

1/15

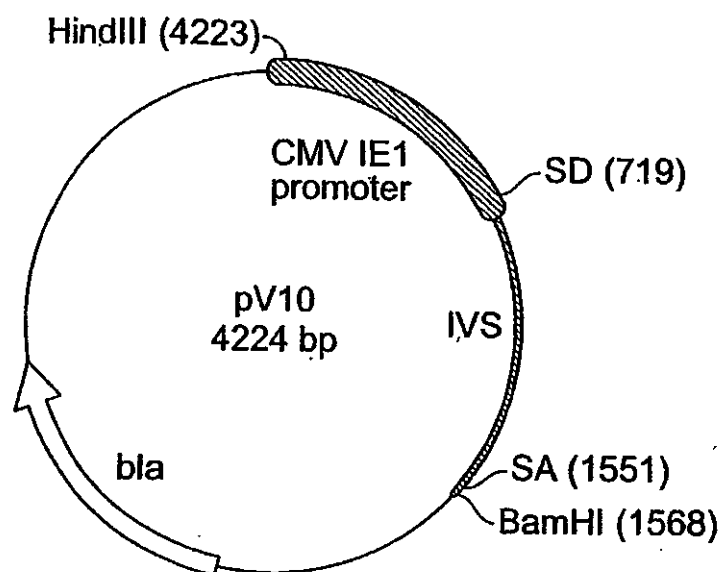


FIG. 1

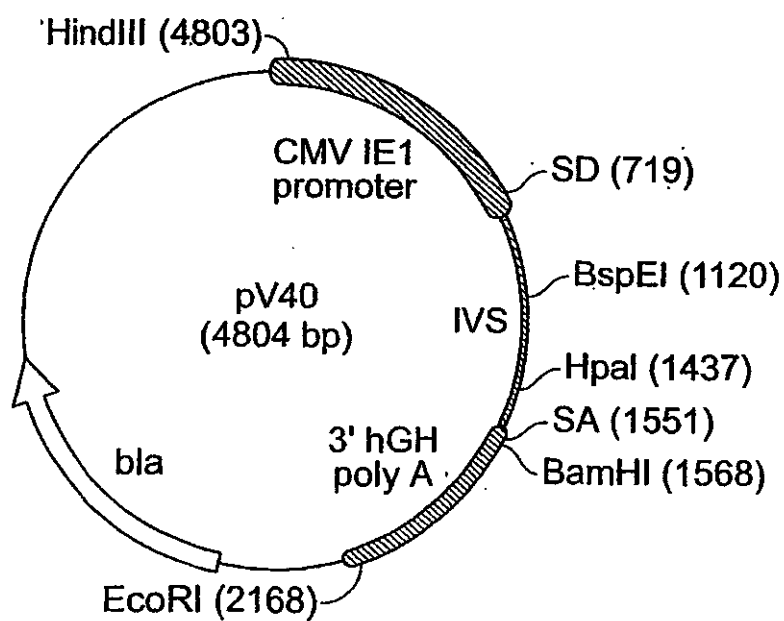


FIG. 2

2/15

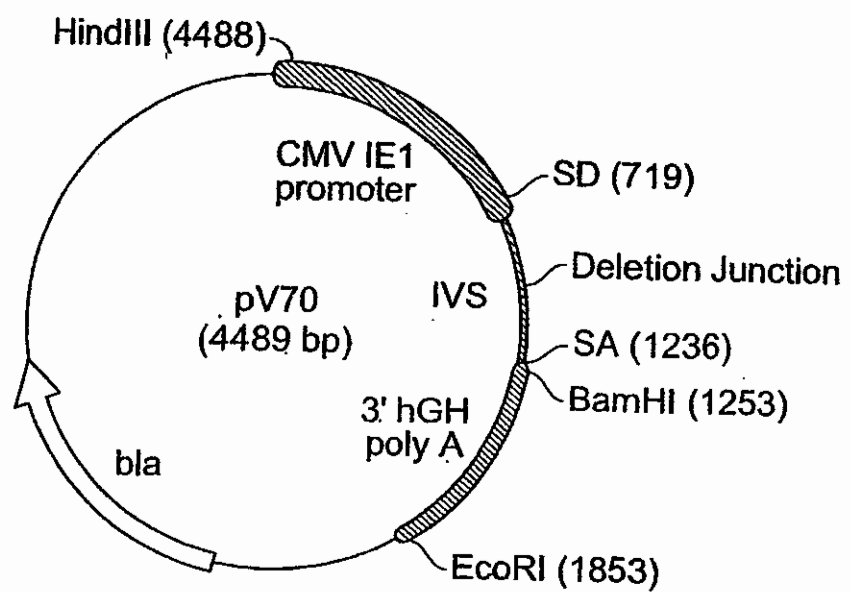


FIG. 3

3/15

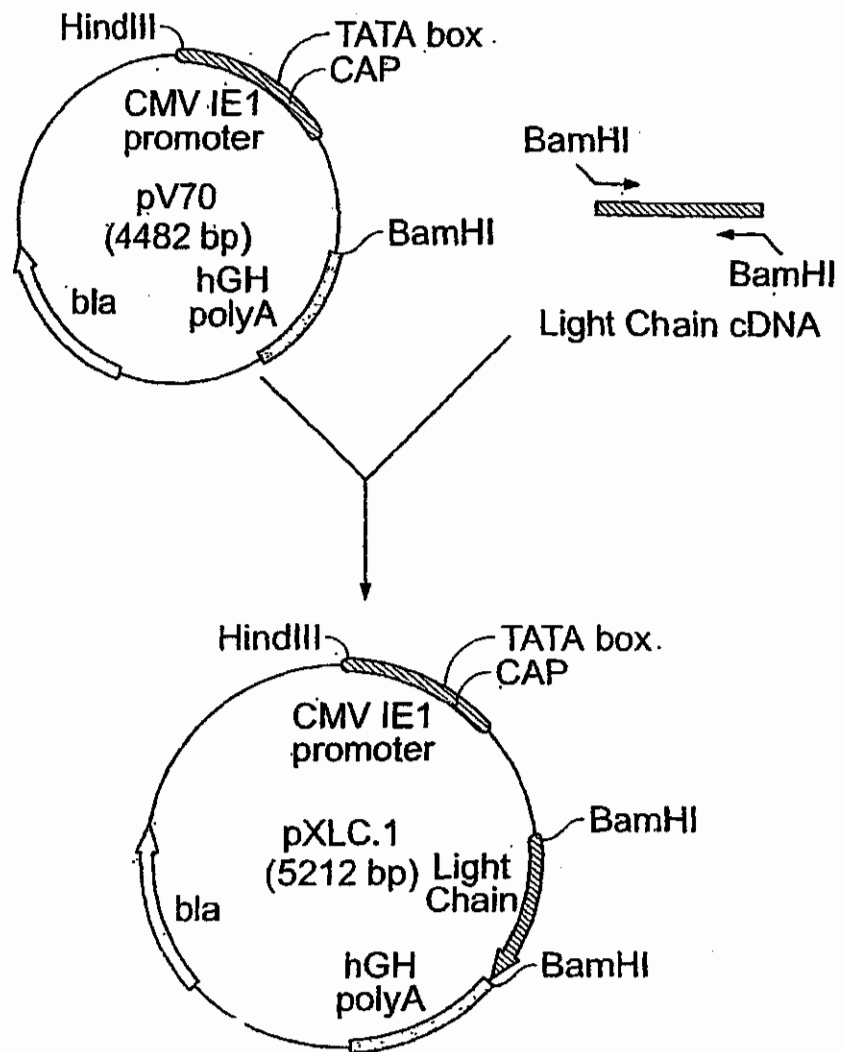


FIG. 4

4/15

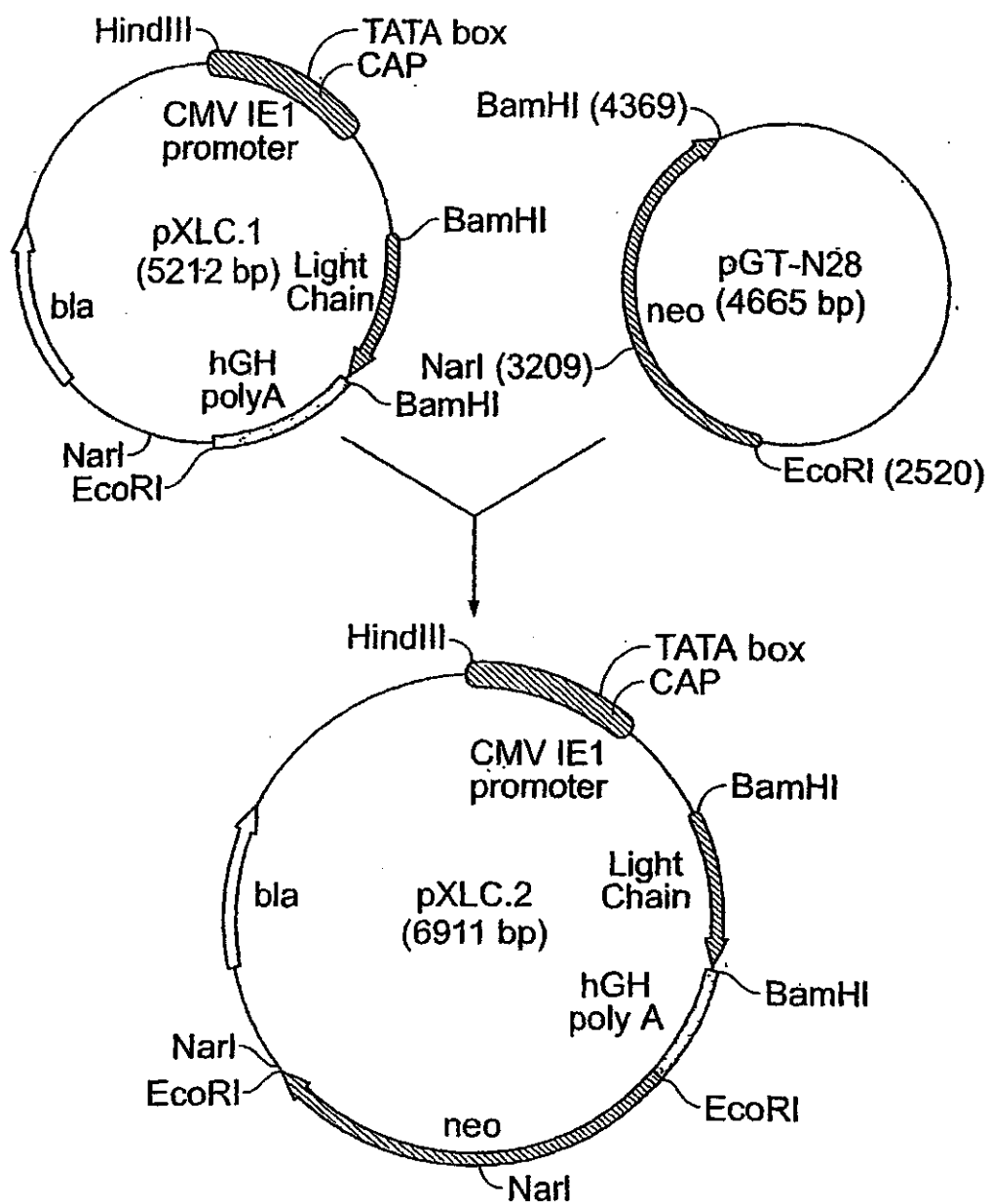


FIG. 5

5/15

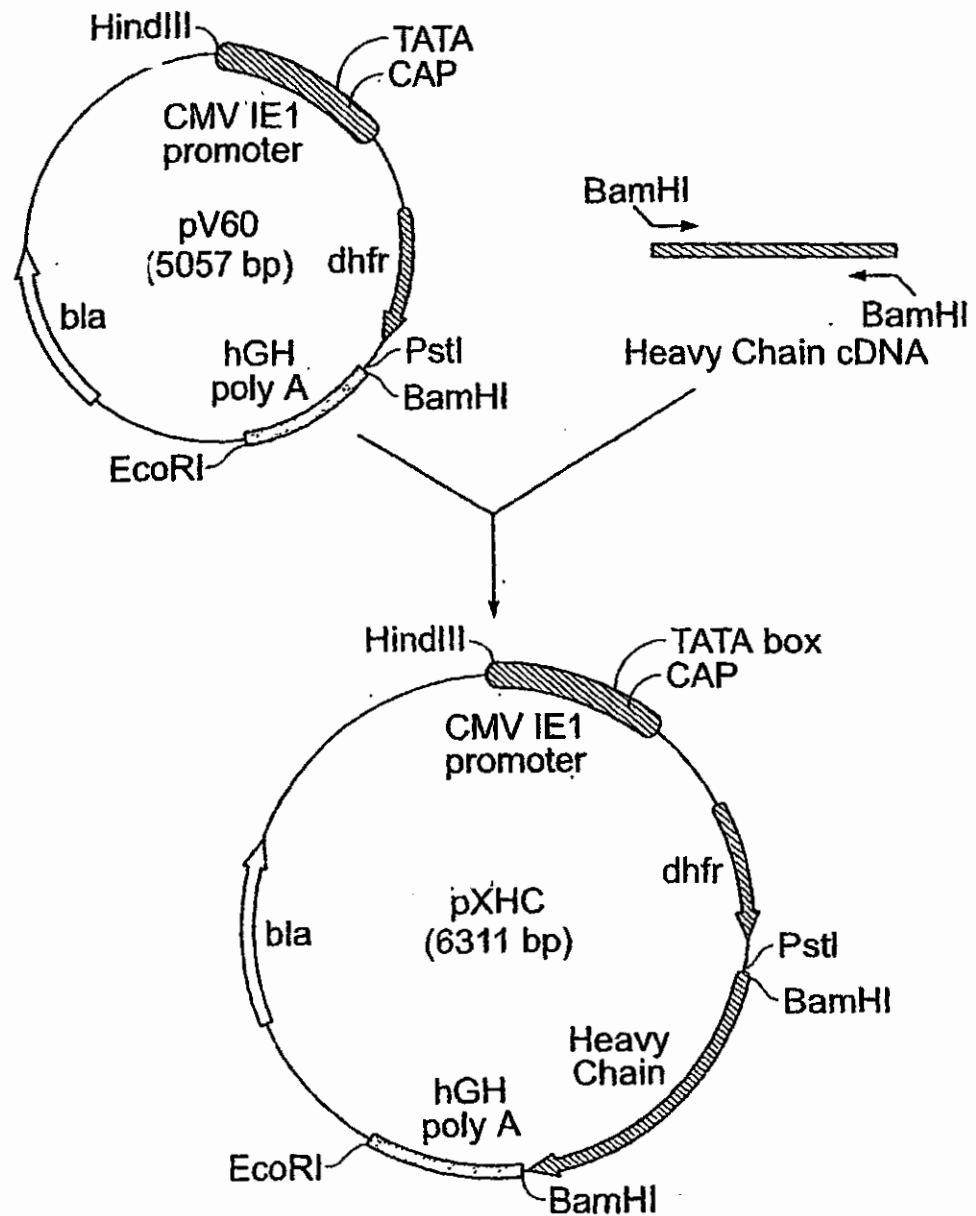


FIG. 6

6/15

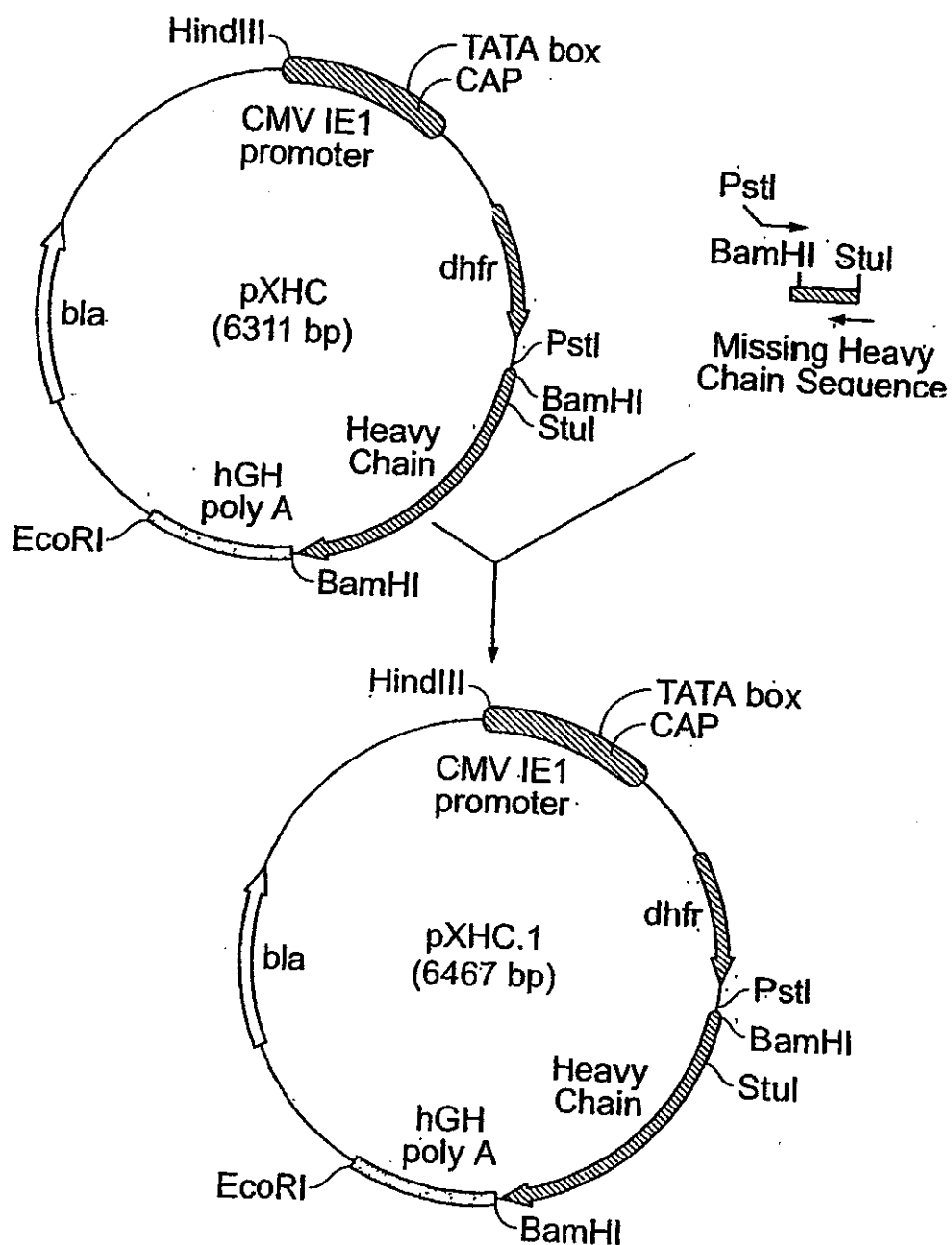


FIG. 7

7/15

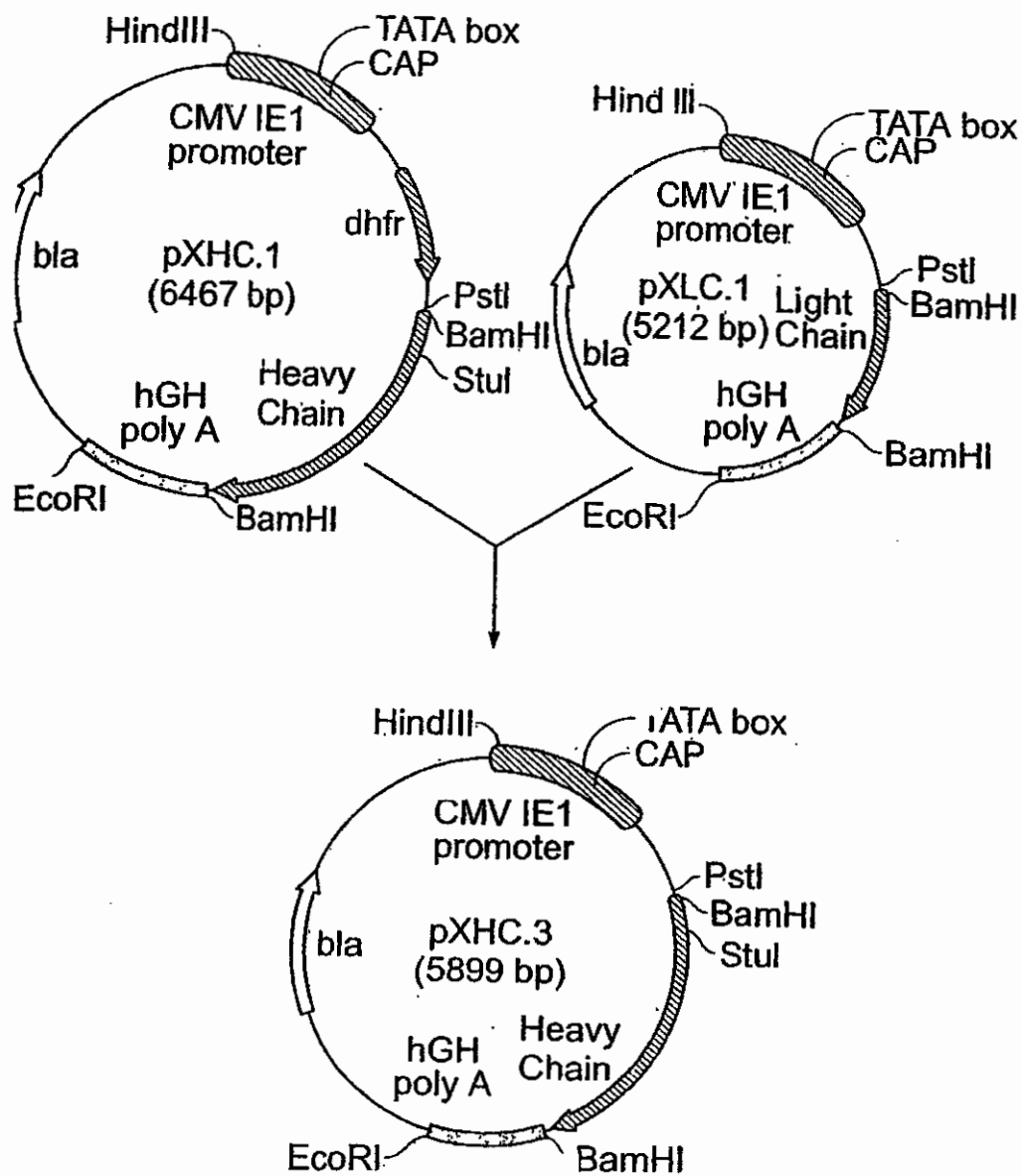


FIG. 8

8/15

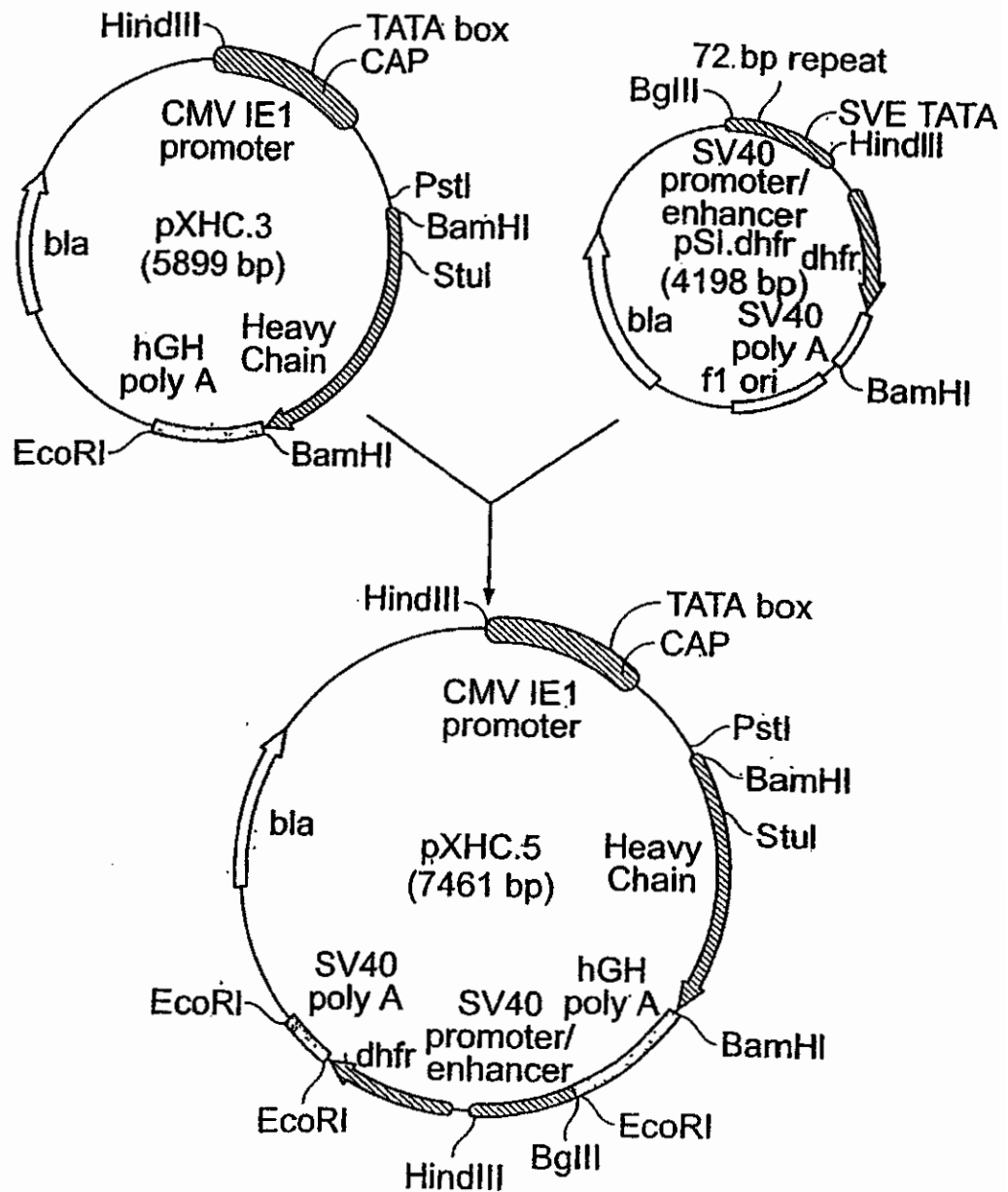


FIG. 9

9/15

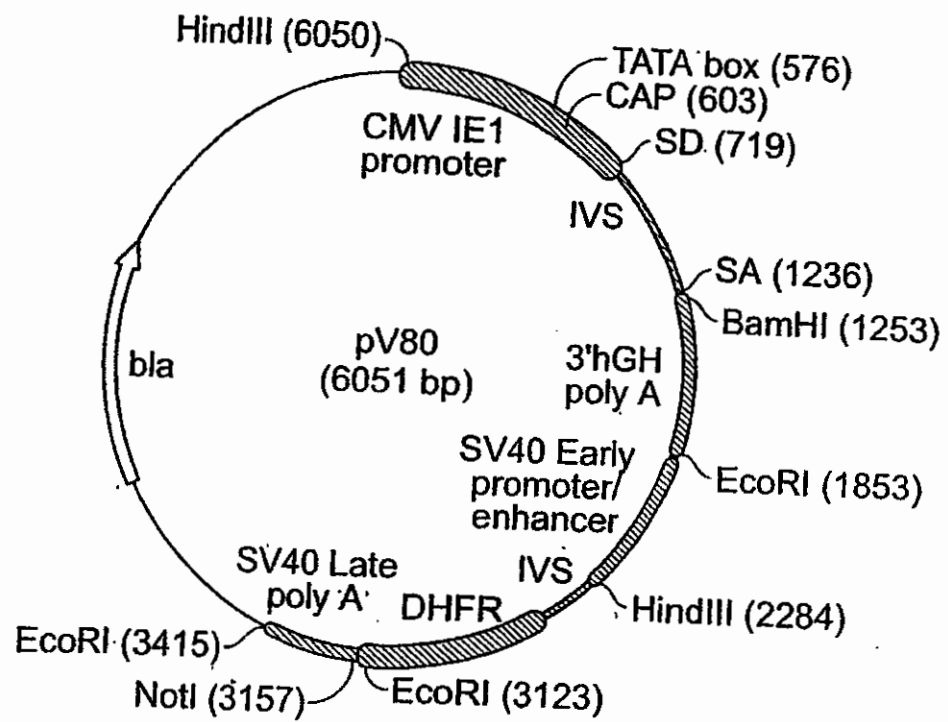


FIG. 10

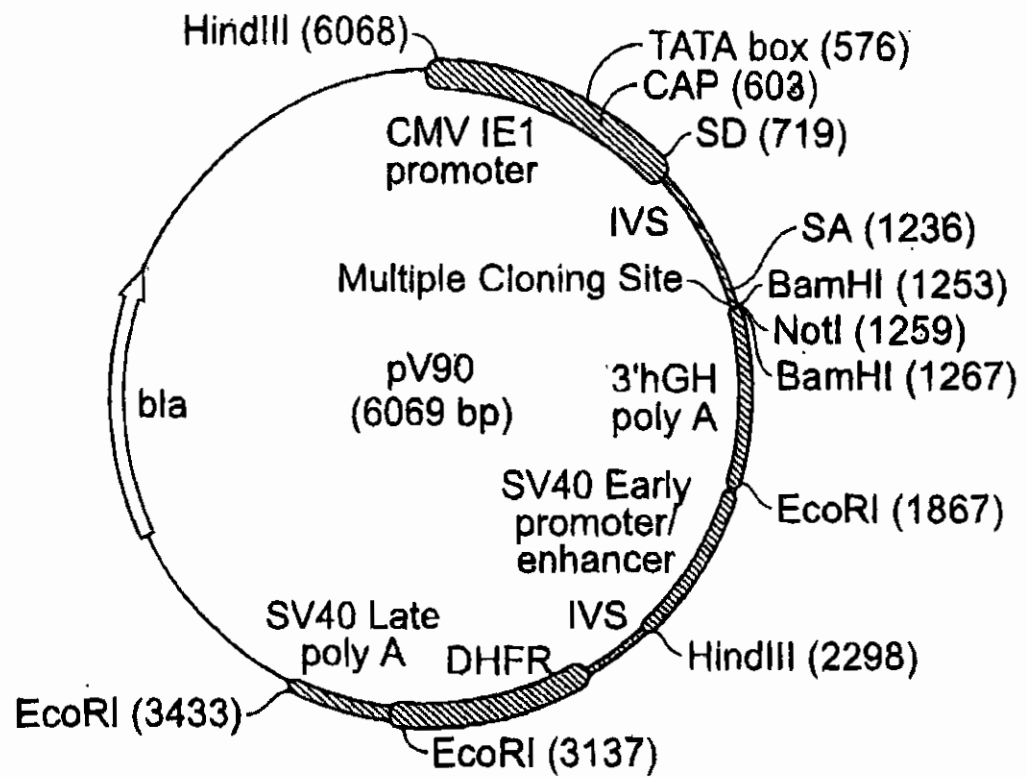


FIG. 11A

11/15

Annotated p V90 sequence

1 AGCTTGACATTGATTATTGACTAGTTATTAATAGTAATCAATTACGGGGTCATTAGTTTCATAGCCCATATATGGAGTTCGGCGTTA
 87 CATAACTTACGGTAATGCCCCGCTGCGTACCGCCCAACGACCCCGCCATTGACGTCAATATGACGTATGTTCCCATAGTA
 173 ACGCCAATAGGGACTTTCATTGACGTCAATGGGTGGAGTATTACGGTAAACTGCCACTTGGCAGTACATCAAGTGTATCATAT
 259 GCCAAGTACGCCCCCTATTGACGTCAATGACGGTAAATGGCCCGCTGGCATTATGCCAGTACATGACCTTATGGGACTTTCCTA
 345 CTTGGCAGTACATCTACGTATTAGTCATCGCTATTACCATGGTGTACGGGTTTGGCAGTACATCAATGGCGGTGGATAGCGGTTT
 431 GACTCACGGGATTTCGAAGTCTCCACCCATTGACGTCAATGGGAGTTTGT.TTGGCACCAGTCAACGGGACTTTCAGAAATG
 TATA box(576)
 517 TCGTAACTCCGCCCCATTGACGCAATGGGCGTAGCGGTACGGTGGGAGGTCTA TATAAGCAGAGCTCGTTTATGTA
 CAP(603)
 601 CCGTCAGATCGCTGGAGACGCCATCCACGCTGTTTTGACCTCCATAGAAGACACGGGACCGATCCAGCTCCGCGGCCGGAAC
 687 GGTGCATTGGAACSCGGATTCCCCGTGCAAGA
 splice donor(719)
 720 GTGACGTAAATACCGCTATAGAGTCTATAGGCCACCCCCCTTGGCTTCTTATGGATGCTATACTGTTTTGGCTCCCGCTATA
 806 CACCCCGCTTCTCATGTTATAGGTGATGGTATAGCTTAGCCTATAGGTGTGGGTATTGACCATTTAGGCACTCCCTATTG
 892 GTGACGATACTTTCATTACTAATCCATAACATGGCTCTTTGGCACAACCTCTTTTATGGCTATATGCCAATACACTGTCTTCA
 978 GAGACTGACACGGACTCTGATTTTACAGGATGGGGTCTCATTTATTATTACAAATTCACATATAAACACCACCGTCCCGAGT
 1064 GCCCGCAGTTTTTATTAAACATAACGTGGGATCTCCACGGGAATCTGGGGTACGTGTTCCGGAAACGGTGGAGGGCAGTGTAGTCTG
 1150 AGCAGTACTCGTTGCTGCCCGCGGCCACAGACATAATAGCTGACAGACTAACAGACTGTTCCTTTCCATGGGTCTTTCTGCA
 BamHI(1253)BamHI(1267)
 Multiple Cloning Site
 splice acceptor(1236) NotI(1259)
 1236 G TCACCGTCTT TGACAGC GATCGCGCGCGGATCCGCGGGGTGGCATCCCTGTGACCCCTCCCGAGTGGC
 BamHI NotI BamHI polyadenylation site (1359)
 1312 TCTCCTGGTGGTGAAGGTGCTACTTCAAGTCCCAACCAAGCTTGTCTTAATAAAATTAGTTGCATCATTTTGT
 1386 TTGACTAGGTGTCCTTGATATATTATGGGGTGGAGCGGGTGGTATGGAGCAAGGGGAGGTTGGGAAGACA
 1460 ACCGTAGTGGGCTTCAAGGTCTATTGGGAACAGGCTGGAGTGCAGTGGCAGCATCTGGCTCGCTGAATCTC
 1534 CGCCTCTGGGTTCAAGCGATTCTCTGCTCAGTGTCCGGAATAGTTGGGATTCCAGGCATGCACGACCAAGC
 1608 TCAGTAATTTTGTATTTTGGTAGAGACGGGGTTTCCCATATTGGCCAGTCTGCTCTCCATCTCTGACCT
 1682 CAGGTAATCCGCGCGCTCGGCTCCCAATTTGCTGGGATTACAGGTATGAGCCACTGGGCGCTTCTCTGTCTCT
 1756 GTGATTTTAAATAATTATACCAGCAGAAGGACGTCCAGACACAGCATGGGCTACCTGGCCATGCCAGCCAGT
 SalI(1873)
 SV40 early promoter/enhancer (1868)
 EcoRI(1867)
 1830 TGGACATTTGAGTTGTTTGTCTGGCACTGTCTCTCATGAATTCGTCGACAGATCTGCGCAGCACCATTGGCCTGAAATAA
 1910 CCTCTGAAGAGGAACCTTGGTTAGGTAGCTTCTGAAGCGGAAAGAACAGCTGTGGAATGTGTGTGCTAGTTAGGGTGTGGAAGTCC
 1996 CCAGGCTCCCGAGCAGGAGAGTATGCAAGCATGCAATCTCAATTAGTCAGCAACCAAGGTGTGGAAGTCCCGAGGCTCCCGAGC
 2002 AGGAGAGTATGCAAGCATGCAATCTCAATTAGTCAGCAACCAAGTATGTCGCGCCCTAACTCCGCCCCCTAACCTCCG
 2168 CCAATTCCGCCCCATTCTCGCCCCATGGCTGACTAATTTTTTTTATTATGCAAGGCGGAGGCGGCTCGGCTCTGAGCTATTG
 HindIII (2298)
 2254 CAGAAGTAGTGAGGAGGCTTTTTTGGAGGCTAGGCTTTTGCAAAAAGCTTGATTCTTCTGACACAACAGTCTCGAACTTAAGCTG
 2340 CAGAAGTTGGTCTGAGGCACTGGGCAAGTAAGTATCAAGGTTACAAGACAGGTTTAAGGAGACCAATAGAAAGTGGGCTTGTGCA
 2426 GACAGAGAAGACTCTTGGCTTTCTGATAGGCACCTATTGGTCTTACTGACATCCACTTTGGCTTTCTCTCACAGGTGTCACCTCC
 DHFR coding sequence (2568)
 2512 CAGTTCAATTACAGCTCTTAAGGCTAGAGTACTTAATACGACTCACTATAGGctagcATGGTTGACCAATTGAATGCTCG
 2594 TCGCCGTGTCCTCAAAATATGGGGATTGGCAAGAACCGAGACCTACCGTGGCTCCGCTCAGGAACGAGTTCAAG
 2668 TACTTCCAAAGAATGACCACAACCTCTTCAAGTGAAGGTAACAGAACTTGGTGATTATGGTAGGAAACCTG
 2742 GTTCTCCATTCTGAGAAGAATCGACCTTTAAAGGACAGAATTAAATAGTTCTCAGTAGAGAACTCAAGAAC
 2816 CACCAGAGGAGCTCATTTCTTGCCTAAAGTTTGGATGATGCCCTTAAGACTTATTGAACAACCGAATTGGCA
 2990 AGTAAAGTAGACATGGTTTGGATAGTGGAGGAGTTCTGTACCAGGAAGCCATGAATCAACGAGGCCACCT
 2964 CAGACTCTTTGTGACAAGGATCATGAGGAATTTGAAAGTGACAGCTTTTCCAGAAATGATTGGGGAAT
 3038 ATAAACTTCTCCAGAATACCCAGGCGTCTCTGAGGTCCAGGAGGAAAAAGCATCAAGTATAAGTTTGA
 EcoRI (3137) SalI (3161)
 3112 GTCTACGAGAAGAAAGACTAATCGAGAATTACGCGTGGTACCTCTAGAGTCGACCGGGCGGCGGCGCTTCGAGCAGAC

FIG. 11B-1

SUBSTITUTE SHEET (RULE 26)

12/15

3195 ATGATAAGATACATTGATGAGTTTGGACAAACCACAAGTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTAT
polyadenylation site (3308)

3281 TGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAAGTTAAACAACAATTGCAATTCATTTATGTTTCAGGTTACGGGGGAGG
EcoRI (3433)

SalI (3427)

3367 TGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAAATGGTAAATCGATAAGGATCTGTGACGAATTCACCTGGCCGTCGTT
3453 TTACAACGTCGTGACTGGGAAAACCTGGCGTTACCAACTTAATCGCCTTGACGACATCCCCCTTTCGCCAGCTGGCGTAATAG
3539 CGAAGAGGCCCGCACCCGATCGCCCTTCCCAACAGTTGCGCAGCTGAATGGCGAATGGCGCTGATGCGGATTTTCTCCTTACGC
3625 ATCTGTGCGGTATTTACACCGCATATGGTGCACCTCTAGTACAATCTGCTCTGATGCCGATAGTTAAGCCAGCCCGACACCCG
3711 CCAACACCCGCTGACGCGCCCTGACGGGCTTGTCTCTCCGGCATCCGCTTACAGACAAGCTGTGACCGCTCTCCGGGAGCTGCAT
3797 GTGTACAGAGTTTTTCAGGTCATCACGAAACGCGGAGACGAAAGGGCTCGTGATACGCCATTTTTATAGGTTAATGTCATGA
3883 TAATAATGTTTTCTTAGACSTCAGGTGGCACTTTTGGGGAATGTGCGCGGAACCCCTATTTGTTATTTTCTAAATACATTCA
3969 AATATGTATCCGCTCATGAGACAATAACCTGATAAATGCTTCAATAATATTGAAAAAGGAAGATGATGATTATCAACATTTCCG
4055 TGTGCGCTTATTCCTTTTTCGGGCACTTTGCTTCTGTTTGTGTCACCCAGAAACGCTGGTGAAGTAAAGATGCTGAAG
4141 ATCAGTTGGGTGCACGAGTGGGTTACATCGAAGTGGATCTCAACAGCGGTAAAGATCCTTGAGAGTTTTGCGCCCGAAGAACGTTTT
4227 CCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGCGGATTAATCCGATTTGACGCGGGCAAGAGCAACTCGGTCCGCGCAT
4313 ACACATTTCTCAGAACTGACTTGGTTGAGTACTCACCAGTCACAGAAAGCATCTTACGGATGGCATGACAGTAAGAGAAATATGCA
4399 GTGCTGCCATAACCATGAGTGATAACACTGCGGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTTG
4485 CACAACATGGGGGATCATGTAACCTGCTTGTGCTGGGAACCGGAGCTGAATGAAGCCATACCAACGACGAGCGTGACACCAC
4571 GATGCTGTAGCAATGGCAACAGTTGCGCAAACTATTAAGTGGCGAACTACTTACTCTAGCTTCCCGGCAACAATTAATAGACT
4657 GGATGGAGGCGGATAAAGTTGCAGGACCACTTCTGCGCTCGGCCCTTCGGCTGGCTGGTTTATGCTGATAAATCTGGAGCGGT
4743 GAGCGTGGGTCTCGCGGTATCATTGCAAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTATCTACACGACGGGAGTCA
4829 GGCAACTATGGATGAACGAATAGACAGATCGCTGAGATAGGTGCTCACTGATTAAAGCATTTGGTAAGTGTGAGACCAAGTTACT
4915 CATATATACTTTAGATTGATTTAAACCTTCATTTTAAATTTAAAGGATCTAGGTGAAGATCCTTTTGATAATCTCATGACCAAA
5001 ATCCCTTAACGTGAGTTTTGCTTCCACTGAGCGTCAGACCCGTAAGAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTCTGCG
5087 CGTAATCTGCTGCTTGAACAACAAAAACACCGCTACCAGCGGTGTTTGTGTTGCCGATCAAGAGCTACCAACTCTTTTCCGA
5173 AEGTAACCTGGCTTCAGCAGAGCGCAGATACGAAATACTGCTTCTAGTGTAGCCGATGTTAGGCCACCACTTCAAGAACTCTGTA
5259 GCACCGCTACATACCTCGCTCTGCTAATCCTGTTACAGTGGCTGCTGCCAGTGGCGATAAGTCTGTCTTACCGGTTGGACTC
5345 AAGACGATAGTTACCGGATAAGGCGCAGCGGTCGGGCTGAACGGGGGTTCTGTGCACACAGCCAGCTTGGAGCGAACGACCTACA
5431 CCGAAGTGAATACCTACAGCGTGAGCTATGAGAAAGCGCCAGCTTCCGGAAGGAGAAAGCGGACAGGTATCCGGTAAGCGGC
5517 AGGGTCGGAACAGGAGAGCGCACGAGGAGCTTCCAGGGGGAACGCTGGTATCTTTATAGTCTGTGCGGTTTCCGACCTCTG
5603 ACTTGAGCGTCGATTTTTGTGATGCTCGTCAAGGGGGGCGGAGCCTATGGAAAAACGCCAGCAACGCGGCTTTTACGGTTCTGG
5689 CCTTTTGTGCGCTTTTGTGCTACATGTTCTTCTGCTGTTATCCCTGATTTCTGTGGATAACCGTATTACCGCTTTGAGTGAAGT
5775 GATACCGCTCGCCGAGCCGAACGAGCGAGCGAGTCACTGAGCGAGGAAGCGGAAGAGCGCCCAATACGCAAAACCGCTCT
5861 CCCGCGGCTTGGCGGATTCATTAATGAGCTGGCAGCAGGTTTCCGACTGGAAGCGGGCAGTGAGCGCAACGCAATTAATG
5947 TGAGTTAGCTCACTCATTAGGCACCCAGGCTTTACACTTTATGCTTCCGGCTCGTATGTTGTGGAATTGTGAGCGGATAACAA
6033 TTTACACAGGAAACAGCTATGACCATGATTACGCCA

FIG. 11B-2

13/15

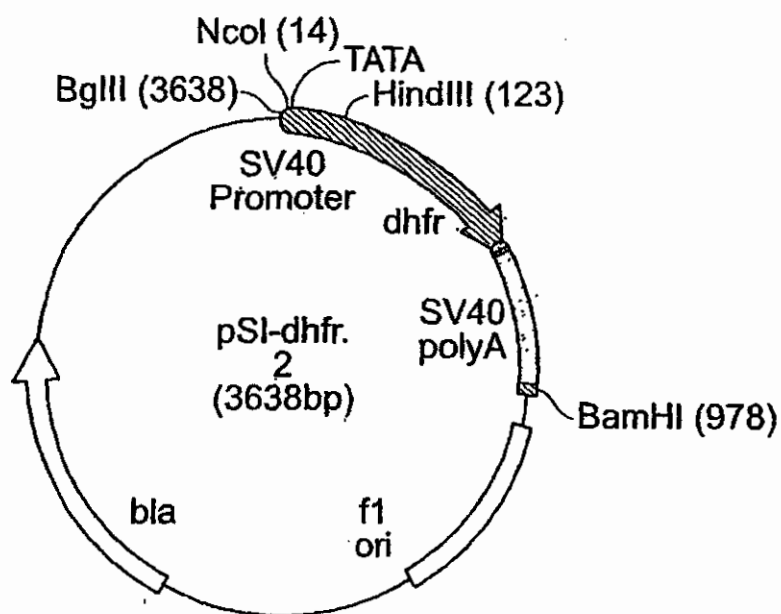


FIG. 12

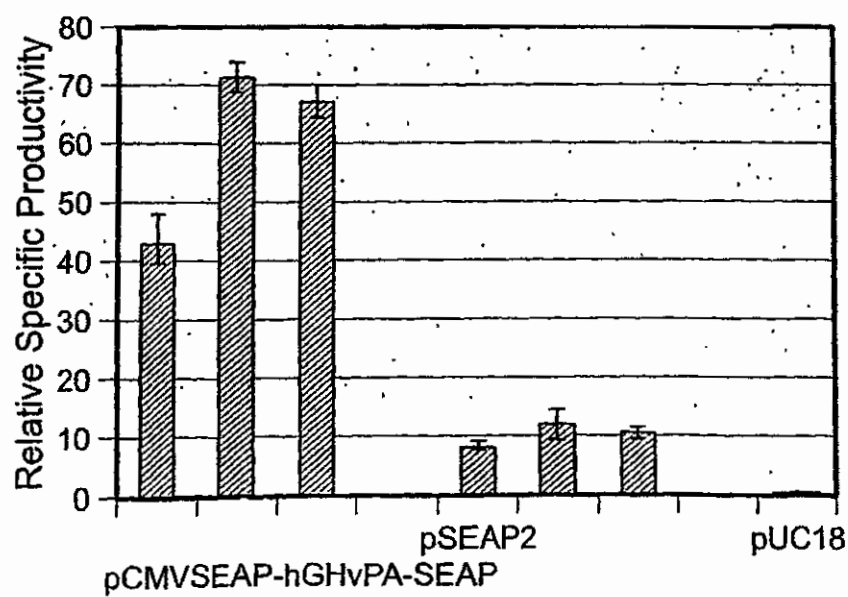


FIG. 13

14/15

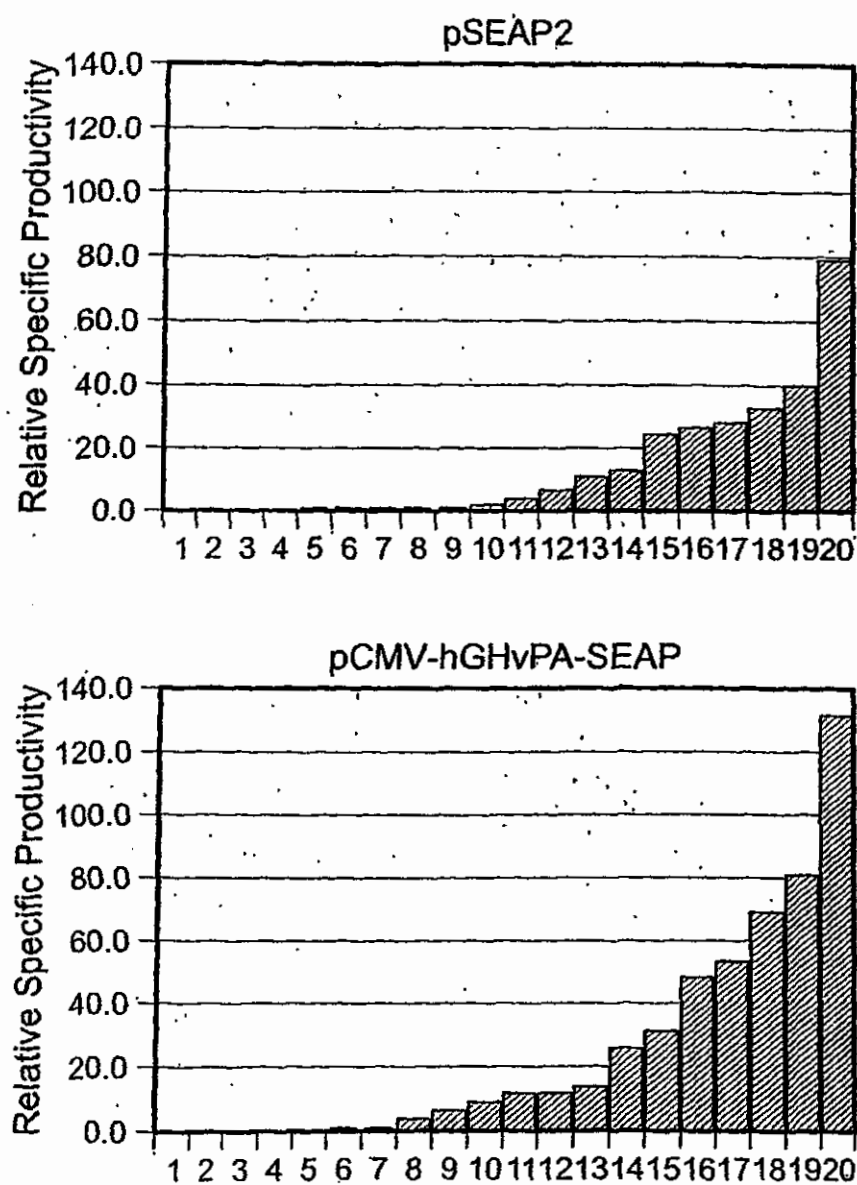


FIG. 14

15/15

2660 bp DNA linear (SEQ ID NO:18)
 DEFINITION Homo sapiens growth hormone variant precursor (GH-V) gene, complete cds
 ACCESSION K00470 VERSION K00470.1 GI:183174
 sig peptide join(556..565,837..904) /gene="GH-V"
 mat peptide join(905..997,1208..1327,1419..1583,1834..2028) /gene="GH-V"
 /product="growth hormone variant"
 exon 837..997 /gene="GH-V" /number=2
 exon 1208..1327 /gene="GH-V" /number=3
 exon 1419..1583 /gene="GH-V" /number=4
 exon 1834..2136 /gene="GH-V" /number=5
 PolyA signal 2118..2123 /gene="GH-V"
 repeat region 2234..2505 /rpt family="Alu" BASE COUNT 593 a 719 c 753 g 595 t
 gaattcagca ctgaatcatg cccagaaacc ccgcaatcta ttggctgtgc ttggcccct 61
 tttcccaaca cacacattct gtctgtgtgg tggaggggaa acatgcgggg agggaggaaag 121
 gaataggata gagagtggga tgggttcggt aggggtctca aggactggcc tatcctgaca 181
 tccttctccg cggtcaggtt ggcaccatg gcctgtctgc agagggcacc cacgtgaccc 241
 ttaaaagagag gacaagtgg gtggtatctc tggctgacat tctgtgcaca accctcaca 301
 cgctgtgtgt ggtgggaagg gaaagatgac aagtcagggg gcatgatccc agcatgtgtg 361
 ggaggagcctt cttaattatc cattagcaca agcccgctcag tggcccccagg cctaaccatg 421
 cagagaaaca ggtgaggaga agcagcgaga gagaaggggc cagggtataaa aagggccccac 481
 aagagaccag ctcaaggatc ccaaggccca actccccgaa ccactcaggg tcctgtggac 541
 agctcactag cggcaatggc tgcaggttaag cggccctaaa atccctttgg cacaatgtgt 601
 cctgagggga gaggcggcgt cctgtagatg ggacgggggc actaaccctc aggtttgggg 661
 cttatgaatg ttatgtatcg ccatctaagc ccagtatttg gccaatctct gaattgttct 721
 ggtccctgga ggaggcagag agagagagag agaaaaaaa aaccagctc ctggaacagg 781
 gagagcgctg gcctcttctc ctccagctcc ctctgttgcc tccggtttct cccaggctc 841
 ccggagctcc ctgctctctg cttttggcct gctctgcctg tcctggcttc aagaggcgag 901
 tgccttccca accattccct tatccaggct ttttgacaac gctatgctcc gcgcccgtcg 961
 cctgtaccag ctggcatatg acacctatca ggagtgtgta agctcttggg taatgggtgc 1021
 gcttcagagg tggcaggaag ggtggaattt ccccgctcgg gaagtaatgg gaggagacta 1081
 agggagctcag ggtgtgtttc tgaagtgaat atgcaggcag atgagcatac gctgagttag 1141
 gticccagaa aagtaacaat gggagcaggt ctccagcata gaccttgggt ggcggtcctt 1201
 ctcttaggaa gaagcctata tcctgaagga gcagaagtat tcatctctgc agaaccctca 1261
 gacctccctc tgcctctcag agtctattcc aacaccttcc aacagggtga aaacgcagca 1321
 gaaatctgtg agtggatgcc ttctcctcag gtgggatggg gtgaacctgt ggtcagagcc 1381
 cccgggcagc acagccactg ccggtccttc ccctgcagaa cctagagctg ctccgcatct 1441
 cctgctgctc catcagctca tggctggagc ccgtgcagct cctagaggag gtcttcgcca 1501
 acagcctggt gtatggcgcc tcggacagca acgtctatcg ccacctgaag gacctagagg 1561
 aaggcatcca aacgctgatg tgggtgaggg tggcaccagg atccaatcct ggggcccac 1621
 tggcttccag ggactgggga gagaaacact gctgccctct ttttagcagt caggcgctga 1681
 cccaagagaa ctaccgctat tcttatttcc ccctcgtgaa tcctccagcc ctttctctac 1741
 aacctggagg ggaggggagg aatggatga atgagagagg gagggaaacag tgcccaagcg 1801
 cttggcctct cttctcttcc ctctacttgg cagaggctgg aagatggcag ccccgaggct 1861
 gggcagatct tcaatcagtc ctacagcaag tttagacaaa aatcgacaaa ccatgacgca 1921
 ctgctcaaga actacgggct gctctactgc ttcagggaagg acatggacaa ggtcgagaca 1981
 ttcttgccca tctgacagt ccgctctgtg gagggcagct gtggcttcta gctgcccggg 2041
 tggcatccct gtgacccctc ccagtgctc ctctgtgtcg tggaggtgct tactccagt 2101
 cccaccagcc ttgtcctaat aaaattaagt tgcattcttt tgtttgacta ggtgtccttg 2161
 tataatatta tgggggtggg gcgggtggta tggagcaagg gggcaggttg ggaagacaac 2221
 ctgtagggcc ttcagggtct attcgggaac caggctggag tgcagtggca gtcttggtc 2281
 gctgcaatct ccgctcctg ggttcaagcg atttctctgc ctgagctcc cgaatagttg 2341
 cgattccagg catgcaagac caggctcagc taatttttgt atttttgga gagacgggg 2401
 ttcaccata tggccagctc ggtctccatc tcctgacctc aggtaatccg cccgctcgg 2461
 cctcccaaat tgcgtggatt acaggtatga gccactgggc ccttccctgt cctgtgattt 2521
 taaaataatt ataccagcag aaggacgtcc agacacagca tgggctacct ggccatgccc 2581
 agccagttgg acatttgagt tgtttgcttg gcactgtcct ctcatgcatt ggggtccact 2641
 agtagatgct tgttgaattc

FIG. 15

SUBSTITUTE SHEET (RULE 26)

SEQUENCE LISTING

<110> Biogen Idec Inc.

<120> AN EXPRESSION CASSETTE AND VECTOR FOR
TRANSIENT OR STABLE EXPRESSION OF EXOGENOUS MOLECULES

<130> 13751-013W01

<150> US 60/448,179

<151> 2003-02-14

<160> 21

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 6069

<212> DNA

<213> Homo sapiens

<400> 1

agcttgacat	tgattattga	ctagttatta	atagtaatca	attacggggg	cattagttca	60
tagcccatat	atggagttcc	gcgttacata	acttacggta	aatggcccg	ctggctgacc	120
gcccacgac	cccgcccat	tgacgtcaat	aatgacgtat	gttcccatag	taacgccaat	180
agggactttc	cattgacgtc	aatgggtgga	gtattttacg	taaactgccc	acttggcagt	240
acatcaagt	tatcatatgc	caagtacgcc	ccctattgac	gtcaatgacg	gtaaatggcc	300
cgccctggcat	tatgcccagt	acatgacctt	atgggacctt	cctacttggc	agtacatcta	360
cgtatttagtc	atcgctatta	ccatggtgat	gcgggttttg	cagtacatca	atgggcgtgg	420
atagcggttt	gactcacggg	gatttccaag	tctccacccc	attgacgtca	atgggagttt	480
gttttggcac	caaaatcaac	gggactttcc	aaaatgtcgt	aacaactccg	ccccattgac	540
gcaaattgggc	ggtaggcgtg	tacgggtgga	gggtctatata	agcagagctc	gttttagtgaa	600
ccgtcagatc	gcctggagac	gccatccacg	ctgttttgac	ctccatagaa	gacaccggga	660
ccgatccagc	ctccgcggcc	gggaacgggtg	cattggaacg	cggattcccc	gtgccaagag	720
tgacgtaagt	accgcctata	gagtctatag	gccaccccc	ttggcttctt	atgcatgcta	780
tactgttttt	ggcttggggg	ctatacacc	ccgcttcttc	atgttatagg	tgatgggtata	840
gcttagccta	taggtgtggg	ttattgacca	ttattgacca	ctccctattt	ggtagcgata	900
ctttccatta	ctaattccata	acatggctct	ttgccacaac	tctctttatt	ggctatatgc	960
caatacactg	tccttcagag	actgacacgg	actctgtatt	tttacaggat	ggggtctcat	1020
ttattatttta	caaattcaca	tatacaacac	caccgtcccc	agtgcgccga	gtttttatta	1080
aacataacgt	gggatctcca	cgcgaatctc	gggtacgtgt	tccggaacgg	tggagggcag	1140
tgtagtctga	gcagtaactc	ttgctgccgc	gcgcgccacc	agacataata	gctgacagac	1200
taacagactg	ttcctttcca	tgggtctttt	ctgcagtcac	cgctcctgac	acgggatccg	1260
cgcccgcgga	tccttgccc	gggtggcatcc	ctgtgacccc	tccccagtgc	ctctcctggg	1320
cgtggaaggt	gctactccag	tgcccaccag	ccttgtccta	ataaaattaa	gttgcatcat	1380
tttggttgac	taggtgtcct	tgtataatat	tatgggggtg	aggcgggtg	tatggagcaa	1440
ggggcaggtt	gggaagacaa	cctgtagggc	cttcagggtc	tattgggaac	caggctggag	1500
tgcagtggca	cgatcttggc	tcgtgcaat	ctccgcctcc	tgggttcaag	cgattctcct	1560
gcctcagtc	cccgaatagt	tgggattcca	ggcatgcacg	accaggctca	gctaattttt	1620
gtattttttg	tagagacggg	gtttcaccat	attggccagt	ctggtctcca	tctcctgacc	1680
tcaggtaatc	cgccgcctc	ggcctcccaa	attgctggga	ttacagggtat	gagccactgg	1740
gcccttccct	gtcctgtgat	tttaaaataa	ttataaccagc	agaaggacgt	ccagacacag	1800
catgggctac	ctggccatgc	ccagccagtt	ggacatttga	gttggttgct	tggcactgtc	1860
ctctcatgaa	ttcgtcgaca	gatctgcgca	gcaccatggc	ctgaaataac	ctctgaaaga	1920
ggaaacttgg	taggtacctt	ctgaggcgga	aagaaccagc	tgtggaatgt	gtgtcagtta	1980
gggtgtggaa	agtccccagg	ctccccagca	ggcagaagta	tgcaaagcat	gcatctcaat	2040
tagtcagcaa	ccagggtgtg	aaagtcccca	ggctccccag	caggcagaag	tatgcaaagc	2100
atgcatctca	attagtcagc	aaccatagtc	ccgcccctaa	ctccgcccat	cccgccccta	2160
actccgceca	gttccgceca	ttctccgccc	catggctgac	taattttttt	tattttatgca	2220
gaggccgagg	ccgcctcggc	ctctgagcta	ttccagaagt	agtgaggagg	cttttttggg	2280

ggcctaggt	tttgcaaaaa	gcttgattct	tctgacacaa	cagtctcgaa	cttaagctgc	2340
agaagttggt	cgtgaggcac	tgggcaggta	agtatcaagg	ttacaagaca	ggtttaagga	2400
gaccaataga	aactgggctt	gtcgagacag	agaagactct	tgcgtttctg	ataggcacct	2460
attggtotta	ctgacatcca	ctttgccttt	ctctccacag	gtgtccactc	ccagttcaat	2520
tacagctctt	aaggctagag	tacttaatac	gactcactat	aggctagcat	ggttcgacca	2580
ttgaactgca	togtgcgct	gtcccaaaat	atggggattg	gcaagaacgg	agacctaccc	2640
tgccctccgc	tcaggaacga	gttcaagtac	ttccaaagaa	tgaccacaac	ctcttcagtg	2700
gaaggtaaac	agaatctggt	gattatgggt	aggaaaacct	ggttctccat	tcctgagaag	2760
aatcgacctt	taaaggacag	aattaatata	gttctcagta	gagaactcaa	agaaccacca	2820
cgaggagctc	atcttcttgc	caaaagtttg	gatgatgcct	taagacttat	tgaacaaccg	2880
gaattggcaa	gtaaagtaga	catggttttg	atagtcggag	gcagttctgt	ttaccaggaa	2940
gccatgaatc	aaccaggcca	cctcagactc	tttgtgacaa	ggatcatgca	ggaatttgaa	3000
agtgacacgt	ttttcccgag	aattgatttg	gggaaatata	aacttctccc	agaataccca	3060
ggcgtcctct	ctgaggtcca	ggaggaaaaa	ggcatcaagt	ataagtttga	agtctacgag	3120
aagaaagact	aactcgagaa	ttcacgcgtg	gtacctctag	agtcgacccg	ggcggccggc	3180
cgcttcgagc	agacatgata	agatacattg	atgagtttgg	acaaaccaca	actagaatgc	3240
agtgaaaaaa	atgcttttatt	tgtgaaattt	gtgatgctat	tgcttttattt	gtaaccatta	3300
taagctgcaa	taacaagttt	aacaacaaca	attgcattca	ttttatgttt	caggttcagg	3360
gggaggtgtg	ggaggttttt	taaagcaagt	aaaacctcta	caaagtgtgt	aaaatcgata	3420
aggatctgtc	gacgaattca	ctggccgtcg	ttttacaacg	tcgtgactgg	gaaaaccctg	3480
gcgttaccca	acttaatcgc	cttgacgac	atcccccttt	cgccagctgg	cgtaatagcg	3540
aagaggcccg	caccgatcgc	ccttcccaac	agttgcgcag	cctgaatggc	gaatggcgcc	3600
tgatgcggta	ttttctcctt	acgcattctg	gcggtatttc	acaccgcata	tggtgcactc	3660
tcagtacaat	ctgctctgat	gccgcatagt	taagccagcc	cgcacacccg	ccaacacccg	3720
ctgacgcgco	ctgacgggct	tgtctgctcc	cggcatccgc	ttacagacaa	gctgtgaccg	3780
tctccgggag	ctgcatgtgt	cagaggtttt	caccgtcatc	accgaaacgc	gcgagacgaa	3840
agggcctcgt	gatacgcta	tttttatagg	ttaatgtcat	gataataatg	gtttcttaga	3900
cgtcagggtg	cacttttcgg	ggaaatgtgc	gcggaacccc	tatttggtta	tttttctaaa	3960
tacattcaaaa	tatgtatccg	ctcatgagac	aataaccctg	ataaatgctt	caataatatt	4020
gaaaaaggaa	gagtatgagt	attcaacatt	tccgtgtcgc	ccttattccc	ttttttgcgg	4080
cattttgcct	tcctgttttt	gctcaccag	aaacgctggt	gaaagtaaaa	gatgctgaag	4140
atcagttggg	tgacagagt	ggttacatcg	aactggatct	caacagcggg	aagatccttg	4200
agagttttcg	ccccgaagaa	cgttttccaa	tgatgagcac	ttttaaagtt	ctgctatgtg	4260
gcgcggtatt	atcccgatt	gacgccgggc	aagagcaact	cggtcgcgcg	atacactatt	4320
ctcagaatga	cttggttgag	tactcaccag	tcacagaaaa	gcattcttacg	gatggcatga	4380
cagtaagaga	attatgcagt	gctgccataa	ccatgagtga	taacactgcg	gccaaacttac	4440
ttctgacaac	gatcggagga	ccgaaggagc	taaccgcttt	tttgacaaac	atgggggatc	4500
atgtaactcg	ccttgatcgt	tggaacccgg	agctgaatga	agccatacca	aacgacgagc	4560
gtgacaccac	gacgtcgtga	gcaatggcaa	caactgtcgc	caaactatta	actggcgaaac	4620
tacttactct	agcttcccg	caacaattaa	tagactggat	ggaggcggt	aaagttgcag	4680
gaccacttct	gcgctcggcc	cttcgggctg	gctggtttat	tgctgataaa	tctggagccg	4740
gtgagcgtgg	gtctcgcgg	atcattgcag	cactggggcc	agatggtaag	ccctcccgta	4800
tcgtagtatt	ctacacgacg	gggagtcagg	caactatgga	tgaacgaaat	agacagatcg	4860
ctgagatagg	tgctcactg	attaagcatt	ggtaactgtc	agaccaagtt	tactcatata	4920
tacttttagat	tgatttaaaa	cttcattttt	aatttaaaag	gatctagggtg	aagatccttt	4980
ttgataatct	catgacaaaa	atcccttaac	gtgagttttc	gttccactga	gcgtcagacc	5040
ccgtagaaaa	gatcaaagga	tcttcttgag	atcctttttt	tctgcgcgta	atctgctgct	5100
tgcaaacaaa	aaaaccaccg	ctaccagcgg	tggtttgttt	gocggatcaa	gagctaccaa	5160
ctctttttcc	gaaggtaact	ggcttcagca	gagcgcagat	accaaatact	gtccttctag	5220
tgtagccgta	gttaggccac	cacttcaaga	actctgtagc	accgcctaca	tacctcgctc	5280
tgctaactct	gttaaccagt	gctgctgcca	gtggcgataa	gtcgtgtctt	accgggttgg	5340
actcaagacg	atagttaccg	gataaggcgc	agcggtcggg	ctgaacgggg	ggttcgtgca	5400
cacagcccag	cttgagcgga	acgacctaca	ccgaactgag	atacctacag	cgtgagctat	5460
gagaaagcgc	cacgcttccc	gaaggagaa	aggcggacag	glatccggta	agcggcaggg	5520
tcggaacagg	agagcgacag	agggagcttc	cagggggaaa	cgcctgggtat	ctttatagtc	5580
ctgtcgggtt	tcgccacctc	tgacttgagc	gtcgattttt	gtgatgctcg	tcaggggggc	5640
ggagcctatg	gaaaaacgcc	agcaacgcgg	ccttttttacg	gttcctggcc	ttttgctggc	5700
cttttgctca	catgttcttt	cctgogttat	cccctgattc	tgtggataac	cgtattaccg	5760
cctttgagtg	agctgatacg	gctgcgcgca	ccgaacgac	cgcgcgcagc	gagtcagtg	5820
gcgaggaagc	ggaagagcgc	ccaatacgca	aaccgcctct	ccccgcgcgt	tgcccgattc	5880
attaatgcag	ctggcacgac	aggtttcccg	actggaaagc	gggcagtgag	cgcaacgcaa	5940

ttaatgtgag ttagctcact cattagggcac cccaggcttt acactttatg cttccggctc 6000
gtatgttgtg tggaattgtg agcggataac aatttcacac aggaaacagc tatgaccatg 6060
attacgcca 6069

<210> 2
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 2
tttaagcttg acattgatta ttgactag 28

<210> 3
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 3
ttttggatcc ctgtcaagga cgggtgactgc 30

<210> 4
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> adaptor oligonucleotide

<400> 4
gatcgatgaa ttcgg 15

<210> 5
<211> 13
<212> DNA
<213> Artificial Sequence

<220>
<223> adaptor oligonucleotide

<400> 5
ctacttaagc cgc 13

<210> 6
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 6
ttttggatcc atgtactggg tgaagcag 28

<210> 7
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 7
gcccggatcc tcatttaccc ggagacag

28

<210> 8
<211> 53
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 8
ttttctgcag tcaccgtcct tgacacggga tccatggact ggaccttgga ggg

53

<210> 9
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 9
ctgaggagac ggtgaccagg gtcccttggc ccc

33

<210> 10
<211> 12
<212> DNA
<213> Artificial Sequence

<220>
<223> adaptor oligonucleotide

<400> 10
aattcgtcga ca

12

<210> 11
<211> 12
<212> DNA
<213> Artificial Sequence

<220>
<223> adaptor oligonucleotide

<400> 11
gcagctgtct ag

12

<210> 12
<211> 14
<212> DNA
<213> Artificial Sequence

<220>

<223> synthetically generated oligonucleotide

<400> 12

gatccgcggc cgcg

14

<210> 13

<211> 13

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetically generated oligonucleotide

<400> 13

gatccgcggc cgc

13

<210> 14

<211> 14

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetically generated oligonucleotide

<400> 14

cgccggcgcc tagg

14

<210> 15

<211> 16

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetically generated oligonucleotide

<400> 15

ggatccctgc ccgggt

16

<210> 16

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetically generated oligonucleotide

<400> 16

ggatccgcgg ccgcggatcc ctgcccgggt

30

<210> 17

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetically generated oligonucleotide

<400> 17

ggatccgcgg ccgccatg

18

<210> 18

<211> 2660
 <212> DNA
 <213> Homo sapiens

<400> 18

gaattcagca	ctgaatcatg	cccagaaccc	cgcgaatcta	ttggctgtgc	tttggccctt	60
tttcccaaca	cacacattct	gtctgggtgg	tggaggggaa	acatgcgggg	aggaggaaag	120
gaataggata	gagagtggga	tgggggtcgg	aggggtctca	aggactggcc	tatcctgaca	180
tccttctccg	cggtcagggt	ggccaccatg	gcctgctgcc	agagggcacc	caogtgacc	240
ttaaagagag	gacaagttgg	gtggtatctc	tggctgacat	tctgtgcaca	accctcacia	300
cgctggtgat	ggtgggaagg	gaaagatgac	aagtcagggg	gcctgatccc	agcatgtgtg	360
ggaggagctt	ctaaattatc	cattagcaca	agcccgctag	tggcccgagg	cctaaacatg	420
cagagaaaca	ggtgaggaga	agcagcgaga	gagaaggggc	caggatataa	aagggcccac	480
aagagaccag	ctcaaggatc	ccaaggccca	actccccgaa	ccactcaggg	tcctgtggac	540
agctcactag	cggcaatggc	tgcaggtaag	cgccctctaa	atccctttgg	cacaatgtgt	600
cctgagggga	gaggcggcgt	cctgtagatg	ggacgggggc	actaaccctc	agggtttggg	660
cttatgaatg	ttagctatcg	ccatctaagc	ccagtatctt	gccaatctct	gaatgttctt	720
ggctccctgg	ggaggcagag	agagagagag	agaaaaaaa	aaccagctc	ctggaaacagg	780
gagagcgctg	gcctcttgc	ctccagctcc	ctctgttgcc	tcgggtttct	ccccaggctc	840
cgggacgtcc	ctgctcctgg	cttttggcct	gctctgctcg	tcctggcttc	aagagggcag	900
tgccttccca	accattccct	tatccaggct	ttttgacaac	gctatgctcc	gcgcccgtcg	960
cctgtaccag	ctggcatatg	acacctatca	ggagtttgta	agctcttggg	taatgggtgc	1020
gcttcagagg	tggcaggaag	gggtgaattt	cccccgctgg	gaagtaatgg	gaggagacta	1080
aggagctcag	ggttggtttc	tgaagtgaag	atgcaggcag	atgagcatat	gctgagtgag	1140
gttcccagaa	aagtaacaat	gggagcagg	ctccagcata	gaccttggtg	ggcggtcctt	1200
ctcctaggaa	gaagcctata	tcctgaagga	gcagaagtat	tcattcctgc	agaaccccc	1260
gacctccctc	tgcttctcag	agtctattcc	aacaccttcc	aacagggtga	aaacgcagca	1320
gaaatctgtg	agtggatgcc	ttctcccag	gtgggtggg	gtagacctgt	ggtcagagcc	1380
cccgggcagc	acagccactg	ccggtccttc	ccctgcagaa	cctagagctg	ctccgcatct	1440
ccctgctgct	catccagtc	tggctggagc	ccgtgcagct	cctcaggagc	gtcttcgcca	1500
acagcctgg	gtatggcgcc	tcggacagca	aogtctatcg	ccacctgaag	gacctagagg	1560
aaggcatcca	aacgtgatg	tgggtgagg	tggcaccagg	atccaatcct	ggggccccac	1620
tggcttccag	ggactgggga	gagaaacact	gctgccctct	ttttagcagt	caggcgctga	1680
cccaagagaa	ctcaccgtat	tcttcatttc	ccctcgtgaa	tcctccaggc	ctttctctac	1740
aacctggagg	ggaggaggga	aatggatga	atgagagagg	gagggaacag	tgcccaagcg	1800
cttggcctct	ccttctcttc	cttcactttg	cagaggctgg	aagatggcag	cccccgagct	1860
gggcagatct	tcaatcagtc	ctacagcaag	tttgacacaa	aatcgacaaa	cgatgacgca	1920
ctgctcaaga	actacgggct	gctctactgc	ttcagggaag	acatggacaa	ggtcgagaca	1980
ttcctgcgca	tcgtgcagtg	ccgctctgtg	gagggcagct	gtggcttcta	gctgcccggg	2040
tggcatccct	gtgacccttc	cccagtgctc	ctcctggctg	tggaaaggtg	tactccagtg	2100
cccaccagcc	ttgtccta	aaaattaagt	tgcattcttt	tggttgacta	ggtgtccttg	2160
tataatatta	tgggggtggg	gcgggtggta	tggagcaagg	ggccagggtg	ggaagacaac	2220
ctgtagggcc	ttcagggtct	attcgggaac	caggctggag	tgcagtggca	gtcttggctc	2280
gctgcaatct	ccgcctcctg	ggttcaagcg	attctcctgc	ctcagtcctc	cgaatagttg	2340
cgattccagg	catgcaagac	caggctcagc	taatttttgt	atcttttggt	gagacgggg	2400
ttcaccatat	tggccagctc	ggtctccatc	tcctgacctc	aggtaatccg	ccgcctcgg	2460
cctcccaaat	tgctgggatt	acaggtatga	gccactgggc	ccttccctgt	cctgtgattt	2520
taaaataatt	ataccagcag	aaggacgtcc	agacacagca	tgggctacct	ggccatgcc	2580
agccagttgg	acatttgagt	tgtttgcttg	gcactgtcct	ctcatgcatt	gggtccactc	2640
agtagatgct	tggtgaattc					2660

<210> 19
 <211> 594
 <212> DNA
 <213> Homo sapiens

<400> 19

ctgcccgggt	ggcatccctg	tgaccctctc	ccagtgcctc	tcctggctgt	ggaaggtgct	60
actccagtcg	ccaccagcct	tgctcctaata	aaattaagtt	gcattctttt	gtttgactag	120
gtgtccttgt	ataatattat	gggggtggag	cggtgtgtat	ggagcaagg	gccagggttg	180
gaagacaacc	tgtagggcct	tcagggtcta	ttcgggaacc	aggctggagt	gcagtggcag	240

tcttggetcg ctgcaatctc cgcctcctgg gttcaagcga ttctcctgcc tcagtcctcc 300
gaatagttgc gattccaggc atgcaagacc aggcctcagct aatttttgta tttttgtag 360
agacgggggtt tcaccatatt ggccagtctg gtctccatct cctgacctca ggtaatccgc 420
ccgcctcggc ctcccaaatt gctgggatta caggatagag ccactgggcc ctccctgtc 480
ctgtgatttt aaaataatta taccagcaga aggacgtcca gacacagcat gggctacctg 540
gccatgccca gccagttgga catttgagtt gtttgcttgg cactgtcctc tcat 594

<210> 20

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 20

ttttgatcc ctgcccggt gccatcc 27

<210> 21

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 21

ttttgaattc atgagaggac agtgccaagc 30