGCGGCCAACCGCGAAACAAAGCTC
GGGAAGGCCGGGTACGTCACCAACCGGGGCCGCCAGAAGGTCGTCACCCTGACCGAC
ACCACCAACCAGAAGACGGAGCTGCAGGCCATCTATCTCGCTCTCCAGGACTCCGGC
CTGGAGGTGAACATCGTGACGGACAGCCAGTACGCGCTGGGCATTATTCAGGCCCAG
CCGGACCAGTCCGAGAGCGAACTGGTGAACCAGATTATCGAGCAGCTGATCAAGAAA
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GTCGACAAGCTGGTGAGTGCGGGGATTAGAAAGGTGCTGATGGTGGGTTTTCCAGTC
ACACCTCAGGTACCTTTAAGACCAATGACTTACAAGGCAGCTGTAGATCTTAGCCAC
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ACACCAGGGCCAGGGGTCAGATATCCACTGACCTTTGGATGGTGCTACAAGCTAGTA
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TTTGACAGCCGCCTAGCATTTCATCACGTGGCCCGAGAGCTGCATCCGGAGTACTTC
AAGAACTGCTGA [SEQ ID NO: 73]

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LDKIEEEQNK SKKKAQQAAA DTGHSNQVSQ NYPIVQNIQG QMVHQAISPR
TLNAWVKVVE EKAFSPEVIP MFSALSEGAT PQDLNTMLNT VGGHQAAMQM
LKETINEEAA EWDRVHPVHA GPIAPGQMRE PRGSDIAGTT STLQEQIGWM
TNNPPIPVGE IYKRWIILGL NKIVRMYSPT SILDIRQGPK EPFRDYVDRF
YKTLRAEQAS QEVKNWMTET LLVQNANPDC KTILKALGPA ATLEEMMTAC
QGVGGPGHKA RVLMGPISPI ETVSVKLKPG MDGPKVKQWP LTEEKIKALV
EICTEMEKEG KISKIGPENP YNTPVFAIKK KDSTKWRKLV DFRELNKRTQ
DFWEVQLGIP HPAGLKKKKS VTVLDVGDAY FSVPLDEDFR KYTAFTIPSI
NNETPGIRYQ YNVLPQGWKG SPAIFQSSMT KILEPFRKQN PDIVIYQYMD
DLYVGSDLEI GQHRTKIEEL RQHLLRWGLT TPDKKHQKEP PFLWMGYELH
PDKWTVQPIV LPEKDSWTVN DIQKLVGKLN WASQIYPGIK VRQLCKLLRG
TKALTEVIPL TEEAELELAE NREILKEPVH GVYYDPSKDL IAEIQKQGQG
QWTYQIYQEP FKNLKTGKYA RMRGAHTNDV KQLTEAVQKI TTESIVIWGK
TPKFKLPIQK ETWETWWTEY WQATWIPEWE FVNTPPLVKL WYQLEKEPIV
GAETFYVDGA ANRETKLGKA GYVTNRGRQK VVTLTDTTNQ KTELQAIYLA
LQDSGLEVNI VTDSQYALGI IQAQPDQSES ELVNQIIEQL IKKEKVYLAW
VPAHKGIGGN EQVDKLVSAG IRKVLMVGFP VTPQVPLRPM TYKAAVDLSH
FLKEKGGLEG LIHSQRRQDI LDLWIYHTQG YFPDWQNYTP GPGVRYPLTF
GWCYKLVPVE PDKVEEANKG ENTSLLHPVS LHGMDDPERE VLEWRFDSRL
AFHHVARELH PEYFKNC*
[SEQ ID NO: 74]

Figure 15

Sequence of Tnrg:

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GCTGTAGATCTTAGCCACTTTTTAAAAGAAAAGGGGGGACTGGAAGGGCTAATTCAC
TCCCAAAGAAGACAAGATATCCTTGATCTGTGGATCTACCACACACAAGGCTACTTC
CCTGATTGGCAGAACTACACACCAGGGCCAGGGGTCAGATATCCACTGACCTTTGGA
TGGTGCTACAAGCTAGTACCAGTTGAGCCAGATAAGGTAGAAGAGGCCAATAAAGGA
GAGAACACCAGCTTGTTACACCCTGTGAGCCTGCATGGGATGGATGACCCGGAGAGA
GAAGTGTTAGAGTGGAGGTTTGACAGCCGCCTAGCATTTCATCACGTGGCCCGAGAG
CTGCATCCGGAGTACTTCAAGAACTGCATGGGCCCCATCAGTCCCATCGAGACCGTG
CCGGTGAAGCTGAAACCCGGGATGGACGGCCCCAAGGTCAAGCAGTGGCCACTCACC
GAGGAGAAGATCAAGGCCCTGGTGGAGATCTGCACCGAGATGGAGAAAGAGGGCAAG
ATCAGCAAGATCGGGCCTGAGAACCCATACAACACCCCCGTGTTTGCCATCAAGAAG
AAGGACAGCACCAAGTGGCGCAAGCTGGTGGATTTCCGGGAGCTGAATAAGCGGACC
CAGGATTTCTGGGAGGTCCAGCTGGGCATCCCCCATCCGGCCGGCCTGAAGAAGAAG
AAGAGCGTGACCGTGCTGGACGTGGGCGACGCTTACTTCAGCGTCCCTCTGGACGAG
GACTTTAGAAAGTACACCGCCTTTACCATCCCATCTATCAACAACGAGACCCCTGGC
ATCAGATATCAGTACAACGTCCTCCCCCAGGGCTGGAAGGGCTCTCCCGCCATTTTC
CAGAGCTCCATGACCAAGATCCTGGAGCCGTTTCGGAAGCAGAACCCCGATATCGTC
ATCTACCAGTACATGGACGACCTGTACGTGGGCTCTGACCTGGAAATCGGGCAGCAT
CGCACGAAGATTGAGGAGCTGAGGCAGCATCTGCTGAGATGGGGCCTGACCACTCCG
GACAAGAAGCATCAGAAGGAGCCGCCATTCCTgaaGATGGGCTACGAGCTCCATCCC
GACAAGTGGACCGTGCAGCCTATCGTCCTCCCCGAGAAGGACAGCTGGACCGTGAAC
GACATCCAGAAGCTGGTGGGCAAGCTCAACTGGGCTAGCCAGATCTATCCCGGGATC
AAGGTGCGCCAGCTCTGCAAGCTGCTGCGCGGCACCAAGGCCCTGACCGAGGTGATT
CCCCTCACGGAGGAAGCCGAGCTCGAGCTGGCTGAGAACCGGGAGATCCTGAAGGAG
CCCGTGCACGGCGTGTACTATGACCCCTCCAAGGACCTGATCGCCGAAATCCAGAAG
CAGGGCCAGGGGCAGTGGACATACCAGATTTACCAGGAGCCTTTCAAGAACCTCAAG
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GAGGCCGTCCAGAAGATCACGACCGAGTCCATCGTGATCTGGGGGAAGACACCCAAG
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GCCACCTGGATTCCCGAGTGGGAGTTCGTGAATACACCTCCTCTGGTGAAGCTGTGG
TACCAGCTCGAGAAGGAGCCCATCGTGGGCGCGGAGACATTCTACGTGGACGGCGCG
GCCAACCGCGAAACAAAGCTCGGGAAGGCCGGGTACGTCACCAACCGGGGCCGCCAG
AAGGTCGTCACCCTGACCGACACCACCAACCAGAAGACGGAGCTGCAGGCCATCTAT
CTCGCTCTCCAGGACTCCGGCCTGGAGGTGAACATCGTGACGGACAGCCAGTACGCG
CTGGGCATTATTCAGGCCCAGCCGGACCAGTCCGAGAGCGAACTGGTGAACCAGATT
ATCGAGCAGCTGATCAAGAAAGAGAAGGTCTACCTCGCCTGGGTCCCGGCCCATAAG
GGCATTGGCGGCAACGAGCAGGTCGACAAGCTGGTGAGTGCGGGGATTAGAAAGGTG
CTGATGGGTGCCCGAGCTTCGGTACTGTCTGGTGGAGAGCTGGACAGATGGGAGAAA
ATTAGGCTGCGCCCGGGAGGCAAAAAGAAATACAAGCTCAAGCATATCGTGTGGGCC
TCGAGGGAGCTTGAACGGTTTGCCGTGAACCCAGGCCTGCTGGAAACATCTGAGGGA
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NTPVFAIKKK DSTKWRKLVD FRELNKRTQD FWEVQLGIPH PAGLKKKKSV
TVLDVGDAYF SVPLDEDFRK YTAFTIPSIN NETPGIRYQY NVLPQGWKGS
PAIFQSSMTK ILEPFRKQNP DIVIYQYMDD LYVGSDLEIG QHRTKIEELR
QHLLRWGLTT PDKKHQKEPP FLWMGYELHP DKWTVQPIVL PEKDSWTVND
IQKLVGKLNW ASQIYPGIKV RQLCKLLRGT KALTEVIPLT EEAELELAEN
REILKEPVHG VYYDPSKDLI AEIQKQGQGQ WTYQIYQEPF KNLKTGKYAR
MRGAHTNDVK QLTEAVQKIT TESIVIWGKT PKFKLPIQKE TWETWWTEYW
QATWIPEWEF VNTPPLVKLW YQLEKEPIVG AETFYVDGAA NRETKLGKAG
YVTNRGRQKV VTLTDTTNQK TELQAIYLAL QDSGLEVNIV TDSQYALGII
QAQPDQSESE LVNQIIEQLI KKEKVYLAWV PAHKGIGGNE QVDKLVSAGI
RKVLMGARAS VLSGGELDRW EKIRLRPGGK KKYKLKHIVW ASRELERFAV
NPGLLETSEG CRQILGQLQP SLQTGSEELR SLYNTVATLY CVHQRIEIKD
TKEALDKIEE EQNKSKKKAQ QAAADTGHSN QVSQNYPIVQ NIQGQMVHQA
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AMQMLKETIN EEAAEWDRVH PVHAGPIAPG QMREPRGSDI AGTTSTLQEQ
IGWMTNNPPI PVGEIYKRWI ILGLNKIVRM YSPTSILDIR QGPKEPFRDY
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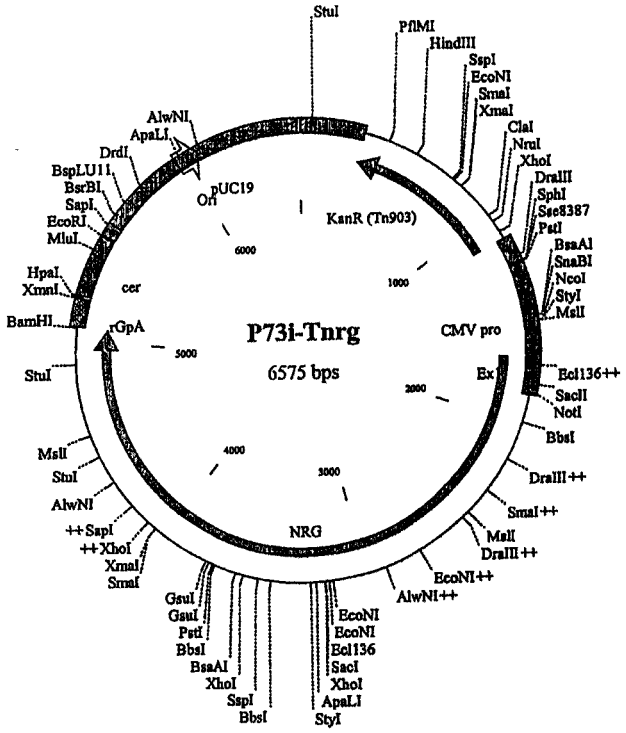


Figure 16

Sequence of the Tngr insert in p7313ie:

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TACACACCAGGGCCAGGGGTCAGATATCCACTGACCTTTGGATGGTGCTACAAGCTAGTACC
AGTTGAGCCAGATAAGGTAGAAGAGGCCAATAAAGGAGAGAACACCAGCTTGTTACACCCTG
TGAGCCTGCATGGGATGGATGACCCGGAGAGAGAAGTGTTAGAGTGGAGGTTTGACAGCCGC
CTAGCATTTCATCACGTGGCCCGAGAGCTGCATCCGGAGTACTTCAAGAACTGCATGGGTGC
CCGAGCTTCGGTACTGTCTGGTGGAGAGCTGGACAGATGGGAGAAAATTAGGCTGCGCCCGG
GAGGCAAAAAGAAATACAAGCTCAAGCATATCGTGTGGGCCTCGAGGGAGCTTGAACGGTTT
GCCGTGAACCCAGGCCTGCTGGAAACATCTGAGGGATGTCGCCAGATCCTGGGGCAATTGCA
GCCATCCCTCCAGACCGGGAGTGAAGAGCTGAGGTCCTTGTATAACACAGTGGCTACCCTCT
ACTGCGTACACCAGAGGATCGAGATTAAGGATACCAAGGAGGCCTTGGACAAAATTGAGGAG
GAGCAAAACAAGAGCAAGAAGAAGGCCCAGCAGGCAGCTGCTGACACTGGGCATAGCAACCA
GGTATCACAGAACTATCCTATTGTCCAAAACATTCAGGGCCAGATGGTTCATCAGGCCATCA
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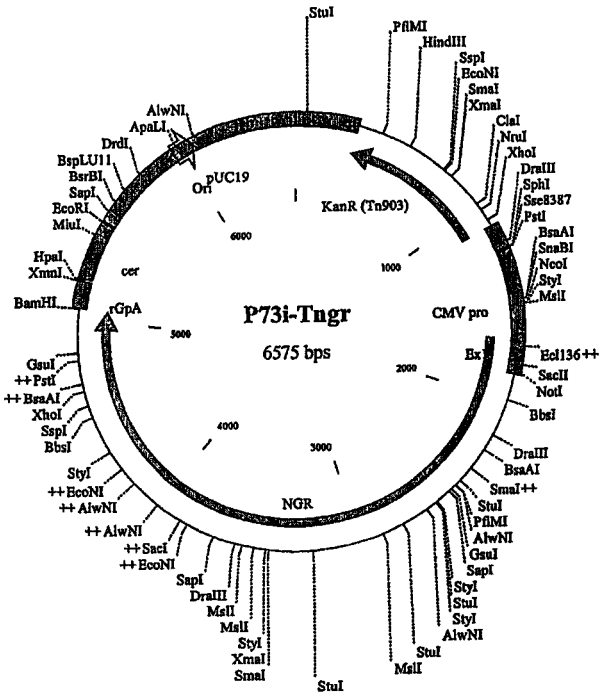

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Figure 17

Sequence of insert Trgn #6

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HQRIEIKDTK EALDKIEEEQ NKSKKKAQQA AADTGHSNQV SQNYPIVQNI
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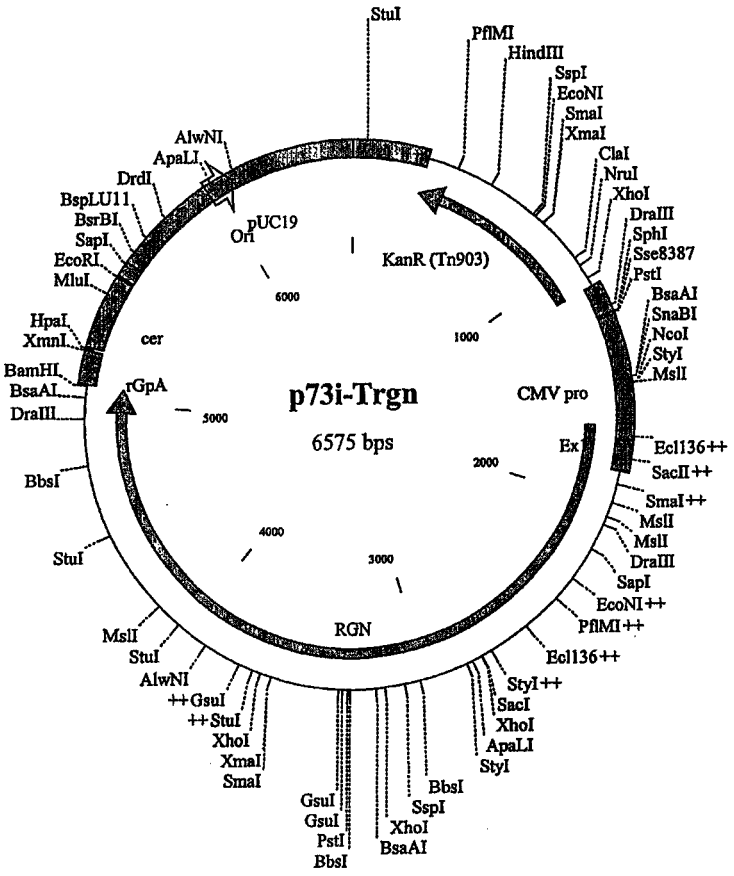


Figure 18

Sequence of insert of Trng #11

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SQRRQDILDL WIYHTQGYFP DWQNYTPGPG VRYPLTFGWC YKLVPVEPDK
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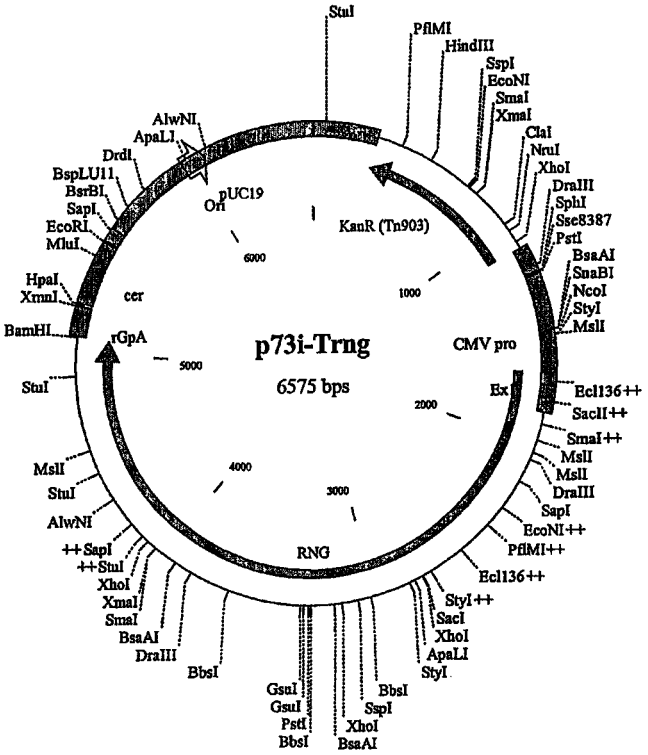

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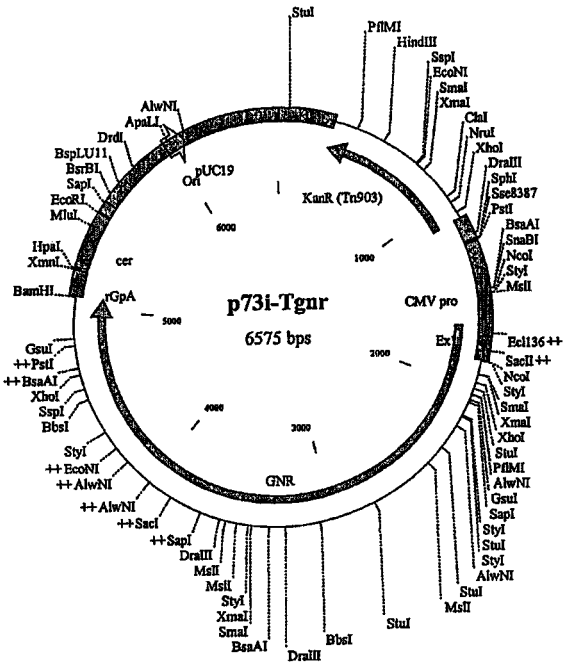
Figure 19

Sequence of TgnR (F1):

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GGCGCGGCCAACCGCGAAACAAAGCTCGGGAAGGCCGGGTACGTCACCAACCGGGGC
CGCCAGAAGGTCGTCACCCTGACCGACACCACCAACCAGAAGACGGAGCTGCAGGCC
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CATAAGGGCATTGGCGGCAACGAGCAGGTCGACAAGCTGGTGAGTGCGGGGATTAGA
AAGGTGCTGTAA [SEQ ID NO: 83]

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LDKIEEEQNK SKKKAQQAAA DTGHSNQVSQ NYPIVQNIQG QMVHQAISPR
TLNAWVKVVE EKAFSPEVIP MFSALSEGAT PQDLNTMLNT VGGHQAAMQM
LKETINEEAA EWDRVHPVHA GPIAPGQMRE PRGSDIAGTT STLQEQIGWM
TNNPPIPVGE IYKRWIILGL NKIVRMYSPT SILDIRQGPK EPFRDYVDRF
YKTLRAEQAS QEVKNWMTET LLVQNANPDC KTILKALGPA ATLEEMMTAC
QGVGGPGHKA RVLMVGFPVT PQVPLRPMTY KAAVDLSHFL KEKGGLEGLI
HSQRRQDILD LWIYHTQGYF PDWQNYTPGP GVRYPLTFGW CYKLVPVEPD
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PLTEEAELEL AENREILKEP VHGVYYDPSK DLIAEIQKQG QGQWTYQIYQ
EPFKNLKTGK YARMRGAHTN DVKQLTEAVQ KITTESIVIW GKTPKFKLPI
QKETWETWWT EYWQATWIPE WEFVNTPPLV KLWYQLEKEP IVGAETFYVD
GAANRETKLG KAGYVTNRGR QKVVTLTDTT NQKTELQAIY LALQDSGLEV
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GNEQVDKLVS AGIRKVL*
[SEQ ID NO: 84]


p73i-Tgur
6575 bps
pUC19 Ori
KanR (Tn903)
CMV pro
rGpA
cer
GNR
1000
2000
3000
4000
5000
6000
StuI
PflMI
HindIII
SspI
EcoNI
SmaI
XmaI
ClaI
NruI
XhoI
DraIII
SphI
Sse8387
PstI
BsaAI
SnaBI
NcoI
StyI
MslI
Ecl136++
SacII++
NcoI
StyI
SmaI
XmaI
XhoI
StuI
PflMI
AlwNI
GsuI
SapI
StyI
StuI
StyI
AlwNI
StuI
MslI
StuI
BbsI
DraIII
BsaAI
SmaI
XmaI
StyI
MslI
MslI
DraIII
++SapI
++SacI
++AlwNI
++AlwNI
++EcoNI
StyI
BbsI
SspI
XbaI
++BsaAI
++PstI
GsuI
BamHI
XmnI
HpaI
MluI
EcoRI
SapI
BsrBI
BspLU11
DrdI
ApaLI
AlwNI

5

10

Figure 20.

Responses to Gag peptide measured using IFN-gamma ELIspot at 5 days post-boost

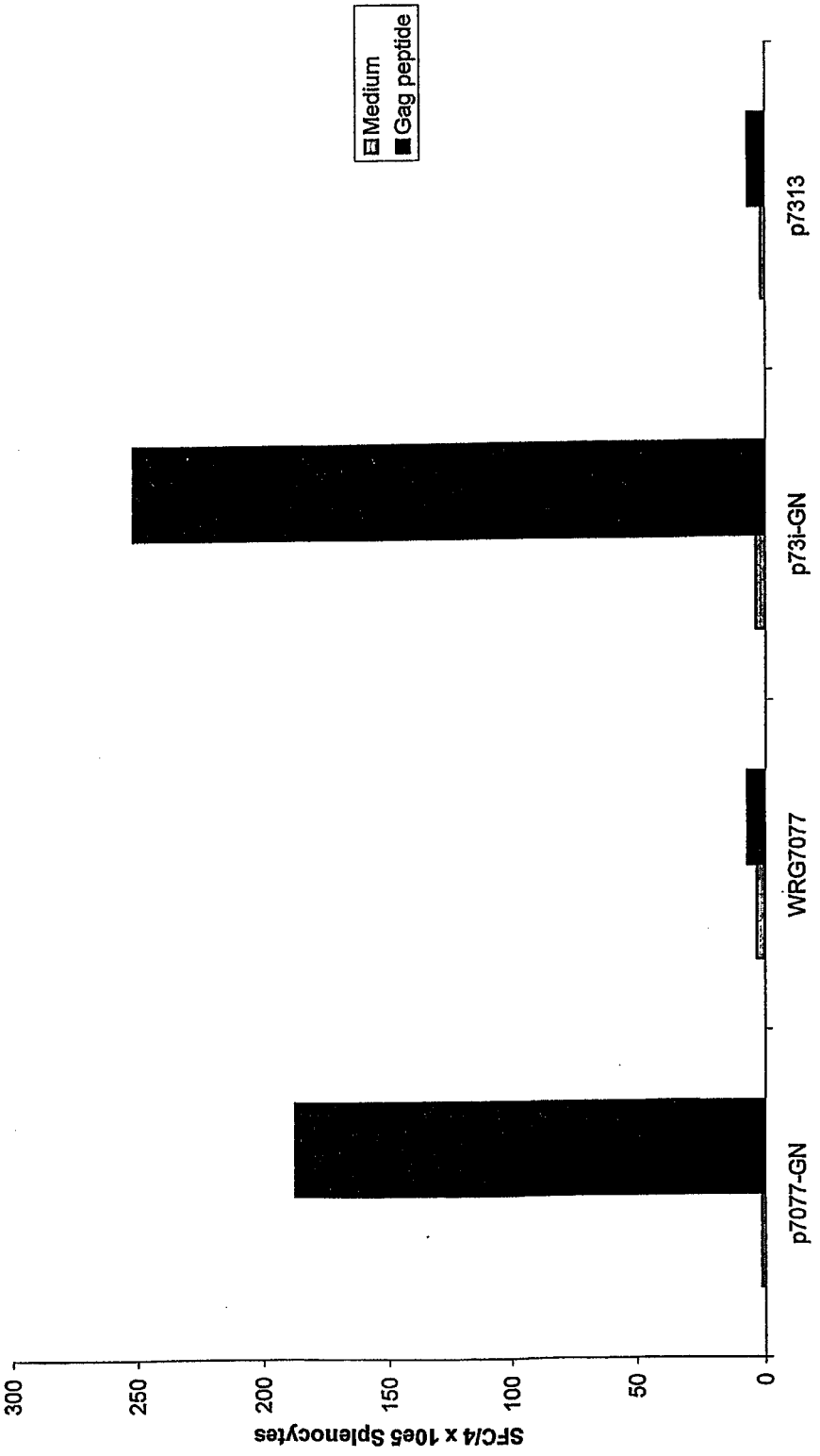
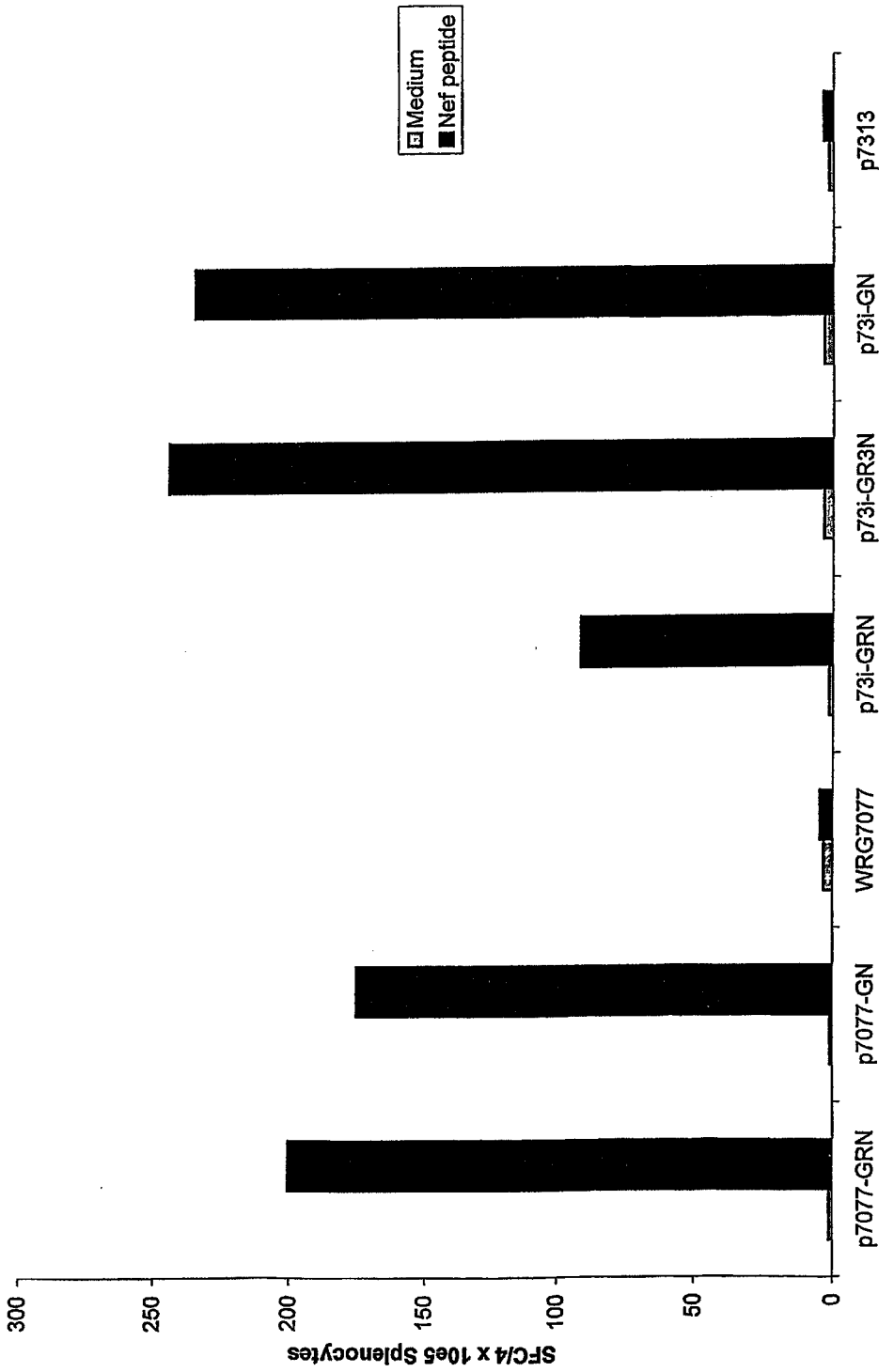


Figure 21.

Responses to Nef peptide using IFN-gamma ELIspot at 5 days post-boost



PG4653

Figure 22.

Responses to Rt peptide by IFN-gamma ELIspot at 5 days post-boost

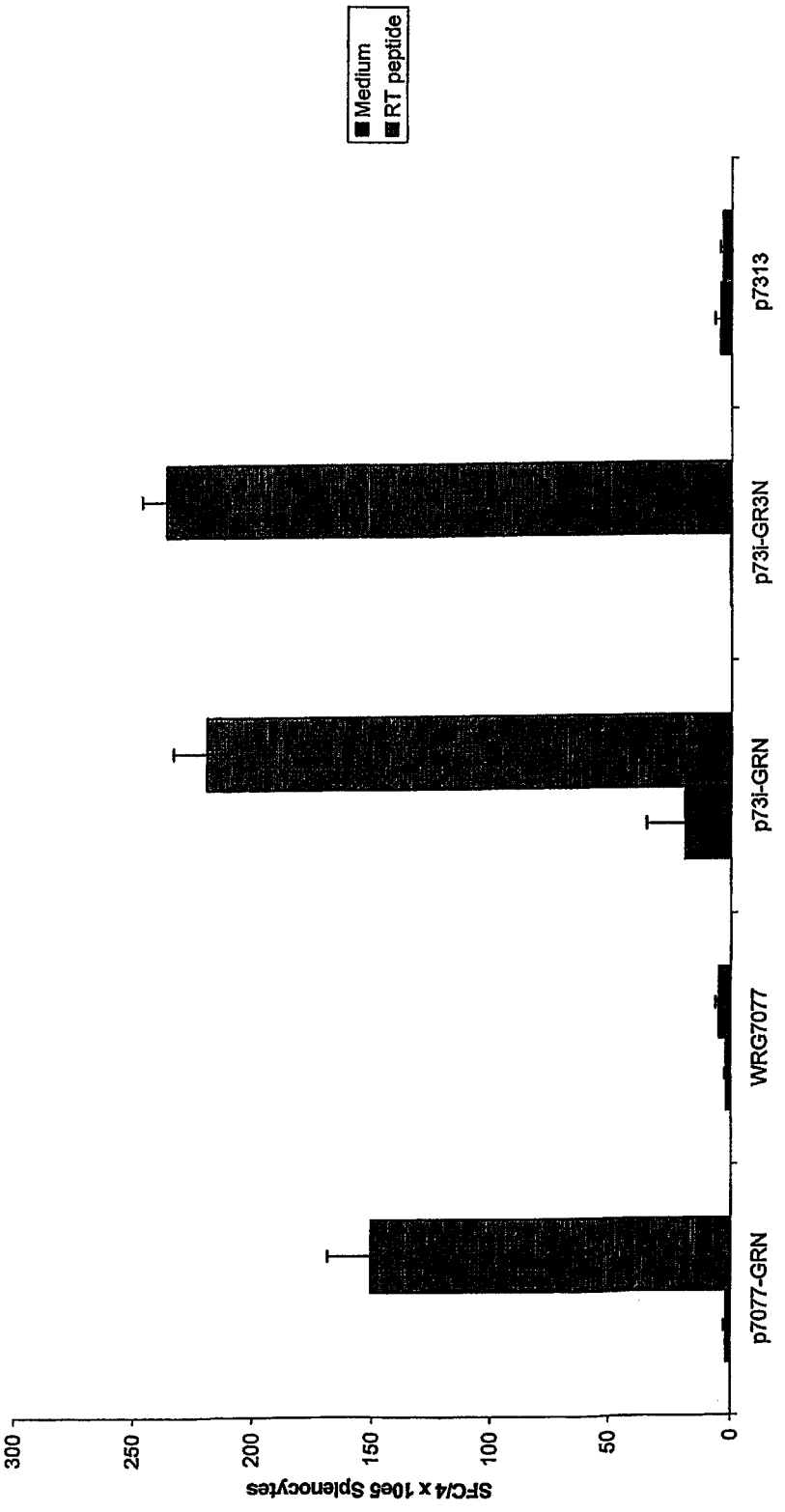
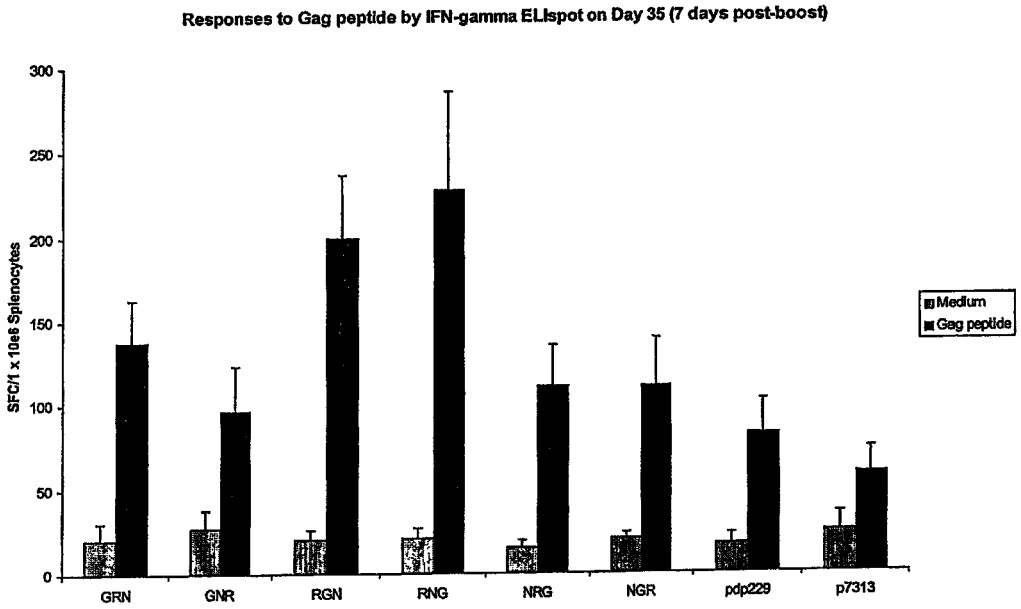
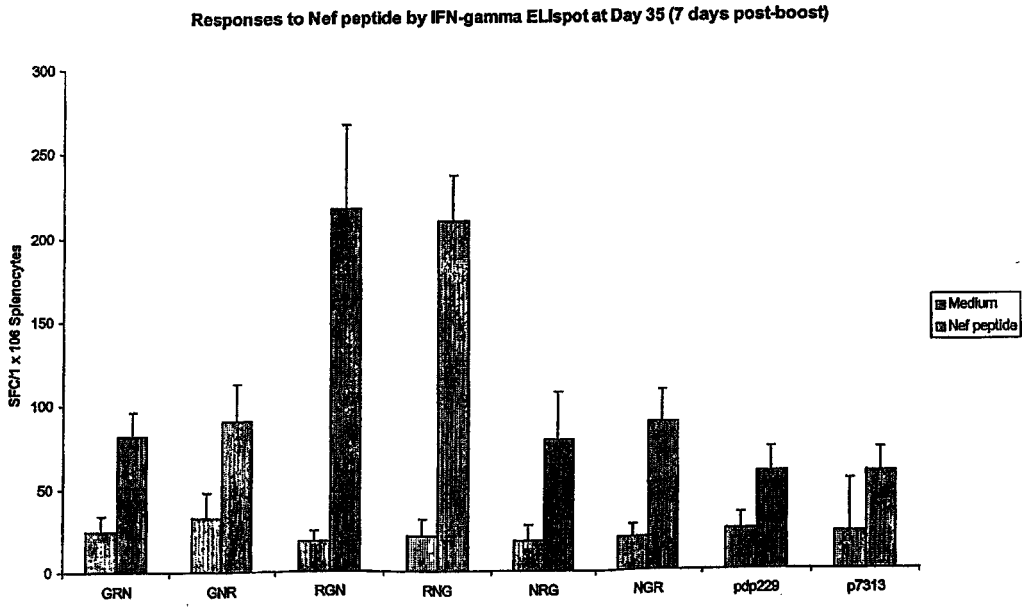


Figure 23

Example of the CD8 immune response that is detected in the mouse model following immunisation with the reformatted constructs. The constructs are comprised Gag, RT and Nef as a triple fusion. G is Gag, R is RT and N is Nef.





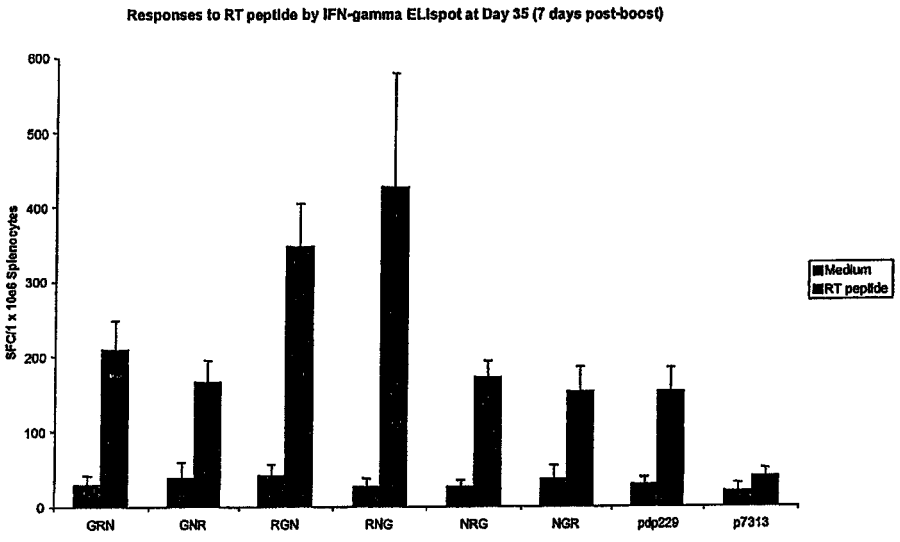
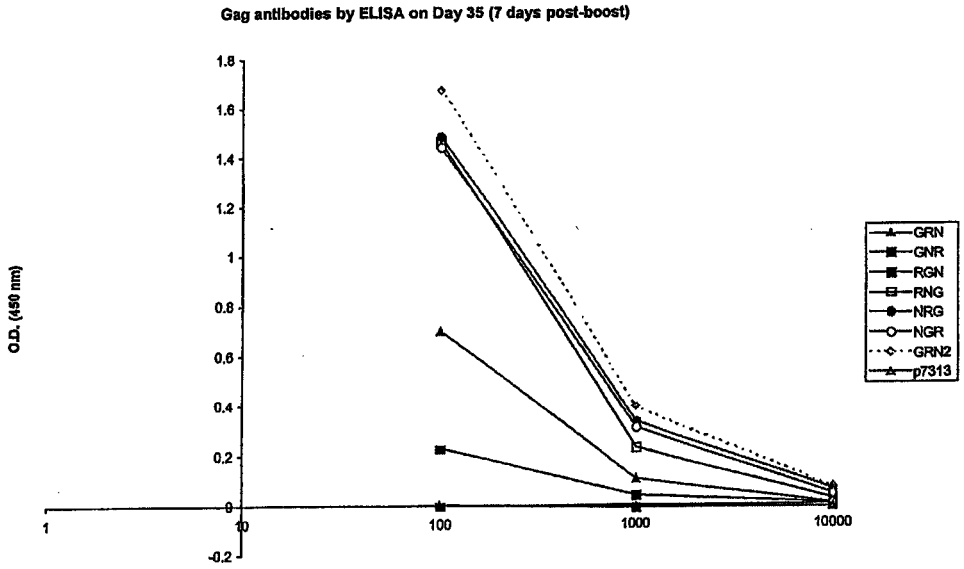

Responses to RT peptide by IFN-gamma ELIspot at Day 35 (7 days post-boost)
SFC/1 x 10e6 Splenocytes
600
500
400
300
200
100
0
GRN
GNR
RGN
RNG
NRG
NGR
pdp229
p7313
Medium
RT peptide

Figure 24


Gag antibodies by ELISA on Day 35 (7 days post-boost)
O.D. (450 nm)
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
1
10
100
1000
10000
GRN
GNR
RGN
RNG
NRG
NGR
GRN2
p7313

5