```
3/1                                                                 33/11
atg gcc aag aca att gcg tac gac gaa gag gcc cgt cgc ggc ctc gag cgg ggc ttg aac
M   A   K   T   I   A   Y   D   E   E   A   R   R   G   L   E   R   G   L   N
63/21                                                               93/31
gcc ctc gcc gat gcg gta aag gtg aca ttg ggc ccc aag ggc cgc aac gtc gtc ctg gaa
A   L   A   D   A   V   K   V   T   L   G   P   K   G   R   N   V   V   L   E
123/41                                                              153/51
aag aag tgg ggt gcc ccc acg atc acc aac gat ggt gtg tcc atc gcc aag gag atc gag
K   K   W   G   A   P   T   I   T   N   D   G   V   S   I   A   K   E   I   E
183/61                                                              213/71
ctg gag gat ccg tac gag aag atc ggc gcc gag ctg gtc aaa gag gta gcc aag aag acc
L   E   D   P   Y   E   K   I   G   A   E   L   V   K   E   V   A   K   K   T
243/81                                                              273/91
gat gac gtc gcc ggt gac ggc acc acg acg gcc acc gtg ctg gcc cag gcg ttg gtt cgc
D   D   V   A   G   D   G   T   T   T   A   T   V   L   A   Q   A   L   V   R
303/101                                                             333/111
gag ggc ctg cgc aac gtc gcg gcc ggc gcc aac ccg ctc ggt ctc aaa cgc ggc atc gaa
E   G   L   R   N   V   A   A   G   A   N   P   L   G   L   K   R   G   I   E
363/121                                                             393/131
aag gcc gtg gag aag gtc acc gag acc ctg ctc aag ggc gcc aag gag gtc gag acc aag
K   A   V   E   K   V   T   E   T   L   L   K   G   A   K   E   V   E   T   K
423/141                                                             453/151
gag cag att gcg gcc acc gca gcg att tcg gcg ggt gac cag tcc atc ggt gac ctg atc
E   Q   I   A   A   T   A   A   I   S   A   G   D   Q   S   I   G   D   L   I
483/161                                                             513/171
gcc gag gcg atg gac aag gtg ggc aac gag ggc gtc atc acc gtc gag gag tcc aac acc
A   E   A   M   D   K   V   G   N   E   G   V   I   T   V   E   E   S   N   T
543/181                                                             573/191
ttt ggg ctg cag ctc gag ctc acc gag ggt atg cgg ttc gac aag ggc tac atc tcg ggg
F   G   L   Q   L   E   L   T   E   G   M   R   F   D   K   G   Y   I   S   G
603/201                                                             633/211
tac ttc gtg acc gac ccg gag cgt cag gag gcg gtc ctg gag gac ccc tac atc ctg ctg
Y   F   V   T   D   P   E   R   Q   E   A   V   L   E   D   P   Y   I   L   L
663/221                                                             693/231
gtc agc tcc aag gtg tcc act gtc aag gat ctg ctg ccg ctg ctc gag aag gtc atc gga
V   S   S   K   V   S   T   V   K   D   L   L   P   L   L   E   K   V   I   G
723/241                                                             753/251
gcc cgt aag ccg ctg ctg atc atc gcc gag gac gtc gag ggc gag gcg ctg tcc acc ctg
A   G   K   P   L   L   I   I   A   E   D   V   E   G   E   A   L   S   T   L
783/261                                                             813/271
gtc gtc aac aag atc cgc ggc acc ttc aag tcg gtg gcg gtc aag gct ccc ggc ttc ggc
V   V   N   K   I   R   G   T   F   K   S   V   A   V   K   A   P   G   F   G
843/281                                                             873/291
gac cgc cgc aag gcg atg ctg cag gat atg gcc att ctc acc ggt ggt cag gtg atc agc
D   R   R   K   A   M   L   Q   D   M   A   I   L   T   G   G   Q   V   I   S
903/301                                                             933/311
gaa gag gtc ggc ctg acg ctg gag aac gcc gac ctg tcg ctg cta ggc aag gcc cgc aag
E   E   V   G   L   T   L   E   N   A   D   L   S   L   L   G   K   A   R   K
963/321                                                             993/331
gtc gtg gtc acc aag gac gag acc acc atc gtc gag ggc gcc ggt gac acc gac gcc atc
V   V   V   T   K   D   E   T   T   I   V   E   G   A   G   D   T   D   A   I
1023/341                                                            1053/351
gcc gga cga gtg gcc cag atc cgc cag gag atc gag aac agc gac tcc gac tac gac cgt
A   G   R   V   A   Q   I   R   Q   E   I   E   N   S   D   S   D   Y   D   R
1083/361                                                            1113/371
gag aag ctg cag gag cgg ctg gcc aag ctg gcc ggt ggt gtc gcg gtg atc aag gcc ggt
E   K   L   Q   E   R   L   A   K   L   A   G   G   V   A   V   I   K   A   G
1143/381                                                            1173/391
gcc gcc acc gag gtc gaa ctc aag gag cgc aag cac cgc atc gag gat gcg gtt cgc aat
A   A   T   E   V   E   L   K   E   R   K   H   R   I   E   D   A   V   R   N
1203/401                                                            1233/411
gcc aag gcc gcc gtc gag gag ggc atc gtc gcc ggt ggg ggt gtg acg ctg ttg caa gcg
A   K   A   A   V   E   E   G   I   V   A   G   G   G   V   T   L   L   Q   A
```

FIG. 1A

```
1263/421                                                    1293/431
GCC CCG ACC CTG GAC GAG CTG AAG CTC GAA GGC GAC GAG GCG ACC GGC GCC AAC ATC GTG
A   P   T   L   D   E   L   K   L   E   G   D   E   A   T   G   A   N   I   V
1323/441                                                    1353/451
AAG GTG GCG CTG GAG GCC CCG CTG AAG CAG ATC GCC TTC AAC TCC GGG CTG GAG CCG GGC
K   V   A   L   E   A   P   L   K   Q   I   A   F   N   S   G   L   E   P   G
1383/461                                                    1413/471
GTG GTG GCC GAG AAG GTG CGC AAC CTG CCG GCT GGC CAC GGA CTG AAC GCT CAG ACC GGT
V   V   A   E   K   V   R   N   L   P   A   G   H   G   L   N   A   Q   T   G
1443/481                                                    1473/491
GTC TAC GAG GAT CTG CTC GCT GCC GGC GTT GCT GAC CCG GTC AAG GTG ACC CGT TCG GCG
V   Y   E   D   L   L   A   A   G   V   A   D   P   V   K   V   T   R   S   A
1503/501                                                    1533/511
CTG CAG AAT GCG GCG TCC ATC GCG GGG CTG TTC CTG ACC ACC GAG GCC GTC GTT GCC GAC
L   Q   N   A   A   S   I   A   G   L   F   L   T   T   E   A   V   V   A   D
1563/521                                                    1593/531
AAG CCG GAA AAG GAG AAG GCT TCC GTT CCC GGT GGC GGC GAC ATG GGT GGC ATG GAT TTC
K   P   E   K   E   K   A   S   V   P   G   G   G   D   M   G   G   M   D   F
1623/541
TGA
*
```

FIG. 1B

```
3/1                                                 33/11
ATG gAT GGA GAT ACA CCT ACA TTG CAT GAA TAT ATG TTA GAT TTG CAA CCA GAG ACA ACT
M   D   G   D   T   P   T   L   H   E   Y   M   L   D   L   Q   P   E   T   T
63/21                                               93/31
GAT CTC TAC TGT TAT GAG CAA TTA AAT GAC AGC TCA GAG GAG GAG GAT GAA ATA GAT GGT
D   L   Y   C   Y   E   Q   L   N   D   S   S   E   E   E   D   E   I   D   G
123/41                                              153/51
CCA GCT GGA CAA GCA GAA CCG GAC AGA GCC CAT TAC AAT ATT GTA ACC TTT TGT TGC AAG
P   A   G   Q   A   E   P   D   R   A   H   Y   N   I   V   T   F   C   C   K
183/61                                              213/71
TGT GAC TCT ACG CTT CGG TTG TGC GTA CAA AGC ACA CAC GTA GAC ATT CGT ACT TTG GAA
C   D   S   T   L   R   L   C   V   Q   S   T   H   V   D   I   R   T   L   E
243/81                                              273/91
GAC CTG TTA ATG GGC ACA CTA GGA ATT GTG TGC CCC ATC TGT TCT CAG AAA CCA TAA
D   L   L   M   G   T   L   G   I   V   C   P   I   C   S   Q   K   P   *
```

FIG. 2

```
3/1                                                 33/11
ATG GGC AGC AGC CAT CAT CAT CAT CAT CAC AGC AGC GGC CTG GTG CCG CGC GGC AGC CAT
M   G   S   S   H   H   H   H   H   H   S   S   G   L   V   P   R   G   S   H
63/21                                               93/31
ATG gct agc ATG CAT GGA GAT ACA CCT ACA TTG CAT GAA TAT ATG TTA GAT TTG CAA CCA
M   A   S   M   H   G   D   T   P   T   L   H   E   Y   M   L   D   L   Q   P
123/41                                              153/51
GAG ACA ACT GAT CTC TAC TGT TAT GAG CAA TTA AAT GAC AGC TCA GAG GAG GAG GAT GAA
E   T   T   D   L   Y   C   Y   E   Q   L   N   D   S   S   E   E   E   D   E
183/61                                              213/71
ATA GAT GGT CCA GCT GGA CAA GCA GAA CCG GAC AGA GCC CAT TAC AAT ATT GTA ACC TTT
I   D   G   P   A   G   Q   A   E   P   D   R   A   H   Y   N   I   V   T   F
243/81                                              273/91
TGT TGC AAG TGT GAC TCT ACG CTT CGG TTG TGC GTA CAA AGC ACA CAC GTA GAC ATT CGT
C   C   K   C   D   S   T   L   R   L   C   V   Q   S   T   H   V   D   I   R
303/101                                             333/111
ACT TTG GAA GAC CTG TTA ATG GGC ACA CTA GGA ATT GTG TGC CCC ATC TGT TCT CAG AAA
T   L   E   D   L   L   M   G   T   L   G   I   V   C   P   I   C   S   Q   K
363/121
CCA TAA
P   *
```

FIG. 3

```
3/1                                                                33/11
atg gCC AAG ACA ATT GCG TAC GAC GAA GAG GCC CGT CGC GGC CTC GAG CGG GGC TTG AAC
M   A   K   T   I   A   Y   D   E   E   A   R   R   G   L   E   R   G   L   N
63/21                                                              93/31
GCC CTC.GCC GAT GCG GTA AAG GTG ACA TTG GGC CCC AAG GGC CGC AAC GTC GTC CTG GAA
A   L   A   D   A   V   K   V   T   L   G   P   K   G   R   N   V   V   L   E
123/41                                                             153/51
AAG AAG TGG GGT GCC CCC ACG ATC ACC AAC GAT GGT GTG TCC ATC GCC AAG GAG ATC GAG
K   K   W   G   A   P   T   I   T   N   D   G   V   S   I   A   K   E   I   E
183/61                                                             213/71
CTG GAG GAT CCG TAC GAG aag atc ggc GCC GAG CTG GTC AAA GAG GTA GCC AAG AAG ACC
L   E   D   P   Y   E   K   I   G   A   E   L   V   K   E   V   A   K   K   T
243/81                                                             273/91
GAT GAC GTC GCC GGT GAC GGC ACC ACG ACG GCC ACC GTG CTG GCC CAG GCG TTG GTT CGC
D   D   V   A   G   D   G   T   T   T   A   T   V   L   A   Q   A   L   V   R
303/101                                                            333/111
gAg GGC CTG CGC AAC GTC GCG GCC GGC GCC AAC CCG CTC GGT CTC AAA CGC GGC ATC GAA
E   G   L   R   N   V   A   A   G   A   N   P   L   G   L   K   R   G   I   E
363/121                                                            393/131
AAG GCC GTG GAG AAG GTC ACC GAG ACC CTG CTC AAG GGC GCC AAG GAG GTC GAG ACC AAG
K   A   V   E   K   V   T   E   T   L   L   K   G   A   K   E   V   E   T   K
423/141                                                            453/151
GAG CAG ATT GCG GCC ACC GCA GCG ATT TCG GCG GGT GAC CAG TCC ATC GGT GAC CTG ATC
E   Q   I   A   A   T   A   A   I   S   A   G   D   Q   S   I   G   D   L   I
483/161                                                            513/171
GCC GAG GCG ATG GAC AAG GTG GGC AAC GAG GGC GTC ATC ACC GTC GAG GAG TCC AAC ACC
A   E   A   M   D   K   V   G   N   E   G   V   I   T   V   E   E   S   N   T
543/181                                                            573/191
TTT GGG CTG CAG CTC GAG CTC ACC GAG GGT ATG CGG TTC GAC AAG GGC TAC ATC TCG GGG
F   G   L   Q   L   E   L   T   E   G   M   R   F   D   K   G   Y   I   S   G
603/201                                                            633/211
TAC TTC GTG ACC GAC CCG GAG CGT CAG GAG GCG GTC CTG GAG GAC CCC TAC ATC CTG CTG
Y   F   V   T   D   P   E   R   Q   E   A   V   L   E   D   P   Y   I   L   L
663/221                                                            693/231
GTC AGC TCC AAG GTG TCC ACT GTC AAG GAT CTG CTG CCG CTG CTC GAG AAG GTC ATC GGA
V   S   S   K   V   S   T   V   K   D   L   L   P   L   L   E   K   V   I   G
723/241                                                            753/251
GCC GGT AAG CCG CTG CTG ATC ATC GCC GAG GAC GTC GAG GGC GAG GCG CTG TCC ACC CTG
A   G   K   P   L   L   I   I   A   E   D   V   E   G   E   A   L   S   T   L
783/261                                                            813/271
GTC GTC AAC AAG ATC CGC GGC ACC TTC AAG TCG GTG GCG GTC AAG GCT CCC GGC TTC GGC
V   V   N   K   I   R   G   T   F   K   S   V   A   V   K   A   P   G   F   G
843/281                                                            873/291
GAC CGC CGC AAG GCG ATG CTG CAG GAT ATG GCC ATT CTC ACC GGT GGT CAG GTG ATC AGC
D   R   R   K   A   M   L   Q   D   M   A   I   L   T   G   G   Q   V   I   S
903/301                                                            933/311
GAA GAG GTC GGC CTG ACG CTG GAG AAC GCC GAC CTG TCG CTG CTA GGC AAG GCC CGC AAG
E   E   V   G   L   T   L   E   N   A   D   L   S   L   L   G   K   A   R   K
963/321                                                            993/331
GTC GTG GTC ACC AAG GAC GAG ACC ACC ATC GTC GAG GGC GCC GGT GAC ACC GAC GCC ATC
V   V   V   T   K   D   E   T   T   I   V   E   G   A   G   D   T   D   A   I
1023/341                                                           1053/351
GCC GGA CGA GTG GCC CAG ATC CGC CAG GAG ATC GAG AAC AGC GAC TCC GAC TAC GAC CGT
A   G   R   V   A   Q   I   R   Q   E   I   E   N   S   D   S   D   Y   D   R
1083/361                                                           1113/371
GAG AAG CTG CAG GAG CGG CTG GCC AAG CTG GCC GGT GGT GTC GCG GTG ATC AAG GCC GGT
E   K   L   Q   E   R   L   A   K   L   A   G   G   V   A   V   I   K   A   G
1143/381                                                           1173/391
GCC GCC ACC GAG GTC GAA CTC AAG GAG CGC AAG CAC CGC ATC GAG GAT GCG GTT CGC AAT
A   A   T   E   V   E   L   K   E   R   K   H   R   I   E   D   A   V   R   N
1203/401                                                           1233/411
GCC AAG GCC GCC GTC GAG GAG GGC ATC GTC GCC GGT GGG GGT GTG ACG CTG TTG CAA GCG
A   K   A   A   V   E   E   G   I   V   A   G   G   G   V   T   L   L   Q   A
```

FIG. 4A

```
1263/421                                    1293/431
GCC CCG ACC CTG GAC GAG CTG AAG CTC GAA GGC GAC GAG GCG ACC GGC GCC AAC ATC GTG
A   P   T   L   D   E   L   K   L   E   G   D   E   A   T   G   A   N   I   V
1323/441                                    1353/451
AAG GTG GCG CTG GAG GCC CCG CTG AAG CAG ATC GCC TTC AAC TCC GGG CTG GAG CCG GGC
K   V   A   L   E   A   P   L   K   Q   I   A   F   N   S   G   L   E   P   G
1383/461                                    1413/471
GTG GTG GCC GAG AAG GTG CGC AAC CTG CCG GCT GGC CAC GGA CTG AAC GCT CAG ACC GGT
V   V   A   E   K   V   R   N   L   P   A   G   H   G   L   N   A   Q   T   G
1443/481                                    1473/491
GTC TAC GAG GAT CTG CTC GCT GCC GGC GTT GCT GAC CCG GTC AAG GTG ACC CGT TCG GCG
V   Y   E   D   L   L   A   A   G   V   A   D   P   V   K   V   T   R   S   A
1503/501                                    1533/511
CTG CAG AAT GCG GCG TCC ATC GCG GGG CTG TTC CTG ACC ACC GAG GCC GTC GTT GCC GAC
L   Q   N   A   A   S   I   A   G   L   F   L   T   T   E   A   V   V   A   D
1563/521                                    1593/531
AAG CCG GAA AAG GAG AAG GCT TCC GTT CCC GGT GGC GGC GAC ATG GGT GGC ATG GAT TTC
K   P   E   K   E   K   A   S   V   P   G   G   G   D   M   G   G   M   D   F
1623/541                                    1653/551
cat atg cat gga gat aca cct aca ttg cat gaa tat atg tta gat ttg caa cca gag aca
H   M   H   G   D   T   P   T   L   H   E   Y   M   L   D   L   Q   P   E   T
1683/561                                    1713/571
act gat ctc tac tgt tat gag caa tta aat gac agc tca gag gag gag gat gaa ata gat
T   D   L   Y   C   Y   E   Q   L   N   D   S   S   E   E   E   D   E   I   D
1743/581                                    1773/591
ggt cca gct gga caa gca gaa ccg gac aga gcc cat tac aat att gta acc ttt tgt tgc
G   P   A   G   Q   A   E   P   D   R   A   H   Y   N   I   V   T   F   C   C
1803/601                                    1833/611
aag tgt gac tct acg ctt cgg ttg tgc gta caa agc aca cac gta gac att cgt act ttg
K   C   D   S   T   L   R   L   C   V   Q   S   T   H   V   D   I   R   T   L
1863/621                                    1893/631
gaa gac ctg tta atg ggc aca cta gga att gtg tgc ccc atc tgt tct cag aaa cca TAA
E   D   L   L   M   G   T   L   G   I   V   C   P   I   C   S   Q   K   P   *
```

FIG. 4B

```
1303/421                                    1333/431
GAG CAA TTA AAT GAC AGC TCA GAG GAG GAG GAT GAA ATA GAT GGT CCA GCT GGA CAA GCA
E   Q   L   N   D   S   S   E   E   E   D   E   I   D   G   P   A   G   Q   A
1363/441                                    1393/451
GAA CCG GAC AGA GCC CAT TAC AAT ATT GTA ACC TTT TGT TGC AAG TGT GAC TCT ACG CTT
E   P   D   R   A   H   Y   N   I   V   T   F   C   C   K   C   D   S   T   L
1423/461                                    1453/471
CGG TTG TGC GTA CAA AGC ACA CAC GTA GAC ATT CGT ACT TTG GAA GAC CTG TTA ATG GGC
R   L   C   V   Q   S   T   H   V   D   I   R   T   L   E   D   L   L   M   G
1483/481                                    1513/491
ACA CTA GGA ATT GTG TGC CCC ATC TGT TCT CAG AAA CCA TAG
T   L   G   I   V   C   P   I   C   S   Q   K   P   *
```

FIG. 5B

```
43/1                                                                73/11
ATG GCC CAA AGG GAA TGG GTC GAA AAA GAC TTC TAC CAG GAG CTG GGC GTC TCC TCT GAT
M   A   Q   R   E   W   V   E   K   D   F   Y   Q   E   L   G   V   S   S   D
103/21                                                              133/31
GCC AGT CCT GAA GAG ATC AAA CGT GCC TAT CGG AAG TTG GCG CGC GAC CTG CAT CCG GAC
A   S   P   E   E   I   K   R   A   Y   R   K   L   A   R   D   L   H   P   D
163/41                                                              193/51
GCG AAC CCG GGC AAC CCG GCC GCC GGC GAA CGG TTC AAG GCG GTT TCG GAG GCG CAT AAC
A   N   P   G   N   P   A   A   G   E   R   F   K   A   V   S   E   A   H   N
223/61                                                              253/71
GTG CTG TCG GAT CCG GCC AAG CGC AAG GAG TAC GAC GAA ACC CGC CGC CTG TTC GCC GGC
V   L   S   D   P   A   K   R   K   E   Y   D   E   T   R   R   L   F   A   G
283/81                                                              313/91
GGC GGG TTC GGC GGC CGT CGG TTC GAC AGC GGC TTT GGG GGC GGG TTC GGC GGT TTC GGG
G   G   F   G   G   R   R   F   D   S   G   F   G   G   G   F   G   G   F   G
343/101                                                             373/111
GTC GGT GGA GAC GGC GCC GAG TTC AAC CTC AAC GAC TTG TTC GAC GCC GCC AGC CGA ACC
V   G   G   D   G   A   E   F   N   L   N   D   L   F   D   A   A   S   R   T
403/121                                                             433/131
GGC GGT ACC ACC ATC GGT GAC TTG TTC GGT GGC TTG TTC GGA CGC GGT GGC AGC GCC CGT
G   G   T   T   I   G   D   L   F   G   G   L   F   G   R   G   G   S   A   R
463/141                                                             493/151
CCC AGC CGC CCG CGA CGC GGC AAC GAC CTG GAG ACC GAG ACC GAG TTG GAT TTC GTG GAG
P   S   R   P   R   R   G   N   D   L   E   T   E   T   E   L   D   F   V   E
523/161                                                             553/171
GCC GCC AAG GGC GTG GCG ATG CCG CTG CGA TTA ACC AGC CCG GCG CCG TGC ACC AAC TGC
A   A   K   G   V   A   M   P   L   R   L   T   S   P   A   P   C   T   N   C
583/181                                                             613/191
CAT GGC AGC GGG GCC CGG CCA GGC ACC AGC CCA AAG GTG TGT CCC ACT TGC AAC GGG TCG
H   G   S   G   A   R   P   G   T   S   P   K   V   C   P   T   C   N   G   S
643/201                                                             673/211
GGC GTG ATC AAC CGC AAT CAG GGC GCG TTC GGC TTC TCC GAG CCG TGC ACC GAC TGC CGA
G   V   I   N   R   N   Q   G   A   F   G   F   S   E   P   C   T   D   C   R
703/221                                                             733/231
GGT AGC GGC TCG ATC ATC GAG CAC CCC TGC GAG GAG TGC AAA GGC ACC GGC GTG ACC ACC
G   S   G   S   I   I   E   H   P   C   E   E   C   K   G   T   G   V   T   T
763/241                                                             793/251
CGC ACC CGA ACC ATC AAC GTG CGG ATC CCG CCC GGT GTC GAG GAT GGG CAG CGC ATC CGG
R   T   R   T   I   N   V   R   I   P   P   G   V   E   D   G   Q   R   I   R
823/261                                                             853/271
CTA GCC GGT CAG GGC GAG GCC GGG TTG CGC GGC GCT CCC TCG GGG GAT CTC TAC GTG ACG
L   A   G   Q   G   E   A   G   L   R   G   A   P   S   G   D   L   Y   V   T
883/281                                                             913/291
GTG CAT GTG CGG CCC GAC AAG ATC TTC GGC CGC GAC GGC GAC GAC CTC ACC GTC ACC GTT
V   H   V   R   P   D   K   I   F   G   R   D   G   D   D   L   T   V   T   V
943/301                                                             973/311
CCG GTC AGC TTC ACC GAA TTG GCT TTG GGC TCG ACG CTG TCG GTG CCT ACC CTG GAC GGC
P   V   S   F   T   E   L   A   L   G   S   T   L   S   V   P   T   L   D   G
1003/321                                                            1033/331
ACG GTC GGG GTC CGG GTG CCC AAA GGC ACC GCT GAC GGC CGC ATT CTG CGT GTG CGC GGA
T   V   G   V   R   V   P   K   G   T   A   D   G   R   I   L   R   V   R   G
1063/341                                                            1093/351
CGC GGT GTG CCC AAG CGC AGT GGG GGT AGC GGC GAC CTA CTT GTC ACC GTG AAG GTG GCC
R   G   V   P   K   R   S   G   G   S   G   D   L   L   V   T   V   K   V   A
1123/361                                                            1153/371
GTG CCG CCC AAT TTG GCA GGC GCC GCT CAG GAA GCT CTG GAA GCC TAT GCG GCG GCG GAG
V   P   P   N   L   A   G   A   A   Q   E   A   L   E   A   Y   A   A   A   E
1183/381                                                            1213/391
CGG TCC AGT GGT TTC AAC CCG CGG GCC GGA TGG GCA GGT AAT CGC ATG CAT GGA GAT ACA
R   S   S   G   F   N   P   R   A   G   W   A   G   N   R   M   H   G   D   T
1243/401                                                            1273/411
CCT ACA TTG CAT GAA TAT ATG TTA GAT TTG CAA CCA GAG ACA ACT GAT CTC TAC TGT TAT
P   T   L   H   E   Y   M   L   D   L   Q   P   E   T   T   D   L   Y   C   Y
```

FIG. 5A

```
3/1                                                                 33/11
ATG GGC AGC AGC CAT CAT CAT CAT CAT CAC AGC AGC GGC CTG GTG CCG CGC GGC AGC CAT
M   G   S   S   H   H   H   H   H   H   S   S   G   L   V   P   R   G   S   H
63/21                                                               93/31
ATG gct agc atg ggc tcc atc ggc gca gca agc atg gaa ttt tgt ttt gat gta ttc aag
M   A   S   M   G   S   I   G   A   A   S   M   E   F   C   F   D   V   F   K
123/41                                                              153/51
gag ctc aaa gtc cac cat gcc aat gag aac atc ttc tac tgc ccc att gcc atc atg tca
E   L   K   V   H   H   A   N   E   N   I   F   Y   C   P   I   A   I   M   S
183/61                                                              213/71
gct cta gcc atg gta tac ctg ggt gca aaa gac agc acc agg aca cag ata aat aag gtt
A   L   A   M   V   Y   L   G   A   K   D   S   T   R   T   Q   I   N   K   V
243/81                                                              273/91
gtt cgc ttt gat aaa ctt cca gga ttc gga gac agt att gaa gct cag tgt ggc aca tct
V   R   F   D   K   L   P   G   F   G   D   S   I   E   A   Q   C   G   T   S
303/101                                                             333/111
gta aac gtt cac tct tca ctt aga gac atc ctc aac caa atc acc aaa cca aat gat gtt
V   N   V   H   S   S   L   R   D   I   L   N   Q   I   T   K   P   N   D   V
363/121                                                             393/131
tat tcg ttc agc ctt gcc agt aga ctt tat gct gaa gag aga tac cca atc ctg cca gaa
Y   S   F   S   L   A   S   R   L   Y   A   E   E   R   Y   P   I   L   P   E
423/141                                                             453/151
tac ttg cag tgt gtg aag gaa ctg tat aga gga ggc ttg gaa cct atc aac ttt caa aca
Y   L   Q   C   V   K   E   L   Y   R   G   G   L   E   P   I   N   F   Q   T
483/161                                                             513/171
gct gca gat caa gcc aga gag ctc atc aat tcc tgg gta gaa agt cag aca aat gga att
A   A   D   Q   A   R   E   L   I   N   S   W   V   E   S   Q   T   N   G   I
543/181                                                             573/191
atc aga aat gtc ctt cag cca agc tcc gtg gat tct caa act gca atg gtt ctg gtt aat
I   R   N   V   L   Q   P   S   S   V   D   S   Q   T   A   M   V   L   V   N
603/201                                                             633/211
gcc att gtc ttc aaa gga ctg tgg gag aaa aca ttt aag gat gaa gac aca caa gca atg
A   I   V   F   K   G   L   W   E   K   T   F   K   D   E   D   T   Q   A   M
663/221                                                             693/231
cct ttc aga gtg act gag caa gaa agc aaa cct gtg cag atg atg tac cag att ggt tta
P   F   R   V   T   E   Q   E   S   K   P   V   Q   M   M   Y   Q   I   G   L
723/241                                                             753/251
ttt aga gtg gca tca atg gct tct gag aaa atg aag atc ctg gag ctt cca ttt gcc agt
F   R   V   A   S   M   A   S   E   K   M   K   I   L   E   L   P   F   A   S
783/261                                                             813/271
ggg aca atg agc atg ttg gtg ctg ttg cct gat gaa gtc tca ggc ctt gag cag ctt gag
G   T   M   S   M   L   V   L   L   P   D   E   V   S   G   L   E   Q   L   E
843/281                                                             873/291
agt ata atc aac ttt gaa aaa ctg act gaa tgg acc agt tct aat gtt atg gaa gag agg
S   I   I   N   F   E   K   L   T   E   W   T   S   S   N   V   M   E   E   R
903/301                                                             933/311
aag atc aaa gtg tac tta cct cgc atg aag atg gag gaa aaa tac aac ctc aca tct gtc
K   I   K   V   Y   L   P   R   M   K   M   E   E   K   Y   N   L   T   S   V
963/321                                                             993/331
tta atg gct atg ggc att act gac gtg ttt agc tct tca gcc aat ctg tct ggc atc tcc
L   M   A   M   G   I   T   D   V   F   S   S   S   A   N   L   S   G   I   S
1023/341                                                            1053/351
tca gca gag agc ctg aag ata tct caa gct gtc cat gca gca cat gca gaa atc aat gaa
S   A   E   S   L   K   I   S   Q   A   V   H   A   A   H   A   E   I   N   E
1083/361                                                            1113/371
gca ggc aga gag gtg gta ggg tca gca gag gct gga gtg gat gct gca agc gtc tct gaa
A   G   R   E   V   V   G   S   A   E   A   G   V   D   A   A   S   V   S   E
1143/381                                                            1173/391
gaa ttt agg gct gac cat cca ttc ctc ttc tgt atc aag cac atc gca acc aac gcc gtt
E   F   R   A   D   H   P   F   L   F   C   I   K   H   I   A   T   N   A   V
1203/401
ctc ttc ttt ggc aga tgt gtt gga tcc taa
L   F   F   G   R   C   V   G   S   *
```

FIG. 6

```
3/1                                                                 33/11
atg gGC AGC AGC CAT CAT CAT CAT CAT CAC AGC AGC GGC CTG GTG CCG CGC GGC AGC cat
M   G   S   S   H   H   H   H   H   H   S   S   G   L   V   P   R   G   S   H
63/21                                                               93/31
atg GCC AAG ACA ATT GCG TAC GAC GAA GAG GCC CGT CGC GGC CTC GAG CGG GGC TTG AAC
M   A   K   T   I   A   Y   D   E   E   A   R   R   G   L   E   R   G   L   N
123/41                                                              153/51
GCC CTC GCC GAT GCG GTA AAG GTG ACA TTG GGC CCC AAG GGC CGC AAC GTC GTC CTG GAA
A   L   A   D   A   V   K   V   T   L   G   P   K   G   R   N   V   V   L   E
183/61                                                              213/71
AAG AAG TGG GGT GCC CCC ACG ATC ACC AAC GAT GGT GTG TCC ATC GCC AAG GAG ATC GAG
K   K   W   G   A   P   T   I   T   N   D   G   V   S   I   A   K   E   I   E
243/81                                                              273/91
CTG GAG GAT CCG TAC GAG aag atc ggc GCC GAG CTG GTC AAA GAG GTA GCC AAG AAG ACC
L   E   D   P   Y   E   K   I   G   A   E   L   V   K   E   V   A   K   K   T
303/101                                                             333/111
GAT GAC GTC GCC GGT GAC GGC ACC ACG ACG GCC ACC GTG CTG GCC CAG GCG TTG GTT CGC
D   D   V   A   G   D   G   T   T   T   A   T   V   L   A   Q   A   L   V   R
363/121                                                             393/131
gAg GGC CTG CGC AAC GTC GCG GCC GGC GCC AAC CCG CTC GGT CTC AAA CGC GGC ATC GAA
E   G   L   R   N   V   A   A   G   A   N   P   L   G   L   K   R   G   I   E
423/141                                                             453/151
AAG GCC GTG GAG AAG GTC ACC GAG ACC CTG CTC AAG GGC GCC AAG GAG GTC GAG ACC AAG
K   A   V   E   K   V   T   E   T   L   L   K   G   A   K   E   V   E   T   K
483/161                                                             513/171
GAG CAG ATT GCG GCC ACC GCA GCG ATT TCG GCG GGT GAC CAG TCC ATC GGT GAC CTG ATC
E   Q   I   A   A   T   A   A   I   S   A   G   D   Q   S   I   G   D   L   I
543/181                                                             573/191
GCC GAG GCG ATG GAC AAG GTG GGC AAC GAG GGC GTC ATC ACC GTC GAG GAG TCC AAC ACC
A   E   A   M   D   K   V   G   N   E   G   V   I   T   V   E   E   S   N   T
603/201                                                             633/211
TTT GGG CTG CAG CTC GAG CTC ACC GAG GGT ATG CGG TTC GAC AAG GGC TAC ATC TCG GGG
F   G   L   Q   L   E   L   T   E   G   M   R   F   D   K   G   Y   I   S   G
663/221                                                             693/231
TAC TTC GTG ACC GAC CCG GAG CGT CAG GAG GCG GTC CTG GAG GAC CCC TAC ATC CTG CTG
Y   F   V   T   D   P   E   R   Q   E   A   V   L   E   D   P   Y   I   L   L
723/241                                                             753/251
GTC AGC TCC AAG GTG TCC ACT GTC AAG GAT CTG CTG CCG CTG CTC GAG AAG GTC ATC GGA
V   S   S   K   V   S   T   V   K   D   L   L   P   L   L   E   K   V   I   G
783/261                                                             813/271
GCC GGT AAG CCG CTG CTG ATC ATC GCC GAG GAC GTC GAG GGC GAG GCG CTG TCC ACC CTG
A   G   K   P   L   L   I   I   A   E   D   V   E   G   E   A   L   S   T   L
843/281                                                             873/291
GTC GTC AAC AAG ATC CGC GGC ACC TTC AAG TCG GTG GCG GTC AAG GCT CCC GGC TTC GGC
V   V   N   K   I   R   G   T   F   K   S   V   A   V   K   A   P   G   F   G
903/301                                                             933/311
GAC CGC CGC AAG GCG ATG CTG CAG GAT ATG GCC ATT CTC ACC GGT GGT CAG GTG ATC AGC
D   R   R   K   A   M   L   Q   D   M   A   I   L   T   G   G   Q   V   I   S
963/321                                                             993/331
GAA GAG GTC GGC CTG ACG CTG GAG AAC GCC GAC CTG TCG CTG CTA GGC AAG GCC CGC AAG
E   E   V   G   L   T   L   E   N   A   D   L   S   L   L   G   K   A   R   K
1023/341                                                            1053/351
GTC GTG GTC ACC AAG GAC GAG ACC ACC ATC GTC GAG GGC GCC GGT GAC ACC GAC GCC ATC
V   V   V   T   K   D   E   T   T   I   V   E   G   A   G   D   T   D   A   I
1083/361                                                            1113/371
GCC GGA CGA GTG GCC CAG ATC CGC CAG GAG ATC GAG AAC AGC GAC TCC GAC TAC GAC CGT
A   G   R   V   A   Q   I   R   Q   E   I   E   N   S   D   S   D   Y   D   R
1143/381                                                            1173/391
GAG AAG CTG CAG GAG CGG CTG GCC AAG CTG GCC GGT GGT GTC GCG GTG ATC AAG GCC GGT
E   K   L   Q   E   R   L   A   K   L   A   G   G   V   A   V   I   K   A   G
1203/401                                                            1233/411
GCC GCC ACC GAG GTC GAA CTC AAG GAG CGC AAG CAC CGC ATC GAG GAT GCG GTT CGC AAT
A   A   T   E   V   E   L   K   E   R   K   H   R   I   E   D   A   V   R   N
```

FIG. 7A

```
1263/421                                                    1293/431
GCC AAG GCC GCC GTC GAG GAG GGC ATC GTC GCC GGT GGG GGT GTG ACG CTG TTG CAA GCG
A   K   A   A   V   E   E   G   I   V   A   G   G   G   V   T   L   L   Q   A
1323/441                                                    1353/451
GCC CCG ACC CTG GAC GAG CTG AAG CTC GAA GGC GAC GAG GCG ACC GGC GCC AAC ATC GTG
A   P   T   L   D   E   L   K   L   E   G   D   E   A   T   G   A   N   I   V
1383/461                                                    1413/471
AAG GTG GCG CTG GAG GCC CCG CTG AAG CAG ATC GCC TTC AAC TCC GGG CTG GAG CCG GGC
K   V   A   L   E   A   P   L   K   Q   I   A   F   N   S   G   L   E   P   G
1443/481                                                    1473/491
GTG GTG GCC GAG AAG GTG CGC AAC CTG CCG GCT GGC CAC GGA CTG AAC GCT CAG ACC GGT
V   V   A   E   K   V   R   N   L   P   A   G   H   G   L   N   A   Q   T   G
1503/501                                                    1533/511
GTC TAC GAG GAT CTG CTC GCT GCC GGC GTT GCT GAC CCG GTC AAG GTG ACC CGT TCG GCG
V   Y   E   D   L   L   A   A   G   V   A   D   P   V   K   V   T   R   S   A
1563/521                                                    1593/531
CTG CAG AAT GCG GCG TCC ATC GCG GGG CTG TTC CTG ACC ACC GAG GCC GTC GTT GCC GAC
L   Q   N   A   A   S   I   A   G   L   F   L   T   T   E   A   V   V   A   D
1623/541                                                    1653/551
AAG CCG GAA AAG GAG AAG GCT TCC GTT CCC GGT GGC GGC GAC ATG GGT GGC ATG GAT TTC
K   P   E   K   E   K   A   S   V   P   G   G   G   D   M   G   G   M   D   F
1683/561                                                    1713/571
gct agc ATG ggc tcc atc ggc gca gca agc atg gaa ttt tgt ttt gat gta ttc aag gag
A   S   M   G   S   I   G   A   A   S   M   E   F   C   F   D   V   F   K   E
1743/581                                                    1773/591
ctc aaa gtc cac cat gcc aat gag aac atc ttc tac tgc ccc att gcc atc atg tca gct
L   K   V   H   H   A   N   E   N   I   F   Y   C   P   I   A   I   M   S   A
1803/601                                                    1833/611
cta gcc atg gta tac ctg ggt gca aaa gac agc acc agg aca cag ata aat aag gtt gtt
L   A   M   V   Y   L   G   A   K   D   S   T   R   T   Q   I   N   K   V   V
1863/621                                                    1893/631
cgc ttt gat aaa ctt cca gga ttc gga gac agt att gaa gct cag tgt ggc aca tct gta
R   F   D   K   L   P   G   F   G   D   S   I   E   A   Q   C   G   T   S   V
1923/641                                                    1953/651
aac gtt cac tct tca ctt aga gac atc ctc aac caa atc acc aaa cca aat gat gtt tat
N   V   H   S   S   L   R   D   I   L   N   Q   I   T   K   P   N   D   V   Y
1983/661                                                    2013/671
tcg ttc agc ctt gcc agt aga ctt tat gct gaa gag aga tac cca atc ctg cca gaa tac
S   F   S   L   A   S   R   L   Y   A   E   E   R   Y   P   I   L   P   E   Y
2043/681                                                    2073/691
ttg cag tgt gtg aag gaa ctg tat aga gga ggc ttg gaa cct atc aac ttt caa aca gct
L   Q   C   V   K   E   L   Y   R   G   G   L   E   P   I   N   F   Q   T   A
2103/701                                                    2133/711
gca gat caa gcc aga gag ctc atc aat tcc tgg gta gaa agt cag aca aat gga att atc
A   D   Q   A   R   E   L   I   N   S   W   V   E   S   Q   T   N   G   I   I
2163/721                                                    2193/731
aga aat gtc ctt cag cca agc tcc gtg gat tct caa act gca atg gtt ctg gtt aat gcc
R   N   V   L   Q   P   S   S   V   D   S   Q   T   A   M   V   L   V   N   A
2223/741                                                    2253/751
att gtc ttc aaa gga ctg tgg gag aaa aca ttt aag gat gaa gac aca caa gca atg cct
I   V   F   K   G   L   W   E   K   T   F   K   D   E   D   T   Q   A   M   P
2283/761                                                    2313/771
ttc aga gtg act gag caa gaa agc aaa cct gtg cag atg atg tac cag att ggt tta ttt
F   R   V   T   E   Q   E   S   K   P   V   Q   M   M   Y   Q   I   G   L   F
2343/781                                                    2373/791
aga gtg gca tca atg gct tct gag aaa atg aag atc ctg gag ctt cca ttt gcc agt ggg
R   V   A   S   M   A   S   E   K   M   K   I   L   E   L   P   F   A   S   G
2403/801                                                    2433/811
aca atg agc atg ttg gtg ctg ttg cct gat gaa gtc tca ggc ctt gag cag ctt gag agt
T   M   S   M   L   V   L   L   P   D   E   V   S   G   L   E   Q   L   E   S
2463/821                                                    2493/831
ata atc aac ttt gaa aaa ctg act gaa tgg acc agt tct aat gtt atg gaa gag agg aag
I   I   N   F   E   K   L   T   E   W   T   S   S   N   V   M   E   E   R   K
2523/841                                                    2553/851
atc aaa gtg tac tta cct cgc atg aag atg gag gaa aaa tac aac ctc aca tct gtc tta
I   K   V   Y   L   P   R   M   K   M   E   E   K   Y   N   L   T   S   V   L
2583/861                                                    2613/871
atg gct atg ggc att act gac gtg ttt agc tct tca gcc aat ctg tct ggc atc tcc tca
M   A   M   G   I   T   D   V   F   S   S   S   A   N   L   S   G   I   S   S
```

```
2643/881                                                    2673/891
gca gag agc ctg aag ata tct caa gct gtc cat gca gca cat gca gaa atc aat gaa gca
A   E   S   L   K   I   S   Q   A   V   H   A   A   H   A   E   I   N   E   A
2703/901                                                    2733/911
ggc aga gag gtg gta ggg tca gca gag gct gga gtg gat gct gca agc gtc tct gaa gaa
G   R   E   V   V   G   S   A   E   A   G   V   D   A   A   S   V   S   E   E
2763/921                                                    2793/931
ttt agg gct gac cat cca ttc ctc ttc tgt atc aag cac atc gca acc aac gcc gtt ctc
F   R   A   D   H   P   F   L   F   C   I   K   H   I   A   T   N   A   V   L
2823/941
ttc ttt ggc aga tgt gtt gga tcc TAA
F   F   G   R   C   V   G   S   *
```

FIG. 7C

```
1/1                                                         31/11
atg tcc cct ata cta ggt tat tgg aaa att aag ggc ctt gtg caa ccc act cga ctt ctt
M   S   P   I   L   G   Y   W   K   I   K   G   L   V   Q   P   T   R   L   L
61/21                                                       91/31
ttg gaa tat ctt gaa gaa aaa tat gaa gag cat ttg tat gag cgc gat gaa ggt gat aaa
L   E   Y   L   E   E   K   Y   E   E   H   L   Y   E   R   D   E   G   D   K
121/41                                                      151/51
tgg cga aac aaa aag ttt gaa ttg ggt ttg gag ttt ccc aat ctt cct tat tat att gat
W   R   N   K   K   F   E   L   G   L   E   F   P   N   L   P   Y   Y   I   D
181/61                                                      211/71
ggt gat gtt aaa tta aca cag tct atg gcc atc ata cgt tat ata gct gac aag cac aac
G   D   V   K   L   T   Q   S   M   A   I   I   R   Y   I   A   D   K   H   N
241/81                                                      271/91
atg ttg ggt ggt tgt cca aaa gag cgt gca gag att tca atg ctt gaa gga gcg gtt ttg
M   L   G   G   C   P   K   E   R   A   E   I   S   M   L   E   G   A   V   L
301/101                                                     331/111
gat att aga tac ggt gtt tcg aga att gca tat agt aaa gac ttt gaa act ctc aaa gtt
D   I   R   Y   G   V   S   R   I   A   Y   S   K   D   F   E   T   L   K   V
361/121                                                     391/131
gat ttt ctt agc aag cta cct gaa atg ctg aaa atg ttc gaa gat cgt tta tgt cat aaa
D   F   L   S   K   L   P   E   M   L   K   M   F   E   D   R   L   C   H   K
421/141                                                     451/151
aca tat tta aat ggt gat cat gta acc cat cct gac ttc atg ttg tat gac gct ctt gat
T   Y   L   N   G   D   H   V   T   H   P   D   F   M   L   Y   D   A   L   D
481/161                                                     511/171
gtt gtt tta tac atg gac cca atg tgc ctg gat gcg ttc cca aaa tta gtt tgt ttt aaa
V   V   L   Y   M   D   P   M   C   L   D   A   F   P   K   L   V   C   F   K
541/181                                                     571/191
aaa cgt att gaa gct atc cca caa att gat aag tac ttg aaa tcc agc aag tat ata gca
K   R   I   E   A   I   P   Q   I   D   K   Y   L   K   S   S   K   Y   I   A
601/201                                                     631/211
tgg cct ttg cag ggc tgg caa gcc acg ttt ggt ggt ggc gac cat cct cca aaa tcg gat
W   P   L   Q   G   W   Q   A   T   F   G   G   G   D   H   P   P   K   S   D
661/221                                                     691/231
ctg gtt ccg cgt gga tcc cca gga att ccc ggg tcg aCT CGA GCA CCA CCA CCA CCA CCA
L   V   P   R   G   S   P   G   I   P   G   S   T   R   A   P   P   P   P   P
721/241
CTG AGA TCC GGC TGC TAA
L   R   S   G   C   *
```

FIG. 8

```
1/1                                                 31/11
atg tcc cct ata cta ggt tat tgg aaa att aag ggc ctt gtg caa ccc act cga ctt ctt
M   S   P   I   L   G   Y   W   K   I   K   G   L   V   Q   P   T   R   L   L
61/21                                               91/31
ttg gaa tat ctt gaa gaa aaa tat gaa gag cat ttg tat gag cgc gat gaa ggt gat aaa
L   E   Y   L   E   E   K   Y   E   E   H   L   Y   E   R   D   E   G   D   K
121/41                                              151/51
tgg cga aac aaa aag ttt gaa ttg ggt ttg gag ttt ccc aat ctt cct tat tat att gat
W   R   N   K   K   F   E   L   G   L   E   F   P   N   L   P   Y   Y   I   D
181/61                                              211/71
ggt gat gtt aaa tta aca cag tct atg gcc atc ata cgt tat ata gct gac aag cac aac
G   D   V   K   L   T   Q   S   M   A   I   I   R   Y   I   A   D   K   H   N
241/81                                              271/91
atg ttg ggt ggt tgt cca aaa gag cgt gca gag att tca atg ctt gaa gga gcg gtt ttg
M   L   G   G   C   P   K   E   R   A   E   I   S   M   L   E   G   A   V   L
301/101                                             331/111
gat att aga tac ggt gtt tcg aga att gca tat agt aaa gac ttt gaa act ctc aaa gtt
D   I   R   Y   G   V   S   R   I   A   Y   S   K   D   F   E   T   L   K   V
361/121                                             391/131
gat ttt ctt agc aag cta cct gaa atg ctg aaa atg ttc gaa gat cgt tta tgt cat aaa
D   F   L   S   K   L   P   E   M   L   K   M   F   E   D   R   L   C   H   K
421/141                                             451/151
aca tat tta aat ggt gat cat gta acc cat cct gac ttc atg ttg tat gac gct ctt gat
T   Y   L   N   G   D   H   V   T   H   P   D   F   M   L   Y   D   A   L   D
481/161                                             511/171
gtt gtt tta tac atg gac cca atg tgc ctg gat gcg ttc cca aaa tta gtt tgt ttt aaa
V   V   L   Y   M   D   P   M   C   L   D   A   F   P   K   L   V   C   F   K
541/181                                             571/191
aaa cgt att gaa gct atc cca caa att gat aag tac ttg aaa tcc agc aag tat ata gca
K   R   I   E   A   I   P   Q   I   D   K   Y   L   K   S   S   K   Y   I   A
601/201                                             631/211
tgg cct ttg cag ggc tgg caa gcc acg ttt ggt ggt ggc gac cat cct cca aaa tcg gat
W   P   L   Q   G   W   Q   A   T   F   G   G   G   D   H   P   P   K   S   D
661/221                                             691/231
ctg gtt ccg cgt gga tcc ATG CAT GGA GAT ACA CCT ACA TTG CAT GAA TAT ATG TTA GAT
L   V   P   R   G   S   M   H   G   D   T   P   T   L   H   E   Y   M   L   D
721/241                                             751/251
TTG CAA CCA GAG ACA ACT GAT CTC TAC TGT TAT GAG CAA TTA AAT GAC AGC TCA GAG GAG
L   Q   P   E   T   T   D   L   Y   C   Y   E   Q   L   N   D   S   S   E   E
781/261                                             811/271
GAG GAT GAA ATA GAT GGT CCA GCT GGA CAA GCA GAA CCG GAC AGA GCC CAT TAC AAT ATT
E   D   E   I   D   G   P   A   G   Q   A   E   P   D   R   A   H   Y   N   I
841/281                                             871/291
GTA ACC TTT TGT TGC AAG TGT GAC TCT ACG CTT CGG TTG TGC GTA CAA AGC ACA CAC GTA
V   T   F   C   C   K   C   D   S   T   L   R   L   C   V   Q   S   T   H   V
901/301                                             931/311
GAC ATT CGT ACT TTG GAA GAC CTG TTA ATG GGC ACA CTA GGA ATT GTG TGC CCC ATC TGT
D   I   R   T   L   E   D   L   L   M   G   T   L   G   I   V   C   P   I   C
961/321
TCT CAG AAA CCA TAA
S   Q   K   P   *
```

FIG. 9

```
3/1                                                                33/11
ATG GAT GGA GAT ACA CCT ACA TTG CAT GAA TAT ATG TTA GAT TTG CAA CCA GAG ACA ACT
M   D   G   D   T   P   T   L   H   E   Y   M   L   D   L   Q   P   E   T   T
63/21                                                              93/31
GAT CTC TAC TGT TAT GAG CAA TTA AAT GAC AGC TCA GAG GAG GAG GAT GAA ATA GAT GGT
D   L   Y   C   Y   E   Q   L   N   D   S   S   E   E   E   D   E   I   D   G
123/41                                                             153/51
CCA GCT GGA CAA GCA GAA CCG GAC AGA GCC CAT TAC AAT ATT GTA ACC TTT TGT TGC AAG
P   A   G   Q   A   E   P   D   R   A   H   Y   N   I   V   T   F   C   C   K
183/61                                                             213/71
TGT GAC TCT ACG CTT CGG TTG TGC GTA CAA AGC ACA CAC GTA GAC ATT CGT ACT TTG GAA
C   D   S   T   L   R   L   C   V   Q   S   T   H   V   D   I   R   T   L   E
243/81                                                             273/91
GAC CTG TTA ATG GGC ACA CTA GGA ATT GTG TGC CCC ATC TGT TCT CAG AAA CCA ACT AGT
D   L   L   M   G   T   L   G   I   V   C   P   I   C   S   Q   K   P   T   S
303/101                                                            333/111
GGT GGC GGT GGC GGC GGA TCC CAC ATG GCC AAG ACA ATT GCG TAC GAC GAA GAG GCC CGT
G   G   G   G   G   G   S   H   M   A   K   T   I   A   Y   D   E   E   A   R
363/121                                                            393/131
CGC GGC CTC GAG CGG GGC TTG AAC GCC CTC GCC GAT GCG GTA AAG GTG ACA TTG GGC CCC
R   G   L   E   R   G   L   N   A   L   A   D   A   V   K   V   T   L   G   P
423/141                                                            453/151
AAG GGC CGC AAC GTC GTC CTG GAA AAG AAG TGG GGT GCC CCC ACG ATC ACC AAC GAT GGT
K   G   R   N   V   V   L   E   K   K   W   G   A   P   T   I   T   N   D   G
483/161                                                            513/171
GTG TCC ATC GCC AAG GAG ATC GAG CTG GAG GAT CCG TAC GAG AAG ATC GGC GCC GAG CTG
V   S   I   A   K   E   I   E   L   E   D   P   Y   E   K   I   G   A   E   L
543/181                                                            573/191
GTC AAA GAG GTA GCC AAG AAG ACC GAT GAC GTC GCC GGT GAC GGC ACC ACG ACG GCC ACC
V   K   E   V   A   K   K   T   D   D   V   A   G   D   G   T   T   T   A   T
603/201                                                            633/211
GTG CTG GCC CAG GCG TTG GTT CGC GAG GGC CTG CGC AAC GTC GCG GCC GGC GCC AAC CCG
V   L   A   Q   A   L   V   R   E   G   L   R   N   V   A   A   G   A   N   P
663/221                                                            693/231
CTC GGT CTC AAA CGC GGC ATC GAA AAG GCC GTG GAG AAG GTC ACC GAG ACC CTG CTC AAG
L   G   L   K   R   G   I   E   K   A   V   E   K   V   T   E   T   L   L   K
723/241                                                            753/251
GGC GCC AAG GAG GTC GAG ACC AAG GAG CAG ATT GCG GCC ACC GCA GCG ATT TCG GCG GGT
G   A   K   E   V   E   T   K   E   Q   I   A   A   T   A   A   I   S   A   G
783/261                                                            813/271
GAC CAG TCC ATC GGT GAC CTG ATC GCC GAG GCG ATG GAC AAG GTG GGC AAC GAG GGC GTC
D   Q   S   I   G   D   L   I   A   E   A   M   D   K   V   G   N   E   G   V
843/281                                                            873/291
ATC ACC GTC GAG GAG TCC AAC ACC TTT GGG CTG CAG CTC GAG CTC ACC GAG GGT ATG CGG
I   T   V   E   E   S   N   T   F   G   L   Q   L   E   L   T   E   G   M   R
903/301                                                            933/311
TTC GAC AAG GGC TAC ATC TCG GGG TAC TTC GTG ACC GAC CCG GAG CGT CAG GAG GCG GTC
F   D   K   G   Y   I   S   G   Y   F   V   T   D   P   E   R   Q   E   A   V
963/321                                                            993/331
CTG GAG GAC CCC TAC ATC CTG CTG GTC AGC TCC AAG GTG TCC ACT GTC AAG GAT CTG CTG
L   E   D   P   Y   I   L   L   V   S   S   K   V   S   T   V   K   D   L   L
1023/341                                                           1053/351
CCG CTG CTC GAG AAG GTC ATC GGA GCC GGT AAG CCG CTG CTG ATC ATC GCC GAG GAC GTC
P   L   L   E   K   V   I   G   A   G   K   P   L   L   I   I   A   E   D   V
1083/361                                                           1113/371
GAG GGC GAG GCG CTG TCC ACC CTG GTC GTC AAC AAG ATC CGC GGC ACC TTC AAG TCG GTG
E   G   E   A   L   S   T   L   V   V   N   K   I   R   G   T   F   K   S   V
1143/381                                                           1173/391
GCG GTC AAG GCT CCC GGC TTC GGC GAC CGC CGC AAG GCG ATG CTG CAG GAT ATG GCC ATT
A   V   K   A   P   G   F   G   D   R   R   K   A   M   L   Q   D   M   A   I
1203/401                                                           1233/411
CTC ACC GGT GGT CAG GTG ATC AGC GAA GAG GTC GGC CTG ACG CTG GAG AAC GCC GAC CTG
L   T   G   G   Q   V   I   S   E   E   V   G   L   T   L   E   N   A   D   L
```

FIG. 10A

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1263/421                                                    1293/431
TCG CTG CTA GGC AAG GCC CGC AAG GTC GTG GTC ACC AAG GAC GAG ACC ACC ATC GTC GAG
S   L   L   G   K   A   R   K   V   V   V   T   K   D   E   T   T   I   V   E
1323/441                                                    1353/451
GGC GCC GGT GAC ACC GAC GCC ATC GCC GGA CGA GTG GCC CAG ATC CGC CAG GAG ATC GAG
G   A   G   D   T   D   A   I   A   G   R   V   A   Q   I   R   Q   E   I   E
1383/461                                                    1413/471
AAC AGC GAC TCC GAC TAC GAC CGT GAG AAG CTG CAG GAG CGG CTG GCC AAG CTG GCC GGT
N   S   D   S   D   Y   D   R   E   K   L   Q   E   R   L   A   K   L   A   G
1443/481                                                    1473/491
GGT GTC GCG GTG ATC AAG GCC GGT GCC GCC ACC GAG GTC GAA CTC AAG GAG CGC AAG CAC
G   V   A   V   I   K   A   G   A   A   T   E   V   E   L   K   E   R   K   H
1503/501                                                    1533/511
CGC ATC GAG GAT GCG GTT CGC AAT GCC AAG GCC GCC GTC GAG GAG GGC ATC GTC GCC GGT
R   I   E   D   A   V   R   N   A   K   A   A   V   E   E   G   I   V   A   G
1563/521                                                    1593/531
GGG GGT GTG ACG CTG TTG CAA GCG GCC CCG ACC CTG GAC GAG CTG AAG CTC GAA GGC GAC
G   G   V   T   L   L   Q   A   A   P   T   L   D   E   L   K   L   E   G   D
1623/541                                                    1653/551
GAG GCG ACC GGC GCC AAC ATC GTG AAG GTG GCG CTG GAG GCC CCG CTG AAG CAG ATC GCC
E   A   T   G   A   N   I   V   K   V   A   L   E   A   P   L   K   Q   I   A
1683/561                                                    1713/571
TTC AAC TCC GGG CTG GAG CCG GGC GTG GTG GCC GAG AAG GTG CGC AAC CTG CCG GCT GGC
F   N   S   G   L   E   P   G   V   V   A   E   K   V   R   N   L   P   A   G
1743/581                                                    1773/591
CAC GGA CTG AAC GCT CAG ACC GGT GTC TAC GAG GAT CTG CTC GCT GCC GGC GTT GCT GAC
H   G   L   N   A   Q   T   G   V   Y   E   D   L   L   A   A   G   V   A   D
1803/601                                                    1833/611
CCG GTC AAG GTG ACC CGT TCG GCG CTG CAG AAT GCG GCG TCC ATC GCG GGG CTG TTC CTG
P   V   K   V   T   R   S   A   L   Q   N   A   A   S   I   A   G   L   F   L
1863/621                                                    1893/631
ACC ACC GAG GCC GTC GTT GCC GAC AAG CCG GAA AAG GAG AAG GCT TCC GTT CCC GGT GGC
T   T   E   A   V   V   A   D   K   P   E   K   E   K   A   S   V   P   G   G
1923/641
GGC GAC ATG GGT GGC ATG GAT TTC TGA
G   D   M   G   G   M   D   F   *
```

FIG. 10B

```
3/1                                                                 33/11
ATG GCC AAG ACA ATT GCG TAC GAC GAA GAG GCC CGT CGC GGC CTC GAG CGG GGC TTG AAC
M   A   K   T   I   A   Y   D   E   E   A   R   R   G   L   E   R   G   L   N
63/21                                                               93/31
GCC CTC GCC GAT GCG GTA AAG GTG ACA TTG GGC CCC AAG GGC CGC AAC GTC GTC CTG GAA
A   L   A   D   A   V   K   V   T   L   G   P   K   G   R   N   V   V   L   E
123/41                                                              153/51
AAG AAG TGG GGT GCC CCC ACG ATC ACC AAC GAT GGT GTG TCC ATC GCC AAG GAG ATC GAG
K   K   W   G   A   P   T   I   T   N   D   G   V   S   I   A   K   E   I   E
183/61                                                              213/71
CTG GAG GAT CCG TAC GAG AAG ATC GGC GCC GAG CTG GTC AAA GAG GTA GCC AAG AAG ACC
L   E   D   P   Y   E   K   I   G   A   E   L   V   K   E   V   A   K   K   T
243/81                                                              273/91
GAT GAC GTC GCC GGT GAC GGC ACC ACG ACG GCC ACC GTG CTG GCC CAG GCG TTG GTT CGC
D   D   V   A   G   D   G   T   T   T   A   T   V   L   A   Q   A   L   V   R
303/101                                                             333/111
GAG GGC CTG CGC AAC GTC GCG GCC GGC GCC AAC CCG CTC GGT CTC AAA CGC GGC ATC GAA
E   G   L   R   N   V   A   A   G   A   N   P   L   G   L   K   R   G   I   E
363/121                                                             393/131
AAG GCC GTG GAG AAG GTC ACC GAG ACC CTG CTC AAG GGC GCC AAG GAG GTC GAG ACC AAG
K   A   V   E   K   V   T   E   T   L   L   K   G   A   K   E   V   E   T   K
423/141                                                             453/151
GAG CAG ATT GCG GCC ACC GCA GCG ATT TCG GCG GGT GAC CAG TCC ATC GGT GAC CTG ATC
E   Q   I   A   A   T   A   A   I   S   A   G   D   Q   S   I   G   D   L   I
483/161                                                             513/171
GCC GAG GCG ATG GAC AAG GTG GGC AAC GAG GGC GTC ATC ACC GTC GAG GAG TCC AAC ACC
A   E   A   M   D   K   V   G   N   E   G   V   I   T   V   E   E   S   N   T
543/181                                                             573/191
TTT GGG CTG CAG CTC GAG CTC ACC GAG GGT ATG CGG TTC GAC AAG GGC CAT ATG CAT GGA
F   G   L   Q   L   E   L   T   E   G   M   R   F   D   K   G   H   M   H   G
603/201                                                             633/211
GAT ACA CCT ACA TTG CAT GAA TAT ATG TTA GAT TTG CAA CCA GAG ACA ACT GAT CTC TAC
D   T   P   T   L   H   E   Y   M   L   D   L   Q   P   E   T   T   D   L   Y
663/221                                                             693/231
TGT TAT GAG CAA TTA AAT GAC AGC TCA GAG GAG GAG GAT GAA ATA GAT GGT CCA GCT GGA
C   Y   E   Q   L   N   D   S   S   E   E   E   D   E   I   D   G   P   A   G
723/241                                                             753/251
CAA GCA GAA CCG GAC AGA GCC CAT TAC AAT ATT GTA ACC TTT TGT TGC AAG TGT GAC TCT
Q   A   E   P   D   R   A   H   Y   N   I   V   T   F   C   C   K   C   D   S
783/261                                                             813/271
ACG CTT CGG TTG TGC GTA CAA AGC ACA CAC GTA GAC ATT CGT ACT TTG GAA GAC CTG TTA
T   L   R   L   C   V   Q   S   T   H   V   D   I   R   T   L   E   D   L   L
843/281                                                             873/291
ATG GGC ACA CTA GGA ATT GTG TGC CCC ATC TGT TCT CAG AAA CCA TAA
M   G   T   L   G   I   V   C   P   I   C   S   Q   K   P   *
```

FIG. 11

```
108/1
ATG GCG AAG GTG AAC ATC AAG CCA CTC GAG
M   A   K   V   N   I   K   P   L   E
168/21
GAG ACC ACG ACC GCG TCC GGT CTG GTC ATT
E   T   T   T   A   S   G   L   V   I
228/41
GGC ACC GTC GTT GCC GTC GGC CCT GGC CGG
G   T   V   V   A   V   G   P   G   R
288/61
CTG GAC GTT GCG GAG GGT GAC ACC GTC ATC
L   D   V   A   E   G   D   T   V   I
348/81
TAC AAC GGC GAG GAA TAC CTG ATC CTG TCG
Y   N   G   E   E   Y   L   I   L   S
408/101
ATG CAT GGA GAT ACA CCT ACA TTG CAT GAA
M   H   G   D   T   P   T   L   H   E
468/121
GAT CTC TAC TGT TAT GAG CAA TTA AAT GAC
D   L   Y   C   Y   E   Q   L   N   D
528/141
CCA GCT GGA CAA GCA GAA CCG GAC AGA GCC
P   A   G   Q   A   E   P   D   R   A
588/161
TGT GAC TCT ACG CTT CGG TTG TGC GTA CAA
C   D   S   T   L   R   L   C   V   Q
648/181
GAC CTG TTA ATG GGC ACA CTA GGA ATT GTG
D   L   L   M   G   T   L   G   I   V

138/11
GAC AAG ATT CTC GTG CAG GCC AAC GAG GCC
D   K   I   L   V   Q   A   N   E   A
198/31
CCT GAC ACC GCC AAG GAG AAG CCG CAG GAG
P   D   T   A   K   E   K   P   Q   E
258/51
TGG GAC GAG GAC GGC GAG AAG CGG ATC CCG
W   D   E   D   G   E   K   R   I   P
318/71
TAC AGC AAG TAC GGC GGC ACC GAG ATC AAG
Y   S   K   Y   G   G   T   E   I   K
378/91
GCA CGC GAC GTG CTG GCC GTC GTT TCC AAG
A   R   D   V   L   A   V   V   S   K
438/111
TAT ATG TTA GAT TTG CAA CCA GAG ACA ACT
Y   M   L   D   L   Q   P   E   T   T
498/131
AGC TCA GAG GAG GAG GAT GAA ATA GAT GGT
S   S   E   E   E   D   E   I   D   G
558/151
CAT TAC AAT ATT GTA ACC TTT TGT TGC AAG
H   Y   N   I   V   T   F   C   C   K
618/171
AGC ACA CAC GTA GAC ATT CGT ACT TTG GAA
S   T   H   V   D   I   R   T   L   E
678/191
TGT CCC ATC TGT TCT CAG AAA CCA TAG
C   P   I   C   S   Q   K   P   *
```

FIG. 12

```
3/1                                                                 33/11
atg gat gga gat aca cct aca ttg cat gaa tat atg tta gat ttg caa cca gag aca act
M   D   G   D   T   P   T   L   H   E   Y   M   L   D   L   Q   P   E   T   T
63/21                                                               93/31
gat ctc tac tgt tat gag caa tta aat gac agc tca gag gag gag gat gaa ata gat ggt
D   L   Y   C   Y   E   Q   L   N   D   S   S   E   E   E   D   E   I   D   G
123/41                                                              153/51
cca gct gga caa gca gaa ccg gac aga gcc cat tac aat att gta acc ttt tgt tgc aag
P   A   G   Q   A   E   P   D   R   A   H   Y   N   I   V   T   F   C   C   K
183/61                                                              213/71
tgt gac tct acg ctt cgg ttg tgc gta caa agc aca cac gta gac att cgt act ttg gaa
C   D   S   T   L   R   L   C   V   Q   S   T   H   V   D   I   R   T   L   E
243/81                                                              273/91
gac ctg tta atg ggc aca cta gga att gtg tgc ccc atc tgt tct cag aaa cca gcc atg
D   L   L   M   G   T   L   G   I   V   C   P   I   C   S   Q   K   P   A   M
303/101                                                             333/111
gCT CGT GCG GTC GGG ATC GAC CTC GGG ACC ACC AAC TCC GTC GTC TCG GTT CTG GAA GGT
A   R   A   V   G   I   D   L   G   T   T   N   S   V   V   S   V   L   E   G
363/121                                                             393/131
GGC GAC CCG GTC GTC GTC GCC AAC TCC GAG GGC TCC AGG ACC ACC CCG TCA ATT GTC GCG
G   D   P   V   V   V   A   N   S   E   G   S   R   T   T   P   S   I   V   A
423/141                                                             453/151
TTC GCC CGC AAC GGT GAG GTG CTG GTC GGC CAG CCC GCC AAG AAC CAG GCG GTG ACC AAC
F   A   R   N   G   E   V   L   V   G   Q   P   A   K   N   Q   A   V   T   N
483/161                                                             513/171
GTC GAT CGC ACC GTG CGC TCG GTC AAG CGA CAC ATG GGC AGC GAC TGG TCC ATA GAG ATT
V   D   R   T   V   R   S   V   K   R   H   M   G   S   D   W   S   I   E   I
543/181                                                             573/191
GAC GGC AAG AAA TAC ACC GCG CCG GAG ATC AGC GCC CGC ATT CTG ATG AAG CTG AAG CGC
D   G   K   K   Y   T   A   P   E   I   S   A   R   I   L   M   K   L   K   R
603/201                                                             633/211
GAC GCC GAG GCC TAC CTC GGT GAG GAC ATT ACC GAC GCG GTT ATC ACG ACG CCC GCC TAC
D   A   E   A   Y   L   G   E   D   I   T   D   A   V   I   T   T   P   A   Y
663/221                                                             693/231
TTC AAT GAC GCC CAG CGT CAG GCC ACC AAG GAC GCC GGC CAG ATC GCC GGC CTC AAC GTG
F   N   D   A   Q   R   Q   A   T   K   D   A   G   Q   I   A   G   L   N   V
723/241                                                             753/251
CTG CGG ATC GTC AAC GAG CCG ACC GCG GCC GCG ctg gcc TAC GGC CTC GAC AAG GGC GAG
L   R   I   V   N   E   P   T   A   A   A   L   A   Y   G   L   D   K   G   E
783/261                                                             813/271
AAG GAG CAG CGA ATC CTG GTC TTC GAC TTG GGT GGT GGC ACT TTC GAC GTT TCC CTG CTG
K   E   Q   R   I   L   V   F   D   L   G   G   G   T   F   D   V   S   L   L
843/281                                                             873/291
GAG ATC GGC GAG GGT GTG GTT GAG GTC CGT GCC ACT TCG GGT GAC AAC CAC CTC GGC GGC
E   I   G   E   G   V   V   E   V   R   A   T   S   G   D   N   H   L   G   G
903/301                                                             933/311
GAC GAC TGG GAC CAG CGG GTC GTC GAT TGG CTG GTG GAC AAG TTC AAG GGC ACC AGC GGC
D   D   W   D   Q   R   V   V   D   W   L   V   D   K   F   K   G   T   S   G
963/321                                                             993/331
ATC GAT CTG ACC AAG GAC AAG ATG GCG ATG CAG CGG CTG CGG GAA GCC GCC GAG AAG GCA
I   D   L   T   K   D   K   M   A   M   Q   R   L   R   E   A   A   E   K   A
1023/341                                                            1053/351
AAG ATC GAG CTG AGT TCG AGT CAG TCC ACC TCG ATC AAC CTG CCC TAC ATC ACC GTC GAC
K   I   E   L   S   S   S   Q   S   T   S   I   N   L   P   Y   I   T   V   D
1083/361                                                            1113/371
GCC GAC AAG AAC CCG TTG TTC TTA GAC GAG CAG CTG ACC CGC GCG GAG TTC CAA CGG ATC
A   D   K   N   P   L   F   L   D   E   Q   L   T   R   A   E   F   Q   R   I
1143/381                                                            1173/391
ACT CAG GAC CTG CTG GAC CGC ACT CGC AAG CCG TTC CAG TCG GTG ATC GCT GAC ACC GGC
T   Q   D   L   L   D   R   T   R   K   P   F   Q   S   V   I   A   D   T   G
1203/401                                                            1233/411
ATT TCG GTG TCG GAG ATC GAT CAC GTT GTG CTC GTG GGT GGT TCG ACC CGG ATG CCC GCG
I   S   V   S   E   I   D   H   V   V   L   V   G   G   S   T   R   M   P   A
```

FIG. 13A

```
1263/421                                                1293/431
GTG ACC GAT CTG GTC AAG GAA CTC ACC GGC GGC AAG GAA CCC AAC AAG GGC GTC AAC CCC
V   T   D   L   V   K   E   L   T   G   G   K   E   P   N   K   G   V   N   P
1323/441                                                1353/451
GAT GAG GTT GTC GCG GTG GGA GCC GCT CTG CAG GCC GGC GTC CTC AAG GGC GAG GTG AAA
D   E   V   V   A   V   G   A   A   L   Q   A   G   V   L   K   G   E   V   K
1383/461                                                1413/471
GAC GTT CTG CTG CTT GAT GTT ACC CCG CTG AGC CTG GGT ATC GAG ACC AAG GGC GGG GTG
D   V   L   L   L   D   V   T   P   L   S   L   G   I   E   T   K   G   G   V
1443/481                                                1473/491
ATG ACC AGG CTC ATC GAG CGC AAC ACC ACG ATC CCC ACC AAG CGG TCG GAG ACT TTC ACC
M   T   R   L   I   E   R   N   T   T   I   P   T   K   R   S   E   T   F   T
1503/501                                                1533/511
ACC GCC GAC GAC AAC CAA CCG TCG GTG CAG ATC CAG GTC TAT CAG GGG GAG CGT GAG ATC
T   A   D   D   N   Q   P   S   V   Q   I   Q   V   Y   Q   G   E   R   E   I
1563/521                                                1593/531
GCC GCG CAC AAC AAG TTG CTC GGG TCC TTC GAG CTG ACC GGC ATC CCG CCG GCG CCG CGG
A   A   H   N   K   L   L   G   S   F   E   L   T   G   I   P   P   A   P   R
1623/541                                                1653/551
GGG ATT CCG CAG ATC GAG GTC ACT TTC GAC ATC GAC GCC AAC GGC ATT GTG CAC GTC ACC
G   I   P   Q   I   E   V   T   F   D   I   D   A   N   G   I   V   H   V   T
1683/561                                                1713/571
GCC AAG GAC AAG GGC ACC GGC AAG GAG AAC ACG ATC CGA ATC CAG GAA GGC TCG GGC CTG
A   K   D   K   G   T   G   K   E   N   T   I   R   I   Q   E   G   S   G   L
1743/581                                                1773/591
TCC AAG GAA GAC ATT GAC CGC ATG ATC AAG GAC GCC GAA GCG CAC GCC GAG GAG GAT CGC
S   K   E   D   I   D   R   M   I   K   D   A   E   A   H   A   E   E   D   R
1803/601                                                1833/611
AAG CGT CGC GAG GAG GCC GAT GTT CGT AAT CAA GCC GAG ACA TTG GTC TAC CAG ACG GAG
K   R   R   E   E   A   D   V   R   N   Q   A   E   T   L   V   Y   Q   T   E
1863/621                                                1893/631
AAG TTC GTC AAA GAA CAG CGT GAG GCC GAG GGT GGT TCG AAG GTA CCT GAA GAC ACG CTG
K   F   V   K   E   Q   R   E   A   E   G   G   S   K   V   P   E   D   T   L
1923/641                                                1953/651
AAC AAG GTT GAT GCC GCG GTG GCG GAA GCg AAG GCG GCA CTT GGC GGA TCG GAT ATT TCG
N   K   V   D   A   A   V   A   E   A   K   A   A   L   G   G   S   D   I   S
1983/661                                                2013/671
GCC ATC AAG TCG GCG ATG GAG AAG CTG GGC CAG GAG TCG CAG GCT CTG GGG CAA GCG ATC
A   I   K   S   A   M   E   K   L   G   Q   E   S   Q   A   L   G   Q   A   I
2043/681                                                2073/691
TAC GAA GCA GCT CAG GCT GCG TCA CAG GCC ACT GGC GCT GCC CAC CCC GGC GGC GAG CCG
Y   E   A   A   Q   A   A   S   Q   A   T   G   A   A   H   P   G   G   E   P
2103/701                                                2133/711
GGC GGT GCC CAC CCC GGC TCG GCT GAG CTA GCA TGA
G   G   A   H   P   G   S   A   E   L   A   *
```

FIG. 13B

```
3/1                                                                 33/11
atg gat gga gat aca cct aca ttg cat gaa tat atg tta gat ttg caa cca gag aca act
M   D   G   D   T   P   T   L   H   E   Y   M   L   D   L   Q   P   E   T   T
63/21                                                               93/31
gat ctc tac tgt tat gag caa tta aat gac agc tca gag gag gag gat gaa ata gat ggt
D   L   Y   C   Y   E   Q   L   N   D   S   S   E   E   E   D   E   I   D   G
123/41                                                              153/51
cca gct gga caa gca gaa ccg gac aga gcc cat tac aat att gta acc ttt tgt tgc aag
P   A   G   Q   A   E   P   D   R   A   H   Y   N   I   V   T   F   C   C   K
183/61                                                              213/71
tgt gac tct acg ctt cgg ttg tgc gta caa agc aca cac gta gac att cgt act ttg gaa
C   D   S   T   L   R   L   C   V   Q   S   T   H   V   D   I   R   T   L   E
243/81                                                              273/91
gac ctg tta atg ggc aca cta gga att gtg tgc ccc atc tgt tct cag aaa cca gcc atg
D   L   L   M   G   T   L   G   I   V   C   P   I   C   S   Q   K   P   A   M
303/101                                                             333/111
gCT CGT GCG GTC GGG ATC GAC CTC GGG ACC ACC AAC TCC GTC GTC TCG GTT CTG GAA GGT
A   R   A   V   G   I   D   L   G   T   T   N   S   V   V   S   V   L   E   G
363/121                                                             393/131
GGC GAC CCG GTC GTC GTC GCC AAC TCC GAG GGC TCC AGG ACC ACC CCG TCA ATT GTC GCG
G   D   P   V   V   V   A   N   S   E   G   S   R   T   T   P   S   I   V   A
423/141                                                             453/151
TTC GCC CGC AAC GGT GAG GTG CTG GTC GGC CAG CCC GCC AAG AAC CAG GCG GTG ACC AAC
F   A   R   N   G   E   V   L   V   G   Q   P   A   K   N   Q   A   V   T   N
483/161                                                             513/171
GTC GAT CGC ACC GTG CGC TCG GTC AAG CGA CAC ATG GGC AGC GAC TGG TCC ATA GAG ATT
V   D   R   T   V   R   S   V   K   R   H   M   G   S   D   W   S   I   E   I
543/181                                                             573/191
GAC GGC AAG AAA TAC ACC GCG CCG GAG ATC AGC GCC CGC ATT CTG ATG AAG CTG AAG CGC
D   G   K   K   Y   T   A   P   E   I   S   A   R   I   L   M   K   L   K   R
603/201                                                             633/211
GAC GCC GAG GCC TAC CTC GGT GAG GAC ATT ACC GAC GCG GTT ATC ACG ACG CCC GCC TAC
D   A   E   A   Y   L   G   E   D   I   T   D   A   V   I   T   T   P   A   Y
663/221                                                             693/231
TTC AAT GAC GCC CAG CGT CAG GCC ACC AAG GAC GCC GGC CAG ATC GCC GGC CTC AAC GTG
F   N   D   A   Q   R   Q   A   T   K   D   A   G   Q   I   A   G   L   N   V
723/241                                                             753/251
CTG CGG ATC GTC AAC GAG CCG ACC GCG GCC GCG ctg gcc TAC GGC CTC GAC AAG GGC GAG
L   R   I   V   N   E   P   T   A   A   A   L   A   Y   G   L   D   K   G   E
783/261                                                             813/271
AAG GAG CAG CGA ATC CTG GTC TTC GAC TTG GGT GGT GGC ACT TTC GAC GTT TCC CTG CTG
K   E   Q   R   I   L   V   F   D   L   G   G   G   T   F   D   V   S   L   L
843/281                                                             873/291
GAG ATC GGC GAG GGT GTG GTT GAG GTC CGT GCC ACT TCG GGT GAC AAC CAC CTC GGC GGC
E   I   G   E   G   V   V   E   V   R   A   T   S   G   D   N   H   L   G   G
903/301                                                             933/311
GAC GAC TGG GAC CAG CGG GTC GTC GAT TGG CTG GTG GAC AAG TTC AAG GGC ACC AGC GGC
D   D   W   D   Q   R   V   V   D   W   L   V   D   K   F   K   G   T   S   G
963/321                                                             993/331
ATC GAT CTG ACC AAG GAC AAG ATG GCG ATG CAG CGG CTG CGG GAA GCC GCC GAG AAG GCA
I   D   L   T   K   D   K   M   A   M   Q   R   L   R   E   A   A   E   K   A
1023/341                                                            1053/351
AAG ATC GAG CTG AGT TCG AGT CAG TCC ACC TCG ATC AAC CTG CCC TAC ATC ACC GTC GAC
K   I   E   L   S   S   S   Q   S   T   S   I   N   L   P   Y   I   T   V   D
1083/361                                                            1113/371
GCC GAC AAG AAC CCG TTG TTC TTA GAC GAG CAG CTG ACC CGC GCG GAG TTC CAA CGG ATC
A   D   K   N   P   L   F   L   D   E   Q   L   T   R   A   E   F   Q   R   I
1143/381                                                            1173/391
ACT CAG GAC CTG CTG GAC CGC ACT CGC AAG CCG TTC CAG TCG GTG ATC GCT GAC ACC GGC
T   Q   D   L   L   D   R   T   R   K   P   F   Q   S   V   I   A   D   T   G
1203/401                                                            1233/411
ATT TCG GTG TCG GAG ATC GAT CAC GTT GTG CTC GTG GGT GGT TCG ACC CGG ATG CCC GCG
I   S   V   S   E   I   D   H   V   V   L   V   G   G   S   T   R   M   P   A
```

FIG. 14A

```
1263/421                                                    1293/431
GTG ACC GAT CTG GTC AAG GAA CTC ACC GGC GGC AAG GAA CCC AAC AAG GGC GTC AAC CCC
V   T   D   L   V   K   E   L   T   G   G   K   E   P   N   K   G   V   N   P
1323/441                                                    1353/451
GAT GAG GTT GTC GCG GTG GGA GCC GCT CTG CAG GCC GGC GTC CTC AAG GGC GAG GTG AAA
D   E   V   V   A   V   G   A   A   L   Q   A   G   V   L   K   G   E   V   K
1383/461                                                    1413/471
GAC GTT CTG CTG CTT GAT GTT ACC CCG CTG AGC CTG GGT ATC GAG ACC AAG GGC GGG GTG
D   V   L   L   L   D   V   T   P   L   S   L   G   I   E   T   K   G   G   V
1443/481                                                    1473/491
ATG ACC AGG CTC ATC GAG CGC AAC ACC ACG ATC CCC ACC AAG CGG TCG GAG ACT TTC ACC
M   T   R   L   I   E   R   N   T   T   I   P   T   K   R   S   E   T   F   T
1503/501                                                    1533/511
ACC GCC GAC GAC AAC CAA CCG TCG GTG CAG ATC CAG GTC TAT CAG GGG GAG CGT GAG ATC
T   A   D   D   N   Q   P   S   V   Q   I   Q   V   Y   Q   G   E   R   E   I
1563/521                                                    1593/531
GCC GCG CAC AAC AAG TTG CTC GGG TCC TTC GAG CTG ACC GGC ATC CCG CCG GCG CCG CGG
A   A   H   N   K   L   L   G   S   F   E   L   T   G   I   P   P   A   P   R
1623/541                                                    1653/551
GGG ATT CCG CAG ATC GAG GTC ACT TTC GAC ATC GAC GCC AAC GGC ATT GTG CAC GTC ACC
G   I   P   Q   I   E   V   T   F   D   I   D   A   N   G   I   V   H   V   T
1683/561                                                    1713/571
GCC AAG GAC AAG GGC ACC GGC AAG GAG AAC ACG ATC CGA ATC CAG GAA GGC TCG GGC CTG
A   K   D   K   G   T   G   K   E   N   T   I   R   I   Q   E   G   S   G   L
1743/581                                                    1773/591
TCC AAG GAA GAC ATT GAC CGC ATG ATC AAG GAC GCC GAA GCG CAC GCC GAG GAG GAT CGC
S   K   E   D   I   D   R   M   I   K   D   A   E   A   H   A   E   E   D   R
1803/601                                                    1833/611
AAG CGT CGC GAG GAG GCC GAT GTT CGT AAT CAA GCC GAG ACA TTG GTC TAC CAG ACG GAG
K   R   R   E   E   A   D   V   R   N   Q   A   E   T   L   V   Y   Q   T   E
1863/621                                                    1893/631
AAG TTC GTC AAA GAA CAG CGT GAG GCC GAG GGT GGT TCG AAg gta cct GAA GAC ACG CTG
K   F   V   K   E   Q   R   E   A   E   G   G   S   K   V   P   E   D   T   L
1923/641                                                    1953/651
AAC AAG GTT GAT GCC GCG GTG GCG GAA GCg AAG GCG GCA CTT GGC GGA TCG GAT ATT TCG
N   K   V   D   A   A   V   A   E   A   K   A   A   L   G   G   S   D   I   S
1983/661                                                    2013/671
GCC ATC AAG TCG GCG ATG GAG AAG CTG GGC CAG GAG TCG CAG GCT CTG GGG CAA GCG ATC
A   I   K   S   A   M   E   K   L   G   Q   E   S   Q   A   L   G   Q   A   I
2043/681                                                    2073/691
TAC GAA GCA GCT CAG GCT GCG TCA CAG GCC ACT GGC GCT GCC CAC CCC GGC GGC GAG CCG
Y   E   A   A   Q   A   A   S   Q   A   T   G   A   A   H   P   G   G   E   P
2103/701                                                    2133/711
GGC GGT GCC CAC CCC GGC TCG GCT GAT GAC GTT GTG GAC GCG GAG GTG GTC GAC GAC GCC
G   G   A   H   P   G   S   A   D   D   V   V   D   A   E   V   V   D   D   G
2163/721
CGG GAG GCC AAG TGA
R   E   A   K   *
```

FIG. 14B

```
3/1                                                 33/11
atg gCA AAA GAA ATT AAA TTT TCA TCA GAT GCC CGT TCA GCT ATG GTC CGT GGT GTC GAT
M   A   K   E   I   K   F   S   S   D   A   R   S   A   M   V   R   G   V   D
93/21                                               93/31
ATC CTT GCA GAT ACT GTT AAA GTA ACT TTG GGA CCA AAA GGT CGC AAT GTC GTT CTT GAA
I   L   A   D   T   V   K   V   T   L   G   P   K   G   R   N   V   V   L   E
123/41                                              153/51
AAG TCA TTC GGT TCA CCC TTG ATT ACC AAT GAC GGT GTG ACT ATT GCC AAA GAA ATT GAA
K   S   F   G   S   P   L   I   T   N   D   G   V   T   I   A   K   E   I   E
183/61                                              213/71
TTA GAA GAC CAT TTT GAA AAT ATG GGT GCC AAA TTG GTA TCA GAA GTA GCT TCA AAA ACC
L   E   D   H   F   E   N   M   G   A   K   L   V   S   E   V   A   S   K   T
243/81                                              273/91
AAT GAT ATC GCA GGT GAT GGA ACT ACA ACT GCA ACT GTT TTG ACC CAA GCA ATC GTC CGT
N   D   I   A   G   D   G   T   T   T   A   T   V   L   T   Q   A   I   V   R
303/101                                             333/111
GAA GGA ATC AAA AAC GTC ACA GCA GGT GCA AAT CCA ATC GGT ATT CGT CGT GGG ATT GAA
E   G   I   K   N   V   T   A   G   A   N   P   I   G   I   R   R   G   I   E
363/121                                             393/131
ACA GCA GTT GCC GCA GCA GTT GAA GCT TTG AAA AAC AAC GTC ATC CCT GTT GCC AAT AAA
T   A   V   A   A   A   V   E   A   L   K   N   N   V   I   P   V   A   N   K
423/141                                             453/151
GAA GCT ATC GCT CAA GTT GCA GCC GTA TCT TCT CGT TCT GAA AAA GTT GGT GAG TAC ATC
E   A   I   A   Q   V   A   A   V   S   S   R   S   E   K   V   G   E   Y   I
483/161                                             513/171
TCT GAA GCA ATG GAA AAA GTT GGC AAA GAC GGT GTC ATC ACC ATC GAA GAG TCA CGT GGT
S   E   A   M   E   K   V   G   K   D   G   V   I   T   I   E   E   S   R   G
543/181                                             573/191
ATG GAA ACA GAG CTT GAA GTC GTA GAA GGA ATG CAG TTT GAC CGT GGT TAC CTT TCA CAG
M   E   T   E   L   E   V   V   E   G   M   Q   F   D   R   G   Y   L   S   Q
603/201                                             633/211
TAC ATG GTG ACA GAT AGC GAA AAA ATG GTG GCT GAC CTT GAA AAT CCG TAC ATT TTG ATT
Y   M   V   T   D   S   E   K   M   V   A   D   L   E   N   P   Y   I   L   I
663/221                                             693/231
ACA GAC AAG AAA ATT TCC AAT ATC CAA GAA ATC TTG CCA CTT TTG GAA AGC ATT CTC CAA
T   D   K   K   I   S   N   I   Q   E   I   L   P   L   L   E   S   I   L   Q
723/241                                             753/251
AGC AAT CGT CCA CTC TTG ATT ATT GCG GAT GAT GTG GAT GGT GAG GCT CTT CCA ACT CTT
S   N   R   P   L   L   I   I   A   D   D   V   D   G   E   A   L   P   T   L
783/261                                             813/271
GTT TTG AAC AAG ATT CGT GGA ACC TTC AAC GTA GTA GCA GTC AAG GCA CCT GGT TTT GGT
V   L   N   K   I   R   G   T   F   N   V   V   A   V   K   A   P   G   F   G
843/281                                             873/291
GAC CGT CGC AAA GCC ATG CTT GAA GAT ATC GCC ATC TTA ACA GGC GGA ACA GTT ATC ACA
D   R   R   K   A   M   L   E   D   I   A   I   L   T   G   G   T   V   I   T
903/301                                             933/311
GAA GAC CTT GGT CTT GAG TTG AAA GAT GCG ACA ATT GAA GCT CTT GGT CAA GCA GCG AGA
E   D   L   G   L   E   L   K   D   A   T   I   E   A   L   G   Q   A   A   R
963/321                                             993/331
GTG ACC GTG GAC AAA GAT AGC ACG GTT ATT GTA GAA GGT GCA GGA AAT CCT GAA GCG ATT
V   T   V   D   K   D   S   T   V   I   V   E   G   A   G   N   P   E   A   I
1023/341                                            1053/351
TCT CAC CGT GTT GCG GTT ATC AAG TCT CAA ATC GAA ACT ACA ACT TCT GAA TTT GAC CGT
S   H   R   V   A   V   I   K   S   Q   I   E   T   T   T   S   E   F   D   R
1083/361                                            1113/371
GAA AAA TTG CAA GAA CGC TTG GCC AAA TTG TCA GGT GGT GTA GCG GTT ATT AAG GTC GGA
E   K   L   Q   E   R   L   A   K   L   S   G   G   V   A   V   I   K   V   G
1143/381                                            1173/391
GCC GCA ACT GAA ACT GAG TTG AAA GAA ATG AAA CTC CGC ATT GAA GAT GCC CTC AAC GCT
A   A   T   E   T   E   L   K   E   M   K   L   R   I   E   D   A   L   N   A
1203/401                                            1233/411
ACT CGT GCA GCT GTT GAA GAA GGT ATT-GTT GCA GGT GGT GGA ACA GCT CTT GCC AAT GTG
T   R   A   A   V   E   E   G   I   V   A   G   G   G   T   A   L   A   N   V
```

FIG. 15A

```
1263/421                                                1293/431
ATT CCA GCT GTT GCT ACC TTG GAA TTG ACA GGA GAT GAA GCA ACA GGA CGT AAT ATT GTT
I   P   A   V   A   T   L   E   L   T   G   D   E   A   T   G   R   N   I   V
1323/441                                                1353/451
CTC CGT GCT TTG GAA GAA CCT GTT CGT CAA ATT GCT CAC AAT GCA GGA TTT GAA GGA TCT
L   R   A   L   E   E   P   V   R   Q   I   A   H   N   A   G   F   E   G   S
1383/461                                                1413/471
ATC GTT ATC GAT CGT TTG AAA AAT GCT GAG CTT GGT ATA GGA TTC AAC GCA GCA ACT GGC
I   V   I   D   R   L   K   N   A   E   L   G   I   G   F   N   A   A   T   G
1443/481                                                1473/491
GAG TGG GTT AAC ATG ATT GAT CAA GGT ATC ATT GAT CCA GTT AAA GTG AGT CGT TCA GCC
E   W   V   N   M   I   D   Q   G   I   I   D   P   V   K   V   S   R   S   A
1503/501                                                1533/511
CTA CAA AAT GCA GCA TCT GTA GCC AGC TTG ATT TTC ACA ACA GAA GCA GTC GTA GCC AAT
L   Q   N   A   A   S   V   A   S   L   I   L   T   T   E   A   V   V   A   N
1563/521                                                1593/531
AAA CCA GAA CCA GTA GCC CCA GCT CCA GCA ATG GAT CCA AGT ATG ATG GGT GGA ATG GGC
K   P   E   P   V   A   P   A   P   A   M   D   P   S   M   M   G   G   M   G
1623/541                                                1653/551
GGA GCT AGC atg cat gga gat aca cct aca ttg cat gaa tat atg tta gat ttg caa cca
G   A   S   M   H   G   D   T   P   T   L   H   E   Y   M   L   D   L   Q   P
1683/561                                                1713/571
gag aca act gat ctc tac tgt tat gag caa tta aat gac agc tca gag gag gag gat gaa
E   T   T   D   L   Y   C   Y   E   Q   L   N   D   S   S   E   E   E   D   E
1743/581                                                1773/591
ata gat ggt cca gct gga caa gca gaa ccg gac aga gcc cat tac aat att gta acc ttt
I   D   G   P   A   G   Q   A   E   P   D   R   A   H   Y   N   I   V   T   F
1803/601                                                1833/611
tgt tgc aag tgt gac tct acg ctt cgg ttg tgc gta caa agc aca cac gta gac att cgt
C   C   K   C   D   S   T   L   R   L   C   V   Q   S   T   H   V   D   I   R
1863/621                                                1893/631
act ttg gaa gac ctg tta atg ggc aca cta gga att gtg tgc ccc atc tgt tct cag aaa
T   L   E   D   L   L   M   G   T   L   G   I   V   C   P   I   C   S   Q   K
1923/641
cca TAA
P   *
```

FIG. 15B

```
4/1                                                                 34/11
ATG AAA GAG CTC AAG TTC GGT GTC GAA GCC CGT GCT CAG CTC CTC AAG GGT GTT GAC ACT
M   K   E   L   K   F   G   V   E   A   R   A   Q   L   L   K   G   V   D   T
64/21                                                               94/31
CTG GCC AAG GCC GTG ACT TCG ACT CTT GGT CCT AAG GGT CGT AAC GTC CTT ATC GAG TCT
L   A   K   A   V   T   S   T   L   G   P   K   G   R   N   V   L   I   E   S
124/41                                                              154/51
CCC TAT GGC TCC CCT AAG ATC ACC AAG GAT GGT GTC TCT GTT GCC AAG GCC ATC ACT CTC
P   Y   G   S   P   K   I   T   K   D   G   V   S   V   A   K   A   I   T   L
184/61                                                              214/71
CAA GAC AAG TTC GAG AAC CTC GGT GCT CGC CTC CTC CAG GAT GTC GCT TCT AAG ACC AAC
Q   D   K   F   E   N   L   G   A   R   L   L   Q   D   V   A   S   K   T   N
244/81                                                              274/91
GAG ATT GCT GGT GAC GGT ACC ACC ACC GCT ACC GTC CTT GCC CGT GCC ATC TTC TCT GAG
E   I   A   G   D   G   T   T   T   A   T   V   L   A   R   A   I   F   S   E
304/101                                                             334/111
ACC GTG AAG AAT GTT GCT GCT GGC TGC AAC CCC ATG GAT CTG CGC CGC GGT ATC CAG GCT
T   V   K   N   V   A   A   G   C   N   P   M   D   L   R   R   G   I   Q   A
364/121                                                             394/131
GCT GTT GAT GCT GTC GTC GAC TAC CTC CAG AAG AAC AAG CGT GAC ATC ACC ACC GGT GAG
A   V   D   A   V   V   D   Y   L   Q   K   N   K   R   D   I   T   T   G   E
424/141                                                             454/151
GAG ATC GCT CAG GTT GCT ACT ATC TCC GCT AAC GGT GAC ACC CAC ATT GGT AAG CTG ATC
E   I   A   Q   V   A   T   I   S   A   N   G   D   T   H   I   G   K   L   I
484/161                                                             514/171
TCC ACC GCC ATG GAG CGT GTT GGC AAG GAG GGT GTC ATC ACT GTC AAG GAG GCC AAG ACC
S   T   A   M   E   R   V   G   K   E   G   V   I   T   V   K   E   G   K   T
544/181                                                             574/191
ATT GAG GAT GAG CTC GAG GTC ACT GAG GGT ATG CGC TTC GAC CGT GGA TAC ACC TCC CCC
I   E   D   E   L   E   V   T   E   G   M   R   F   D   R   G   Y   T   S   P
604/201                                                             634/211
TAC TTC ATC ACC GAT ACC AAG TCC CAG AAG GTT GAG TTC GAG AAG CCT CTG ATT CTG CTG
Y   F   I   T   D   T   K   S   Q   K   V   E   F   E   K   P   L   I   L   L
664/221                                                             694/231
TCT GAG AAG AAG ATC TCT GCC GTT CAG GAC ATC ATC CCC GCC CTT GAG GCC TCC ACC ACC
S   E   K   K   I   S   A   V   Q   D   I   I   P   A   L   E   A   S   T   T
724/241                                                             754/251
CTC CGC CGC CCC CTG GTT ATT ATC GCA GAG GAC ATT GAG GGT GAG GCT CTC GCC GTC TGC
L   R   R   P   L   V   I   I   A   E   D   I   E   G   E   A   L   A   V   C
784/261                                                             814/271
ATT CTG AAC AAG CTT CGT GGC CAG CTG CAG GTC GCT GCT GTC AAG GCT CCT GGA TTC GGT
I   L   N   K   L   R   G   Q   L   Q   V   A   A   V   K   A   P   G   F   G
844/281                                                             874/291
GAC AAC CGC AAG AGC ATC CTG GGC GAT CTT GCC GTC CTT ACC AAC GGT ACC GTC TTC ACT
D   N   R   K   S   I   L   G   D   L   A   V   L   T   N   G   T   V   F   T
904/301                                                             934/311
GAT GAG CTC GAC ATC AAA CTC GAG AAG CTT ACC CCC GAT ATG CTT GGT TCC ACC GGC GCC
D   E   L   D   I   K   L   E   K   L   T   P   D   M   L   G   S   T   G   A
964/321                                                             994/331
ATC ACC ATC ACC AAG GAG GAC ACC ATC ATC CTG AAC GGG GAG GGC AGC AAG GAC GCC ATT
I   T   I   T   K   E   D   T   I   I   L   N   G   E   G   S   K   D   A   I
1024/341                                                            1054/351
GCC CAG CGC TGC GAG CAG ATT CGC GGT GTC ATG GCG GAC CCC AGC ACC TCC GAA TAC GAG
A   Q   R   C   E   Q   I   R   G   V   M   A   D   P   S   T   S   E   Y   E
1084/361                                                            1114/371
AAG GAG AAG CTC CAG GAG CGT CTA GCT AAG CTC TCT GGC GGT GTT GCC GTC ATC AAG GTC
K   E   K   L   Q   E   R   L   A   K   L   S   G   G   V   A   V   I   K   V
1144/381                                                            1174/391
GGT GGT GCC TCC GAG GTT GAG GTC GGT GAG AAG AAG GAC CGT GTT GTC GAT GCT CTC AAT
G   G   A   S   E   V   E   V   G   E   K   K   D   R   V   V   D   A   L   N
1204/401                                                            1234/411
GCT ACC CGT GCT GCT GTT GAG GAG GGT ATC CTC CCC GGT GGT GGT ACC GCC CTT CTC AAG
A   T   R   A   A   V   E   E   G   I   L   P   G   G   G   T   A   L   L   K
```

FIG. 16A

```
1264/421                                                    1294/431
GCC GCC GCC AAC GGC CTT GAC AAT GTC AAG CCC GAG AAC TTC GAC CAG CAA CTC GGT GTG
A   A   A   N   G   L   D   N   V   K   P   E   N   F   D   Q   Q   L   G   V
1324/441                                                    1354/451
AGC ATC ATC AAG AAT GCC ATC ACC CGC CCC GCT CGC ACC ATT GTT GAG AAC GCC GGC CTC
S   I   I   K   N   A   I   T   R   P   A   R   T   I   V   E   N   A   G   L
1384/461                                                    1414/471
GAG GGC AGC GTC ATT GTC GGC AAG CTG ACC GAC GAG TTC GCC AAG GAC TTC AAC CGC GGT
E   G   S   V   I   V   G   K   L   T   D   E   F   A   K   D   F   N   R   G
1444/481                                                    1474/491
TTC GAC AGC TCC AAG GGC GAG TAC GTC GAC ATG ATC TCC AGC GGT ATC CTC GAT CCC CTC
F   D   S   S   K   G   E   Y   V   D   M   I   S   S   G   I   L   D   P   L
1504/501                                                    1534/511
AAG GTT GTT CGC ACC GCT CTG CTC GAC GCC AGC GGT GTC GCC TCC CTG CTC GGT ACC ACT
K   V   V   R   T   A   L   L   D   A   S   G   V   A   S   L   L   G   T   T
1564/521                                                    1594/531
GAG GTC GCT ATT GTT GAG GCC CCT GAG GAG AAG GGC CCC GCT GCT CCT GGC ATG GGT GGT
E   V   A   I   V   E   A   P   E   E   K   G   P   A   A   P   G   M   G   G
1624/541                                                    1654/551
ATG GGT GGT ATG GGC GGC ATG GGC GGC ATG CAT GGA GAT ACA CCT ACA TTG CAT GAA TAT
M   G   G   M   G   G   M   G   G   M   H   G   D   T   P   T   L   H   E   Y
1684/561                                                    1714/571
ATG TTA GAT TTG CAA CCA GAG ACA ACT GAT CTC TAC TGT TAT GAG CAA TTA AAT GAC AGC
M   L   D   L   Q   P   E   T   T   D   L   Y   C   Y   E   Q   L   N   D   S
1744/581                                                    1774/591
TCA GAG GAG GAG GAT GAA ATA GAT GGT CCA GCT GGA CAA GCA GAA CCG GAC AGA GCC CAT
S   E   E   E   D   E   I   D   G   P   A   G   Q   A   E   P   D   R   A   H
1804/601                                                    1834/611
TAC AAT ATT GTA ACC TTT TGT TGC AAG TGT GAC TCT ACG CTT CGG TTG TGC GTA CAA AGC
Y   N   I   V   T   F   C   C   K   C   D   S   T   L   R   L   C   V   Q   S
1864/621                                                    1894/631
ACA CAC GTA GAC ATT CGT ACT TTG GAA GAC CTG TTA ATG GGC ACA CTA GGA ATT GTG TGC
T   H   V   D   I   R   T   L   E   D   L   L   M   G   T   L   G   I   V   C
1924/641
CCC ATC TGT TCT CAG AAA CCA TAG
P   I   C   S   Q   K   P   *
```

FIG. 16B

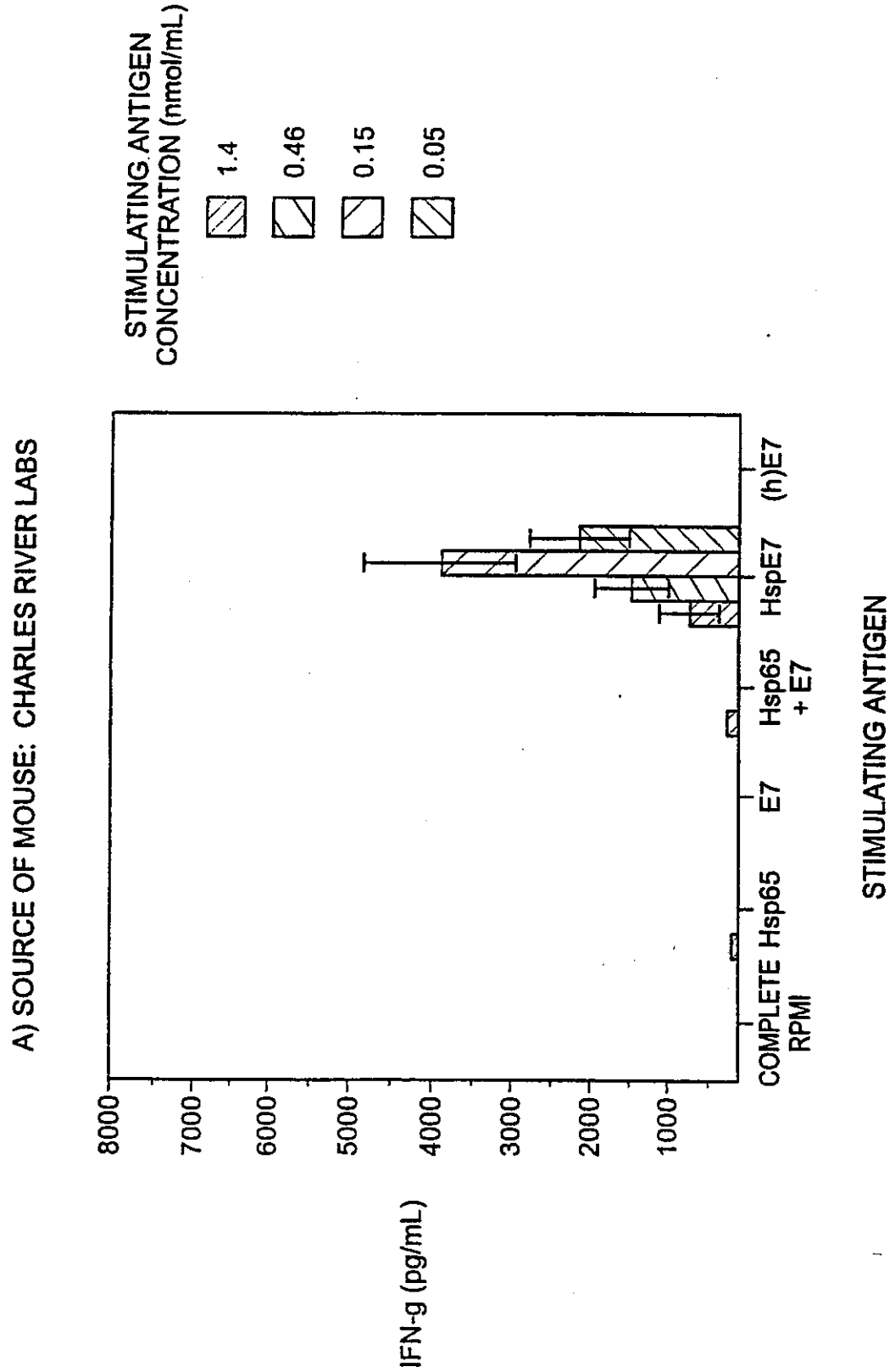

A) SOURCE OF MOUSE: CHARLES RIVER LABS
STIMULATING ANTIGEN CONCENTRATION (nmol/mL)
1.4
0.46
0.15
0.05
IFN-g (pg/mL)
8000
7000
6000
5000
4000
3000
2000
1000
COMPLETE RPMI
Hsp65
E7
Hsp65 + E7
HspE7
(h)E7
STIMULATING ANTIGEN

FIG. 17A

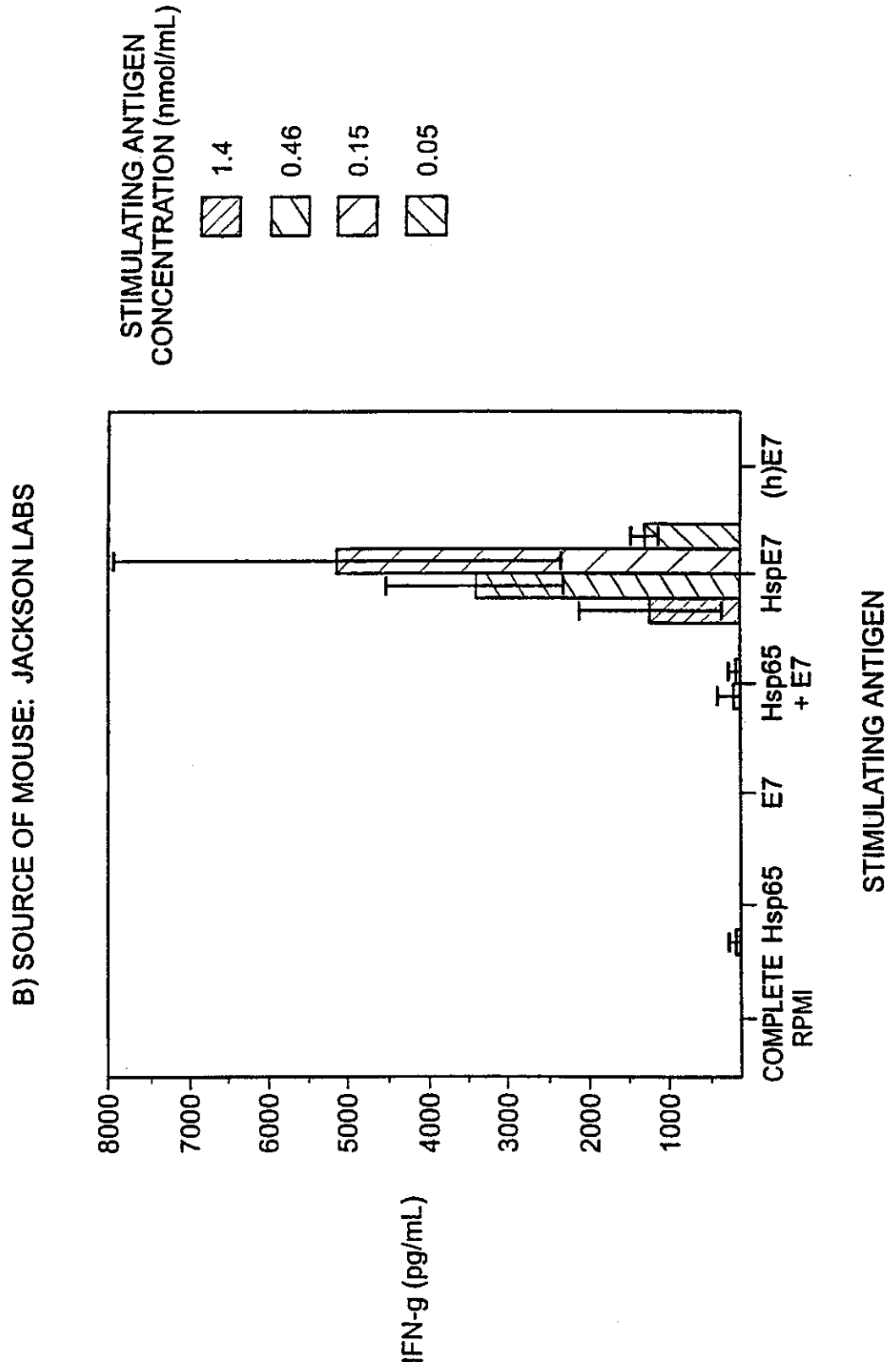

B) SOURCE OF MOUSE: JACKSON LABS
STIMULATING ANTIGEN CONCENTRATION (nmol/mL)
1.4
0.46
0.15
0.05
IFN-g (pg/mL)
8000
7000
6000
5000
4000
3000
2000
1000
COMPLETE
RPMI
Hsp65
E7
Hsp65 + E7
HspE7
(h)E7
STIMULATING ANTIGEN

FIG. 17B

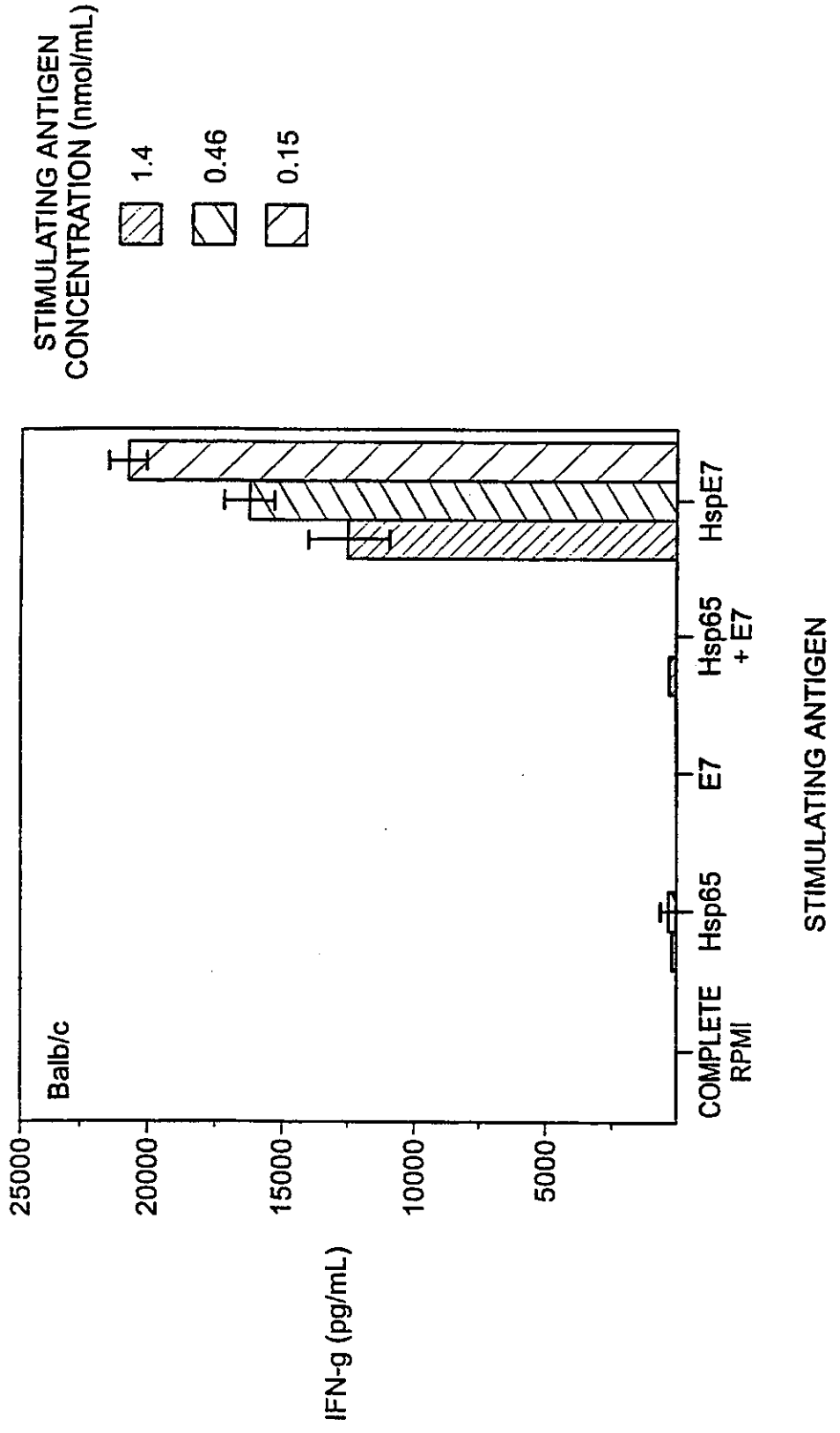

STIMULATING ANTIGEN CONCENTRATION (nmol/mL)
1.4
0.46
0.15
Balb/c
IFN-g (pg/mL)
25000
20000
15000
10000
5000
COMPLETE RPMI
Hsp65
E7
Hsp65 + E7
HspE7
STIMULATING ANTIGEN

FIG. 18A

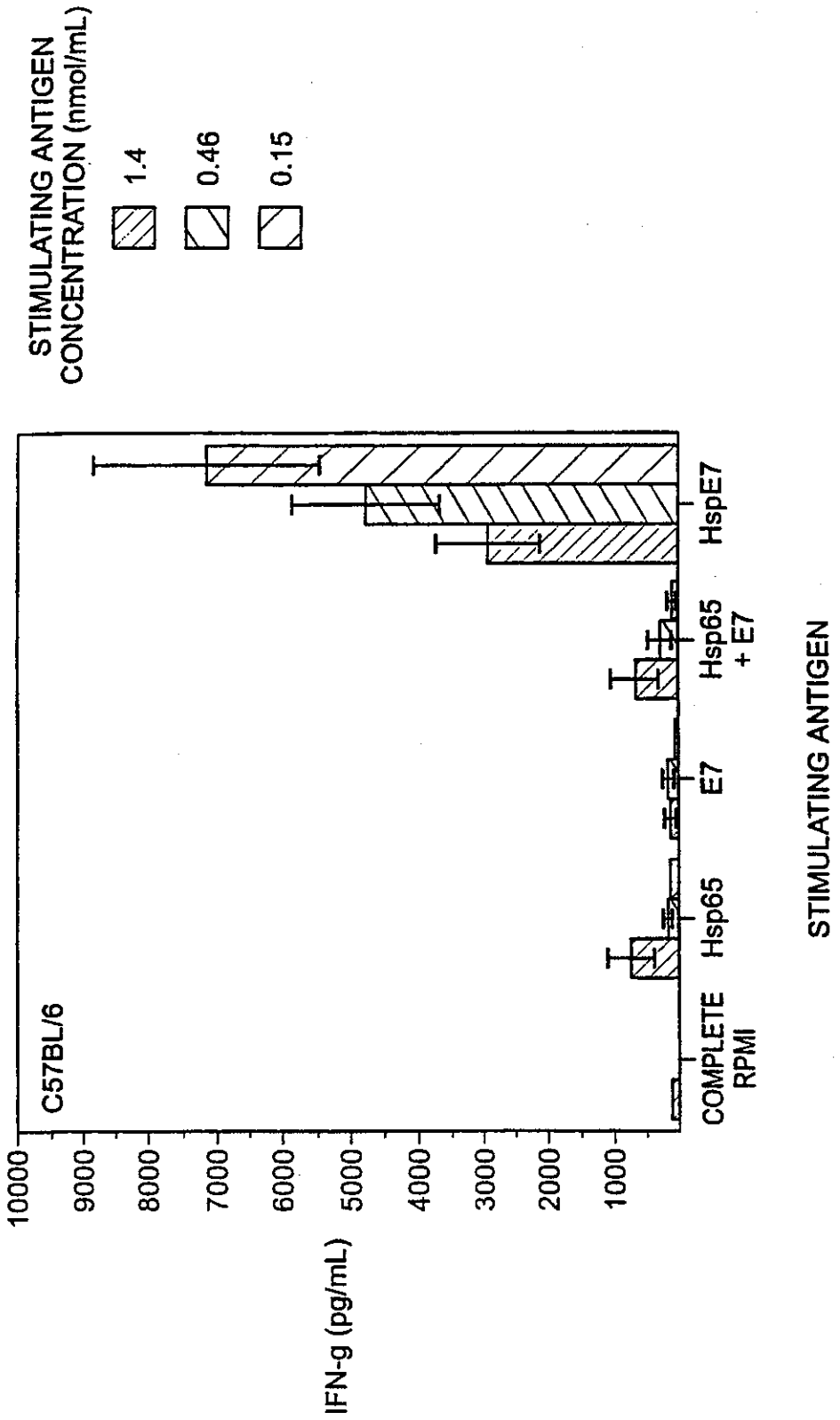

STIMULATING ANTIGEN CONCENTRATION (nmol/mL)
1.4
0.46
0.15
C57BL/6
IFN-g (pg/mL)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
COMPLETE RPMI
Hsp65
E7
Hsp65 + E7
HspE7
STIMULATING ANTIGEN

FIG. 18B

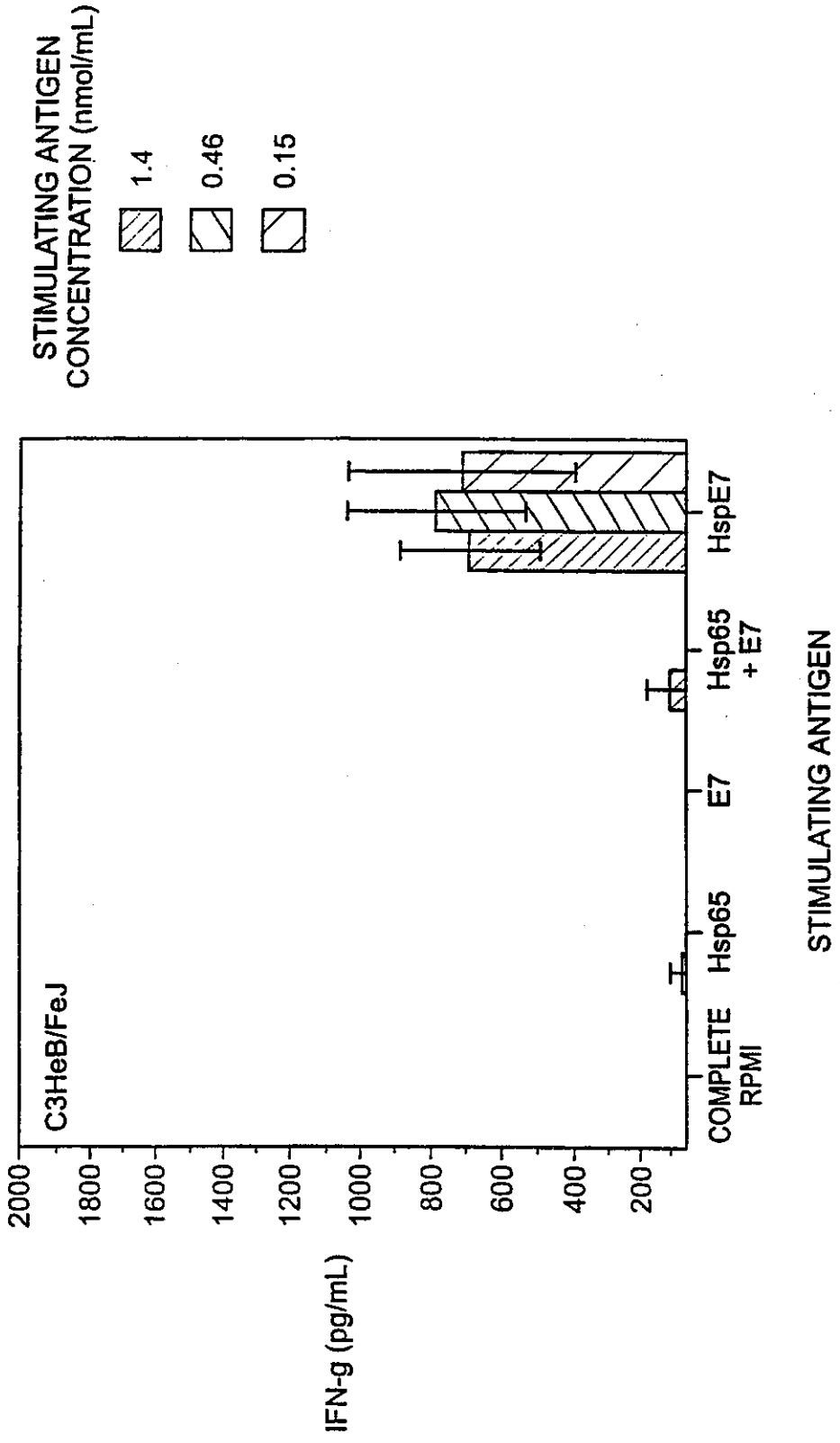

STIMULATING ANTIGEN CONCENTRATION (nmol/mL)
1.4
0.46
0.15
C3HeB/FeJ
IFN-g (pg/mL)
2000
1800
1600
1400
1200
1000
800
600
400
200
COMPLETE RPMI
Hsp65
E7
Hsp65 + E7
HspE7
STIMULATING ANTIGEN

FIG. 18C

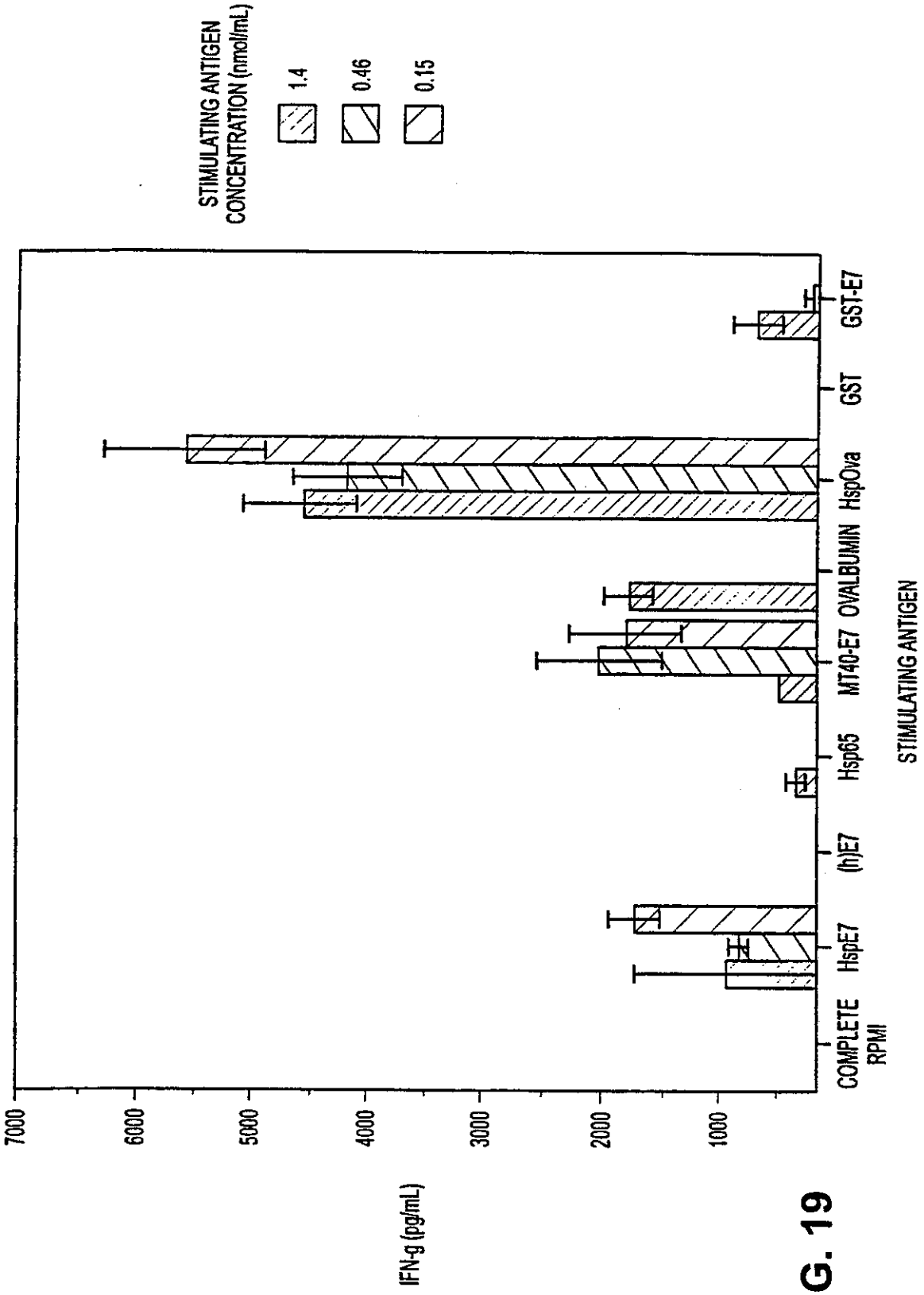

STIMULATING ANTIGEN CONCENTRATION (nmol/mL)
1.4
0.46
0.15
IFN-g (pg/mL)
7000
6000
5000
4000
3000
2000
1000
COMPLETE RPMI
HspE7
(h)E7
Hsp65
M140-E7
OVALBUMIN
HspOva
GST
GST-E7
STIMULATING ANTIGEN

FIG. 19

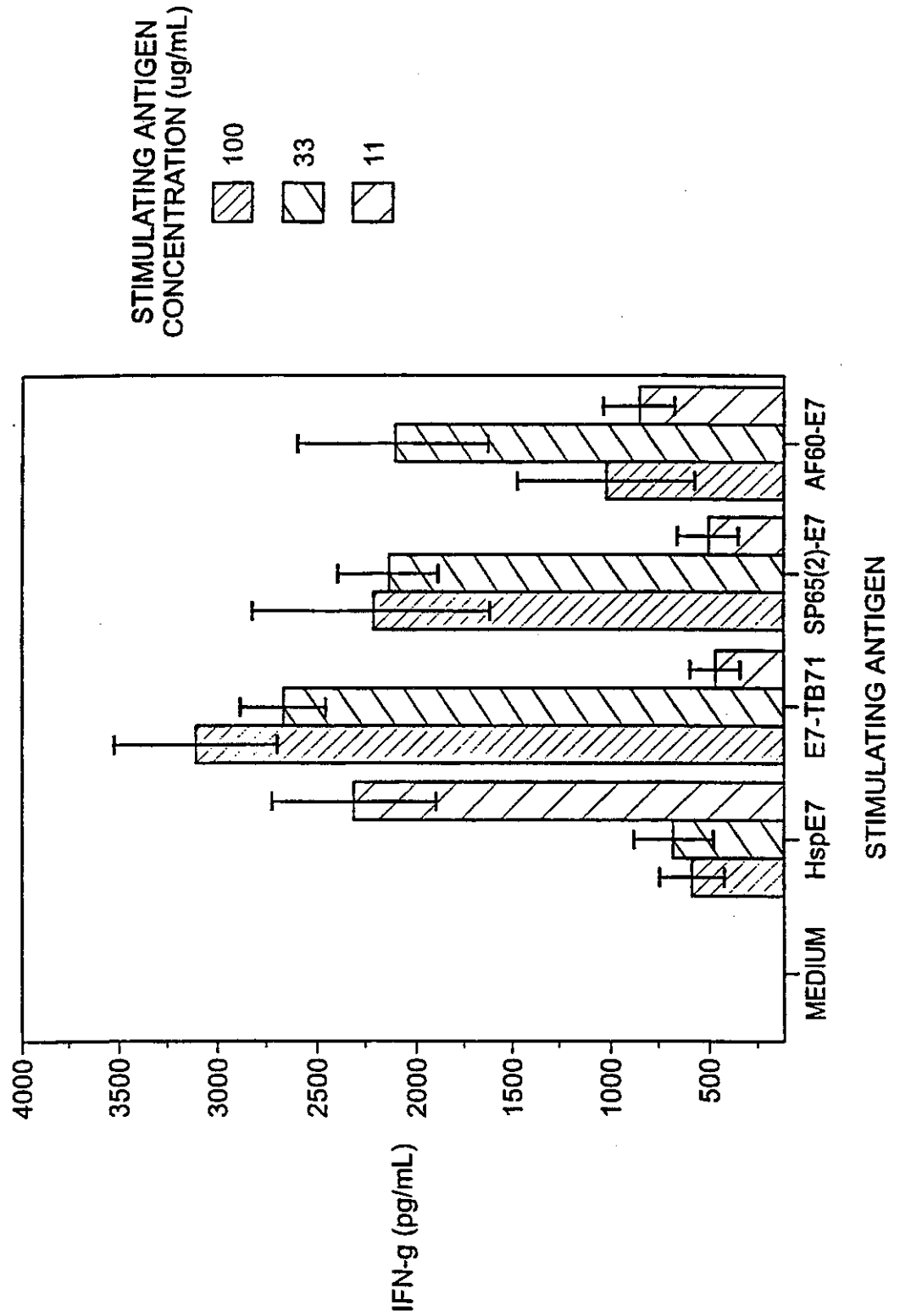

STIMULATING ANTIGEN CONCENTRATION (ug/mL)
100
33
11
IFN-g (pg/mL)
4000
3500
3000
2500
2000
1500
1000
500
MEDIUM
HspE7
E7-TB71
SP65(2)-E7
AF60-E7
STIMULATING ANTIGEN

FIG. 20A

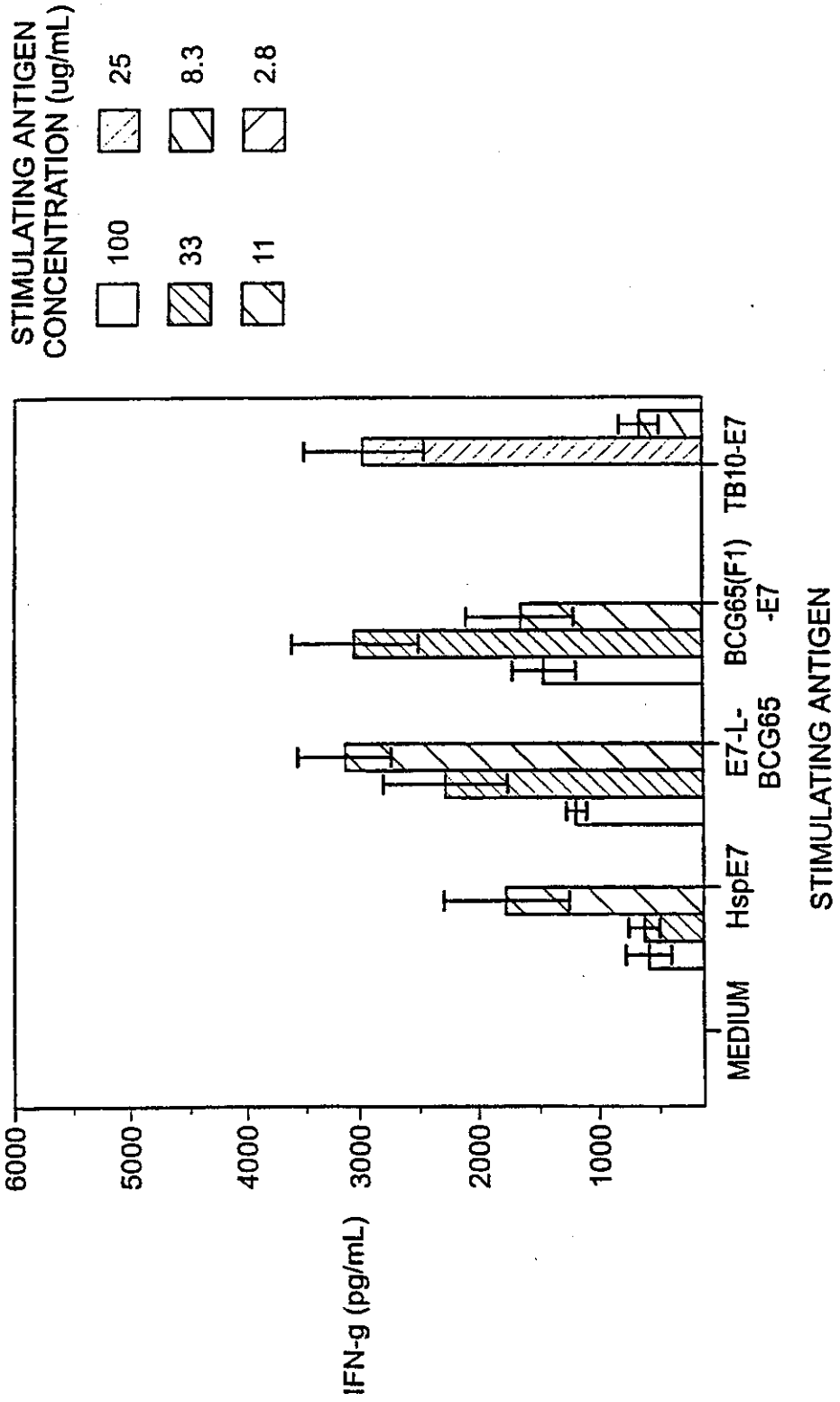

STIMULATING ANTIGEN CONCENTRATION (ug/mL)
100
33
11
25
8.3
2.8
IFN-g (pg/mL)
6000
5000
4000
3000
2000
1000
MEDIUM
HspE7
E7-L-BCG65
BCG65(F1)-E7
TB10-E7
STIMULATING ANTIGEN

FIG. 20B

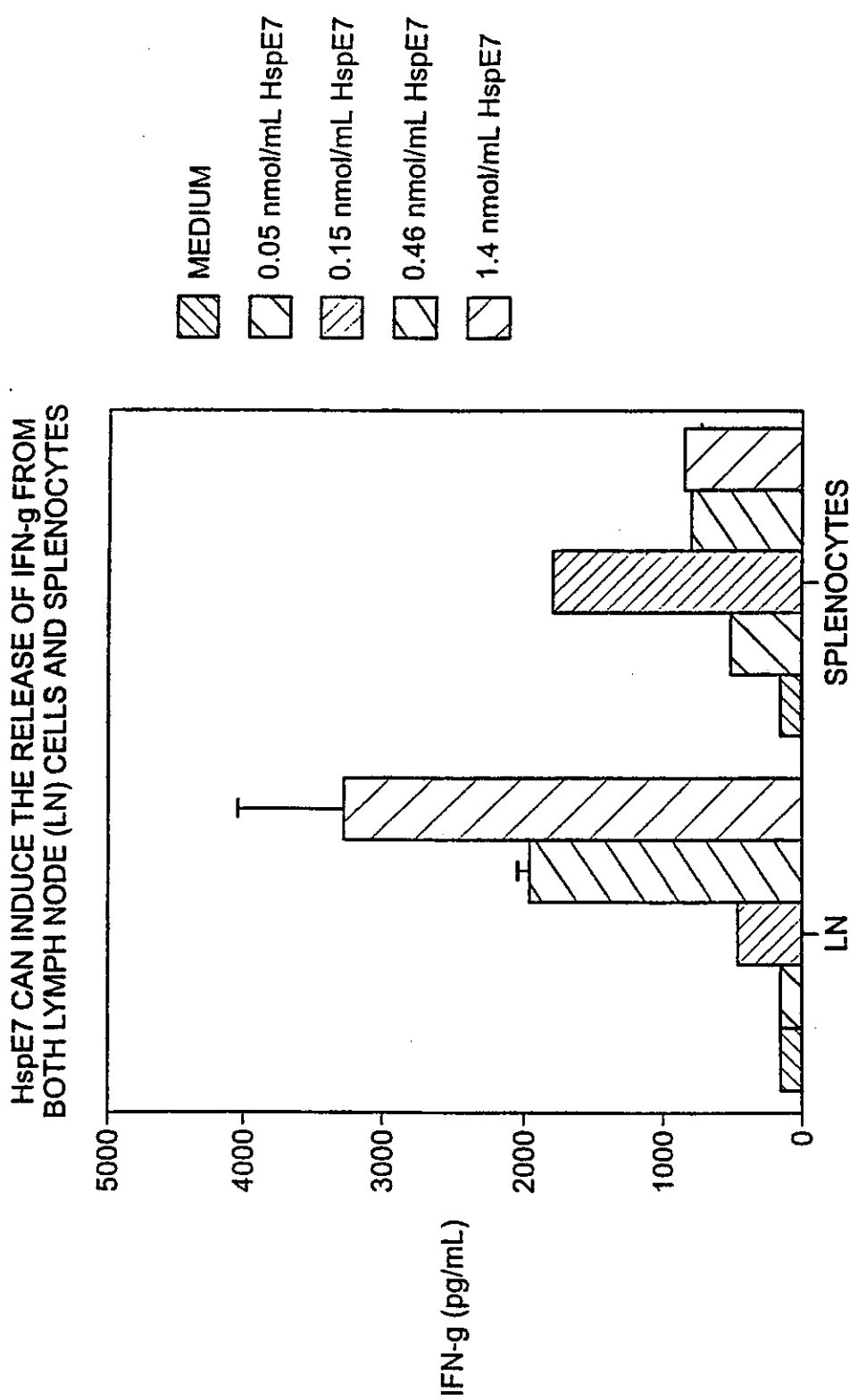

HspE7 CAN INDUCE THE RELEASE OF IFN-g FROM BOTH LYMPH NODE (LN) CELLS AND SPLENOCYTES
MEDIUM
0.05 nmol/mL HspE7
0.15 nmol/mL HspE7
0.46 nmol/mL HspE7
1.4 nmol/mL HspE7
IFN-g (pg/mL)
5000
4000
3000
2000
1000
0
LN
SPLENOCYTES
CELL TYPE

FIG. 21

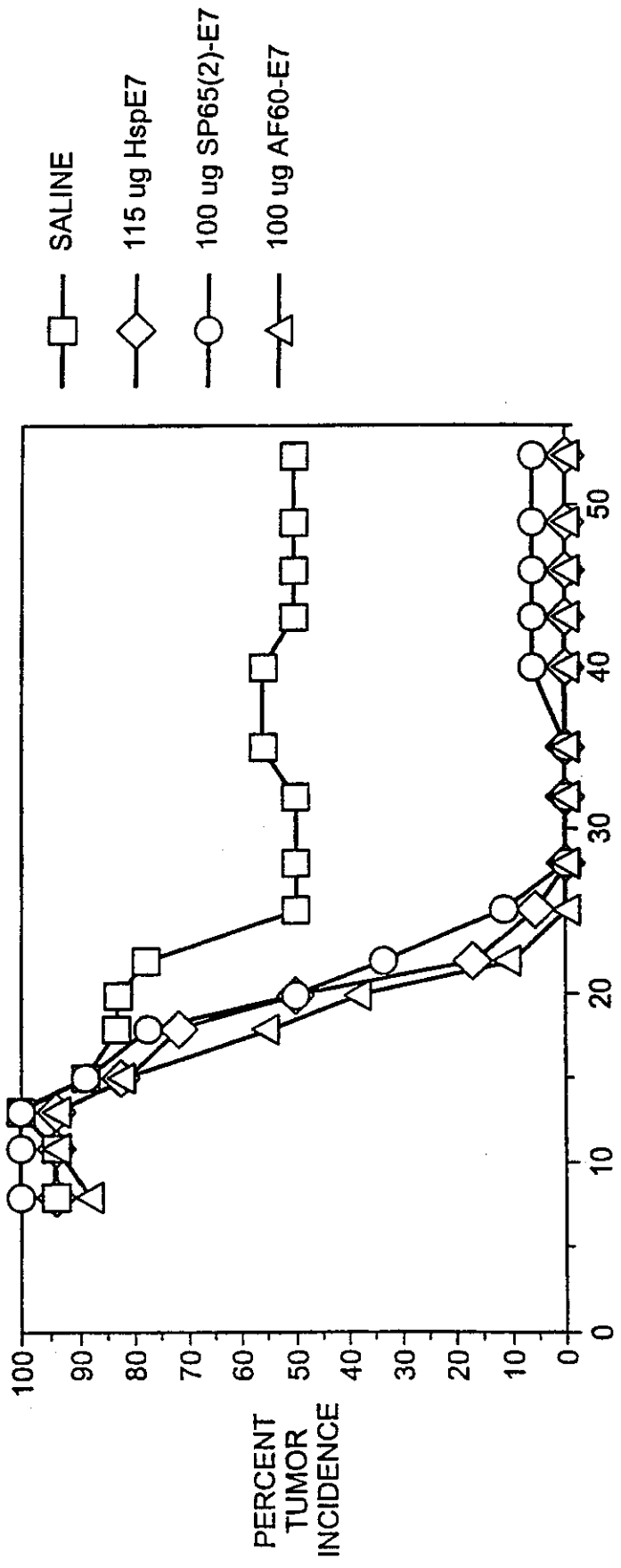

SALINE
115 ug HspE7
100 ug SP65(2)-E7
100 ug AF60-E7
PERCENT TUMOR INCIDENCE
100
90
80
70
60
50
40
30
20
10
0
0
10
20
30
40
50
DAY AFTER INJECTION OF TC-1 TUMOR CELLS

FIG. 22A

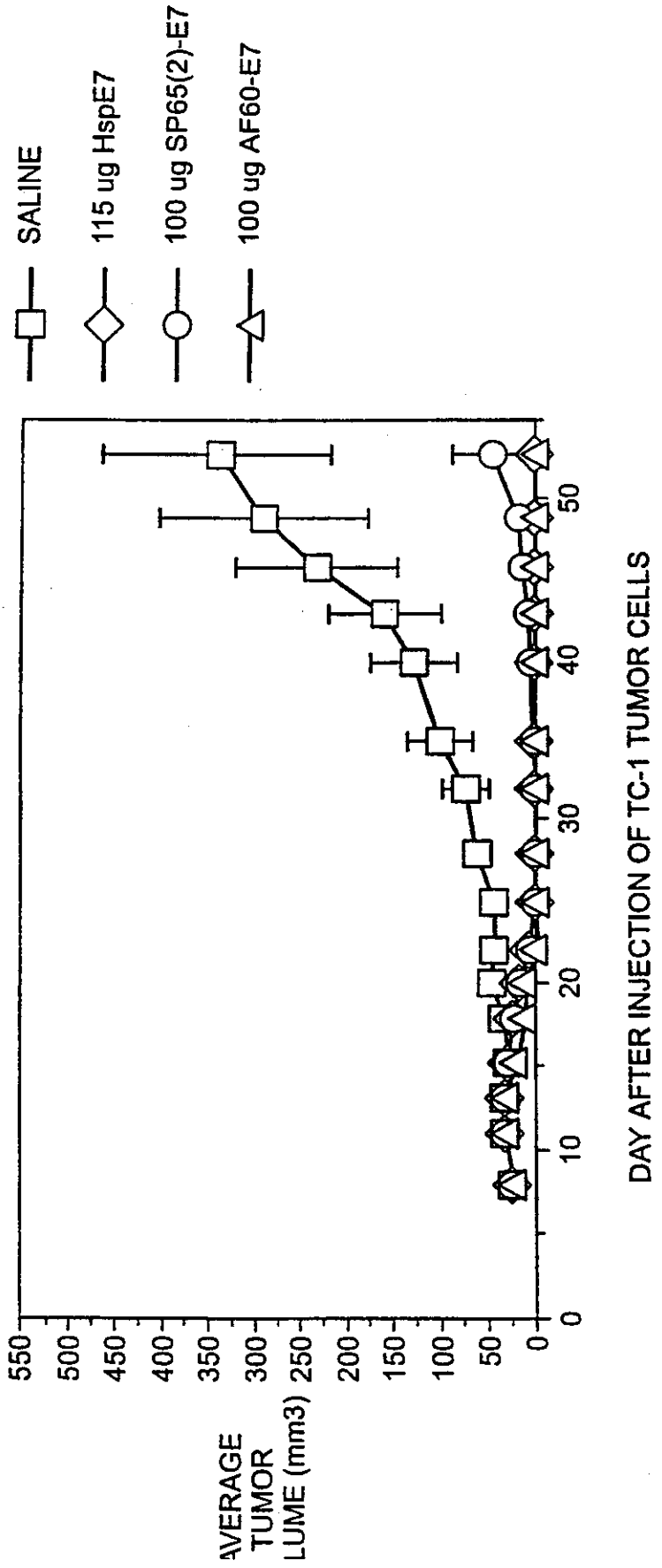

SALINE
115 ug HspE7
100 ug SP65(2)-E7
100 ug AF60-E7
AVERAGE TUMOR VOLUME (mm3)
550
500
450
400
350
300
250
200
150
100
50
0
0
10
20
30
40
50
DAY AFTER INJECTION OF TC-1 TUMOR CELLS

FIG. 22B

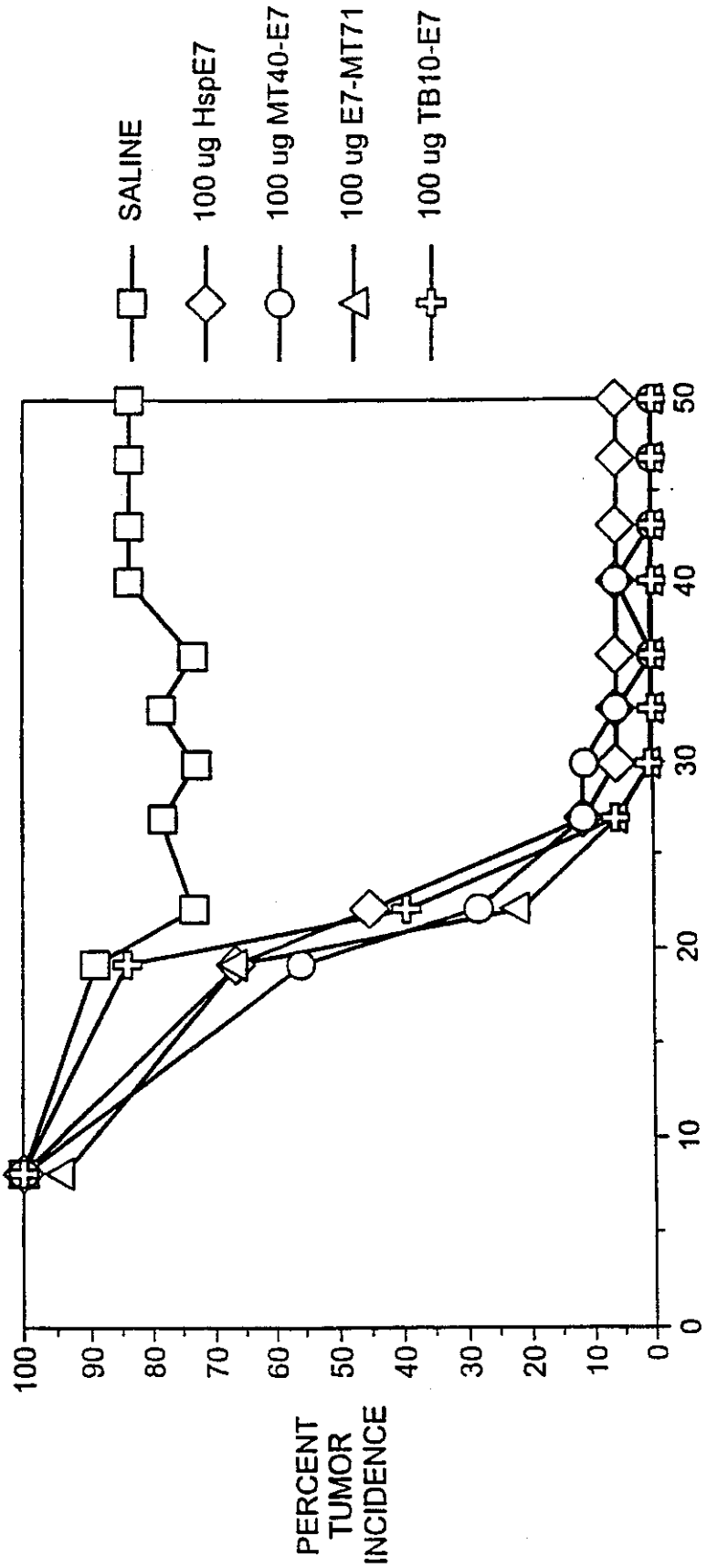

SALINE
100 ug HspE7
100 ug MT40-E7
100 ug E7-MT71
100 ug TB10-E7
PERCENT TUMOR INCIDENCE
100
90
80
70
60
50
40
30
20
10
0
0
10
20
30
40
50
DAYS AFTER INJECTION OF TC-1 TUMOR CELLS

FIG. 23A

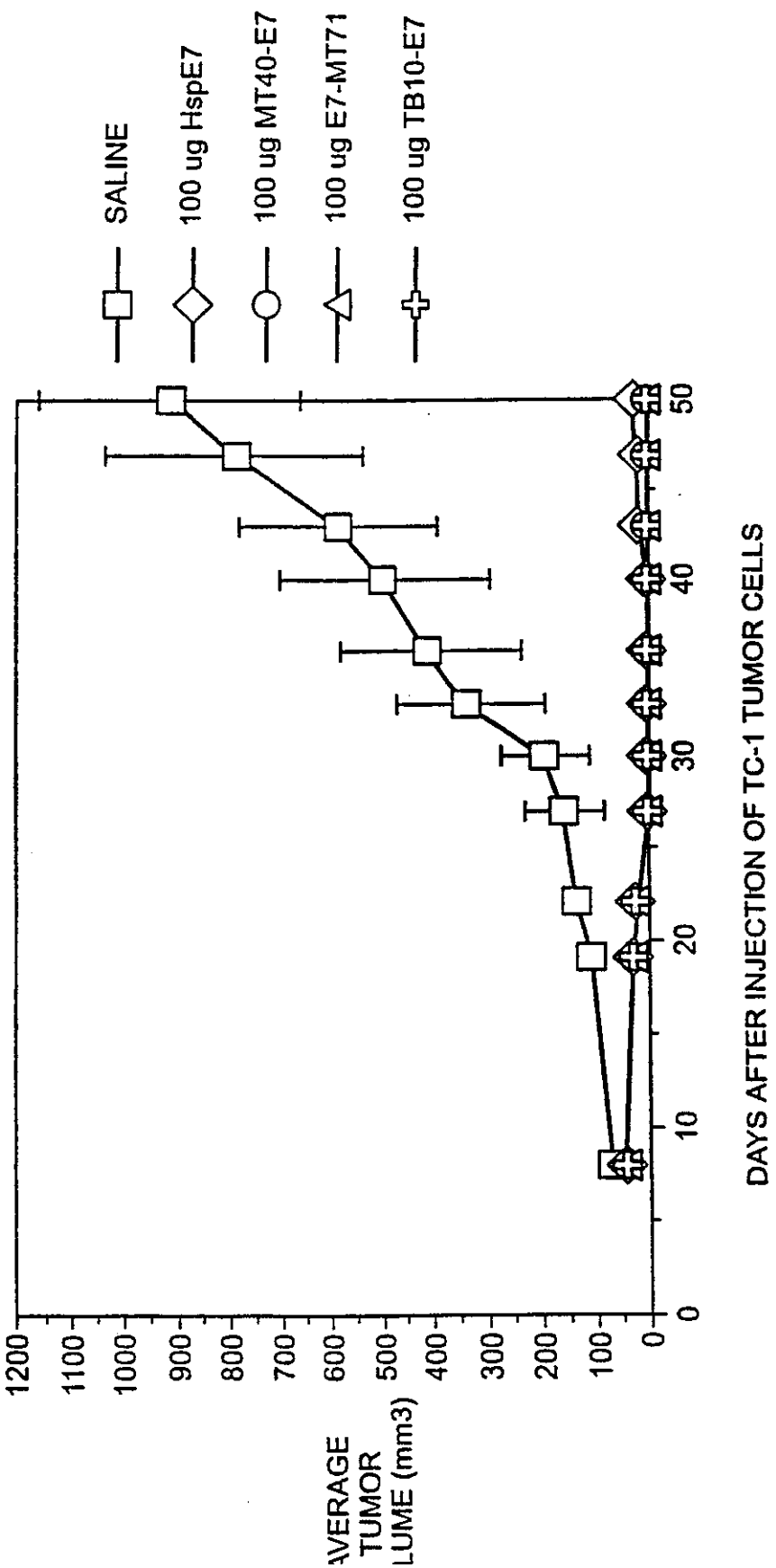

SALINE
100 ug HspE7
100 ug MT40-E7
100 ug E7-MT71
100 ug TB10-E7
AVERAGE TUMOR VOLUME (mm3)
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
0
10
20
30
40
50
DAYS AFTER INJECTION OF TC-1 TUMOR CELLS

FIG. 23B