```
   1  GAATTCGGCACGAGGTCAGAGTGAAAAAGGCAGGGTCAACCTTTTCCTCAGCTCCACGGAGAGTGCCCACCATGGTCCTG    80
  81  TCGCTGATACTCCAGCTGTCGACTCTCTGGCCTGCATGCCGTGCTGACTTCACACCAACAGCGCCCCTAGCCTCATACCC   160
 161  CCAGCCATGGCTGGGAGCTCATCCTGCTGCAGTTGTGACTCCTGGGATCAACGTGACCTTGACTTGCCGCGCACCTCAAT   240
 241  CTGCCTGGCGGTTTGCACTCTTCAAAAGTGGCCTTGTCACCCCTCTGCTCCTCCGGGATGTGTCCGTTGAGCTGGCTGAG   320
 321  TTCTTCCTGGAAGAAGTGACTCCGGCCCAAGGGGGCAGTTATCACTGCCGCTACCGCAAGACAGACTGGGGGCCAGGTGT   400
 401  CTGGTCTCAGCCCAGTAATGTTCTGGAACTGCTGGTAACGGATCAGCTCCCCAGACCATCACTGGTGGCACTGCCTGGGC   480
 481  CTGTGGTGGCCCCGGGAGCCAACGTAAGCCTGCGCTGTGCAGGCCGCATACCGGGCATGAGTTTTGCACTGTACCGCGTA   560
 561  GGCGTGGCAACCCCTCTGCAGTATATTGACTCTGTGCAGCCCTGGGCTGACTTCCTTTGATCGGCACACACACACCTGG   640
 641  CACCTACTGTTGCTATTACCACACGCCTTCTGCCCCCTATGTGCTATCACAGCGCAGCCAGCCACTGGTCATCAGTTTCG   720
 721  AAGGTTCTGGCTCCTTGGACTATACCCAGGGAAACCTCATCCGTTTGGGGCTGGCAGGAATGGTCCTCATCTGCTTGGGC   800
 801  ATCATAGTTACTTGTGATTGGCACAGCAGGAGCTCTGCCTTTGATGGTCTCCTGCCCCAGCAAAACTGAAGAGACTGCCT   880
 881  GGAGATGGACAGAGAAGCTGGGATCCTTGGTGACCAGCCCCTCTGAAACACTCTAGGCCTCCAGACTCCACCAGATACTC   960
 961  ATTCTTCACCACACTGTCAGGCTTGTTGAAGGATTAAAGGAAGTGACTGGCCTGTGGTAAATGATGTTCAGCTAATGTTA  1040
1041  GTGACTTTATCCTCCCTTGAAAACCTCTATTTCCTTCCTGTGCCTTATTTCCGGCTCCCCACCTCTCCTTTCTTTTCTT  1120
1121  TCTGGCCGCGTTGGGATCATAGGTTCATTCTACCACACCCAGCAAAAATTTCTAATTCCATATTTTAAGGGTAATACCCA  1200
1201  GGCCTCAGCCGTGTGTAGAGGCAAAAAAGACAACTTCCAGGAGTTGATTTTCTCTGTCCATCCTGTAGGTCCTAGGGTTT  1280
1281  GAACTCAGGCTGCCAGGCTTAGCCACAACAACTTTACCCACTGAGCCATCTGGCTGGCTCCTAAGTAATTTATGTTTTTA  1360
1361  TATATATGAATGCTTTGCCTGTATGCATGTAGGCCTCGCTCCCCAAGGAAGCCAGAAGAAGGCATCTGATCTCTTGGAAT  1440
1441  TAGAGTTACAGATGGGTGTGAGCCACCATGTAGTGCTAGAAGCCCCAACCAAGGTCCTCTAGAAGAGTAGCCAGTACTCT  1520
1521  TAACTGCTAAGCCATCTCTCCAAGGCCCCCAAATCTATAAGATTAAAGTACTCATTCTCTCTTCTCTTCCAATGTTTTGG  1600
1601  GGGTTTGTTCGTTTGTTTTTTAGTGCAATTTTTTAGTATTGAACCCAGGTCCTTCTACGTGCTAGGCAAGTACTTTACCC  1680
1681  TGTGCTACAATCCCATCTCCCAGGTAATTTTTAAAAAATTAATCATAAATTTTTGATGTTTTGGAAACAGTCTTATTCTG  1760
1761  TAATGTAAAATGACTTGAACTTGAATAAATGTTCCTGCCTCAGCCTCTTGAATACCAAAAAAAAAAAAAAAAAAACTCGA  1840
1841  G                                                                                  1841
```

FIG. 1A

```
   1  GAATTCGGCACGAGGGCTTTCTGGTGTTGCTTCATTTCCTCAGAGTGAAAAAGGCAGGGTCAACCTTTTCCTCAGCTCCA    80
  81  CGGAGAGTGCCCACCATGGTCCTGTCGCTGATACTCCAGCTGTCGACTCTCTGGCCTGCATGCCGTGCTGACTTCACACC   160
 161  AACAGCGCCCCTAGCCTCATACCCCCAGCCATGGCTGGGAGCTCATCCTGCTGCAGTTGTGACTCCTGGGATCAACGTGA   240
 241  CCTTGACTTGCCGCGCACCTCAATCTGCCTGGCGGTTTGCACTCTTCAAAAGTGGCCTTGTCACCCCTCTGCTCCTCCGG   320
 321  GATGTGTCCGTTGAGCTGGCTGAGTTCTTCCTGGAAGAAGTGACTCCGGCCCAAGGGGGCAGTTATCACTGCCGCTACCG   400
 401  CAAGACAGACTGGGGGCCAGGTGTCTGGTCTCAGCCCAGTAATGTTCTGGAACTGCTGGTAACGGATCAGCTCCCCAGAC   480
 481  CATCACTGGTGGCACTGCCTGGGCCTGTGGTGGCCCCGGGAGCCAACGTAAGCCTGCGCTGTGCAGGCCGCATACCGGGC   560
 561  ATGAGTTTTGCACTGTACCGCGTAGGCGTGGCAACCCCTCTGCAGTATATTGACTCTGTGCAGCCCTGGGCTGACTTCCT   640
 641  TTTGATCGGCACACACACACCTGGCACCTACTGTTGCTATTACCACACGCCTTCTGCCCCCTATGTGCTATCACAGCGCA   720
 721  GCCAGCCACTGGTCATCAGTTTCGAAGGTTCTGGCTCCTTGGACTATACCCAGGGAAACCTCATCCGTTTGGGGCTGGCA   800
 801  GGAATGGTCCTCATCTGCTTGGGCATCATAGTTACTTGTGATTGGCACAGCAGGAGCTCTGCCTTTGATGGTCTCCTGCC   880
 881  CCAGCAAAACTGAAGAGACTGCCTGGAGATGGACAGAGAAGCTGGGATCCTTGGTGACCAGCCCCTCTGAAACACTCTAG   960
 961  GCCTCCAGACTCCACCAGATACTCATTCTTCACCACACTGTCAGGCTTGTTGAAGGATTAAAGGAAGTGACTGGCCTGTG  1040
1041  GTAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA                     1093
```

FIG. 1B

```
  1  MVLSLILQLSTLWPACRADFTPTAPLASYPQPWLGAHPAAVVTPGINVTLTCRAPQSAWRFALFKSGLVTPLLLRDVSVE  80
 81  LAEFFLEEVTPAQGGSYHCRYRKTDWGPGVWSQPSNVLELLVTDQLPRPSLVALPGPVVAPGANVSLRCAGRIPGMSFAL 160
161  YRVGVATPLQYIDSVQPWADFLLIGTHTPGTYCCYYHTPSAPYVLSQRSQPLVISFEGSGSLDYTQGNLIRLGLAGMVLI 240
241  CLGIIVTCDWHSRSSAFDGLLPQQN                                                          265
```

FIG. 1C

```
  1  TACCGCGTAGGCGTGGCAACCCCTCTGCAGTATATTGACTCTGTGCAGCCCTGGCTGACTTCCTTTTGATCGGCACACAC   80
 81  ACACCTGGCACCTACTGTTGCTATTACCACACGCCTTCTGCCCCCTATGTGCTATCACAGCGCAGCCAGCCACTGGTCAT  160
161  CAGTTTCGAAGGTTCTGGCTCCTTGGACTATACCCAGGGAAACCTCATCCGTTTGGGGCTGGCAGGAATGGTCCTCATCT  240
241  GCTTGGGCATCATAGTTACTTGTGATTGGCACAGCAGGAGCTCTGCCTTTGATGGTCTCCTGCCCCAGCAAAACTGAAGA  320
321  GACTGCCTGGAGATGGACAGAGAAGCTGGGATCCTTGGTGACCAGCCCCTCTGAAACACTCTAGGCCTCCAGACTCCACC  400
401  AGATACTCATTCTTCACCACACTGTCAGGCTTGTTGAAGGATTAAAGGAAGTGACTGGCCTGTGGTTNAAAAAAAAA     477
```

FIG 2A

```
161  YRVGVATPLQYIDSVQPWADFLLIGTHTPGTYCCYYHTPSAPYVLSQRSQPLVISFEGSGSLDYTQGNLIRLGLAGMVLI  240
241  CLGIIVTCDWHSRSSAFDGLLPQQN                                                          265
```

FIG. 2B

```
   1  CAAGCCCTGGCTCCAGCTCTAGCGGGTATCTGCCCACCATGGCCCTGGTGCTGATCCTCCAGCTGCTGACCCTCTGGCCT   80
  81  CTGTGTCACACAGACATCACTCCGTCTGTCCCCCCAGCTTCATACCACCCTAAGCCATGGCTGGGAGCTCAGCCGGCTAC  160
 161  AGTTGTGACCCCTGGGGTCAACGTGACCTTGAGATGCCGGGCACCCCAACCCGCTTGGAGATTTGGACTTTTCAAGCCTG  240
 241  GAGAGATCGCTCCCCTTCTCTTCCGGGATGTGTCCTCCGAGCTGGCAGAATTCTTTCTGGAGGAGGTGACTCCAGCCCAA  320
 321  GGGGGAAGTTACCGCTGCTGCTACCGAAGGCCAGACTGGGGGCCGGGTGTCTGGTCCCAGCCCAGCGATGTCCTGGAGCT  400
 401  GCTGGTGACAGAGGAGCTGCCGCGGCCGTCGCTGGTGGCGCTGCCCGGGCCGGTGGTGGGTCCTGGCGCCAACGTGAGCC  480
 481  TGCGCTGCGCGGGCCGCCTGCGGAACATGAGCTTCGTGCTGTACCGCGAGGGCGTGGCGGCCCCGCTGCAGTACCGCCAC  560
 561  TCCGCGCAGCCCTGGGCCGACTTCACGCTGCTGGGCGCCCGCGCCCCCCGGCACCTACAGCTGCTACTATCACACGCCCTC  640
 641  CGCGCCCTACGTGCTGTCGCAGCGCAGCGAGGTGCTGGTCATCAGCTGGGAAGACTCTGGCTCCTCCGACTACACCCGGG  720
 721  GGAACCTAGTCCGCCTGGGGCTGGCCGGGCTGGTCCTCATCTCCCTGGGCGCGCTGGTCACTTTTGACTGGCGCAGTCAG  800
 801  AACCGCGCTCCTGCTGGTATCCGCCCCTGAGCCCCAGGAGCACTGCAGCCCGAGACTTCCAACCTGAGTGGCGGAGAAGC  880
 881  TGGGACCCTGGGCTGGACTGTCCTTTCCTGCAGCCCCACAGTCCTGCTGGCTGAGCTCCGCGGAACGGTCCTTAGACCCC  960
 961  GCTGTGCCCTGTGCTGTAGCTTCTTTCCAGGCCTTTCCCAAGGAGTAGCTGAAAGGAAGACGCGATTAGTGGTTAAGACT 1040
1041  TCCAAGCCAGAAGACAGAGGGTTCGAATCCCAGCACTGCCGTCTACTCACTGTAGTAGTAGCAGCTACAGAAAGGTAGTA 1120
1121  GTGAGACGTGAAGCCAGCTGGACTTCCTGGGTTGAATGGGGACCTGGAGAACTTTTCTGTCTTACAAGAGGATTGTAAAA 1200
1201  TGGACCAATCAGCACTCTGTAAGATGGACCAATCAGCGCTCTGTAAAATGGACCAATCAGCAGGACATGGGCGGGGACAA 1280
1281  TAAGGGAATAAAAGCTGGCGAGCGCGGCACCCCACCAGAGTCTGCTTCCACGCTGTGGGAGCTTTGTTCTCTTGCTCTAC 1360
1361  ACAATAAATCTTGCTGCTGCTAA                                                          1383
```

FIG. 3A

```
   1  MALVLILQLLTLWPLCHTDITPSVPPASYHPKPWLGAQPATVVTPGVNVTLRCRAPQPAWRFGLFKPGEIAPLLFRDVSS   80
  81  ELAEFFLEEVTPAQGGSYRCCYRRPDWGPGVWSQPSDVLELLVTEELPRPSLVALPGPVVGPGANVSLRCAGRLRNMSFV  160
 161  LYREGVAAPLQYRHSAQPWADFTLLGARAPGTYSCYYHTPSAPYVLSQRSEVLVISWEDSGSSDYTRGNLVRLGLAGLVL  240
 241  ISLGALVTFDWRSQNRAPAGIRP                                                          263
```

FIG. 3B

```
   1  CAAGCCCTGGCTCCAGCTCTAGCGGGTATCTGCCCACCATGGCCCTGGTGCTGATCCTCCAGCTGCTGACCCTCTGGCCT   80
  81  CTGTGTCACACAGACATCACTCCGTCTGTGGCCATTATAGTCCCCCCAGCTTCATACCACCCTAAGCCATGGCTGGGAGC  160
 161  TCAGCCGGCTACAGTTGTGACCCCTGGGGTCAACGTGACCTTGAGATGCCGGGCACCCCAACCCGCTTGGAGATTTGGAC  240
 241  TTTTCAAGCCTGGAGAGATCGCTCCCCTTCTCTTCCGGGATGTGTCCTCCGAGCTGGCAGAATTCTTTCTGGAGGAGGTG  320
 321  ACTCCAGCCCAAGGGGGAATTTACCGCTGCTGCTACCGAAGGCCAGACTGGGGGCCGGGTGTCTGGTCCCAGCCCAGCGA  400
 401  TGTCCTGGAGCTGCTGGTGACAGAGGAGCTGCCGCGGCCGTCGCTGGTGGCGCTGCCCGGGCCGGTGGTGGGTCCTGGCG  480
 481  CCAACGTGAGCCTGCGCTGCGCGGGCCGCCTGCGGAACATGAGCTTCGTGCTGTACCGCGAGGGCGTGGCGGCCCCGCTG  560
 561  CAGTACCGCCACTCCGCGCAGCCCTGGGCCGACTTCACGCTGCTGGGCGCCCGCGCCCCCGGCACCTACAGCTGCTACTA  640
 641  TCACACGCCCTCCGCGCCCTACGTGCTGTCGCAGCGCAGCGAGGTGCTGGTCATCAGCTGGGAAGACTCTGGCTCCTCCG  720
 721  ACTACACCCGGGGGAACCTAGTCCGCCTGGGGCTGGCCGGGCTGGTCCTCATCTCCCTGGGCGCGCTGGTCACTTTTGAC  800
 801  TGGCGCAGTCAGAACCGCGCTCCTGCTGGTATCCGCCCCTGAGCCCCAGGAGCACTGCAGCCCGAGACTTCCAACCTGAG  880
 881  TGGCGGAGAAGCTGGGACCCTGGGCTGGACTGTCCTTTCCTGCAGCCCCACAGTCCTGCTGGCTGAGCTCCGCGGAACGG  960
 961  TCCTTAGACCCCGCTGTGCCCTGTGCTGTAGCTTCTTTCCAGGCCTTTCCCAAGGAGTAGCTGAAAGGAAGACGCGATTA 1040
1041  GTGGTTAAGACTTCCAAGCCAGAAGACAGAGGGTTCGAATCCCAGCACTGCCGTCTACTCACTGTAGTAGTAGCAGCTAC 1120
1121  AGAAAGGTAGTAGTGAGACGTGAAGCCAGCTGGACTTCCTGGGTTGAATGGGGACCTGGAGAACTTTTCTGTCTTACAAG 1200
1201  AGGATTGTAAAATGGACCAATCAGCACTCTGTAAGATGGACCAATCAGCGCTCTGTAAAATGGACCAATCAGCAGGACAT 1280
1281  GGGCGGGGACAATAAGGGAATAAAAGCTGGCGAGCGCGGCACCCCACCAGAGTCTGCTTCCACGCTGTGGGAGCTTTGTT 1360
1361  CTCTTGCTCTACACAATAAATCTTGCTGCTGCTAA                                               1395
```

FIG. 4A

```
   1  MALVLILQLLTLWPLCHTDITPSVAIIVPPASYHPKPWLGAQPATVVTPGVNVTLRCRAPQPAWRFGLFKPGEIAPLLFR   80
  81  DVSSELAEFFLEEVTPAQGGIYRCCYRRPDWGPGVWSQPSDVLELLVTEELPRPSLVALPGPVVGPGANVSLRCAGRLRN  160
 161  MSFVLYREGVAAPLQYRHSAQPWADFTLLGARAPGTYSCYYHTPSAPYVLSQRSEVLVISWEDSGSSDYTRGNLVRLGLA  240
 241  GLVLISLGALVTFDWRSQNRAPAGIRP                                                        267
```

FIG. 4B

```
   1    CAAGCCCTGGCTCCAGCTCTAGCGGGTATCTGCCCACCATGGCCCTGGTGCTGATCCTCCAGCTGCTGACCCTCTTCCCC  80
  81    CCAGCTTCATACCACCCTAAGCCATGGCTGGGAGCTCAGCCGGCTACAGTTGTGACCCCTGGGGTCAACGTGACCTTGAG 160
 161    ATGCCGGGCACCCCAACCCGCTTGGAGATTTGGACTTTTCAAGCCTGGAGAGATCGCTCCCCTTCTCTTCCGGGATGTGT 240
 241    CCTCCGAGCTGGCAGAATTCTTTCTGGAGGAGGTGACTCCAGCCCAAGGGGGAAGTTACCGCTGCTGCTACCGAAGGCCA 320
 321    GACTGGGGGCCGGGTGTCTGGTCCCAGCCCAGCGATGTCCTGGAGCTGCTGGTGACAGAGGAGCTGCCGCGGCCGTCGCT 400
 401    GGTGGCGCTGCCCGGGCCGGTGGTGGGTCCTGGCGCCAACGTGAGCCTGCGCTGCGCGGGCCGCCTGCGGAACATGAGCT 480
 481    TCGTGCTGTACCGCGAGGGCGTGGCGGCCCCGCTGCAGTACCGCCACTCCGCGCAGCCCTGGGCCGACTTCACGCTGCTG 560
 561    GGCGCCCGCGCCCCCGGCACCTACAGCTGCTACTATCACACGCCCTCCGCGCCCTACGTGCTGTCGCAGCGCAGCGAGGT 640
 641    GCTGGTCATCAGCTGGGAAGACTCTGGCTCCTCCGACTACACCCGGGGGAACCTAGTCCGCCTGGGGCTGGCCGGGCTGG 720
 721    TCCTCATCTCCCTGGGCGCGCTGGTCACTTTTGACTGGCGCAGTCAGAACCGCGCTCCTGCTGGTATCCGCCCCTGAGCC 800
 801    CCAGGAGCACTGCAGCCCGAGACTTCCAACCTGAGTGGCGGAGAAGCTGGGACCCTGGGCTGGACTGTCCTTTCCTGCAG 880
 881    CCCCACAGTCCTGCTGGCTGAGCTCCGCGGAACGGTCCTTAGACCCCGCTGTGCCCTGTGCTGTAGCTTCTTTCCAGGCC 960
 961    TTTCCCAAGGAGTAGCTGAAAGGAAGACGCGATTAGTGGTTAAGACTTCCAAGCCAGAAGACAGAGGGTTCGAATCCCAG1040
1041    CACTGCCGTCTACTCACTGTAGTAGTAGCAGCTACAGAAAGGTAGTAGTGAGACGTGAAGCCAGCTGGACTTCCTGGGTT1120
1121    GAATGGGGACCTGGAGAACTTTTCTGTCTTACAAGAGGATTGTAAAATGGACCAATCAGCACTCTGTAAGATGGACCAAT1200
1201    CAGCGCTCTGTAAAATGGACCAATCAGCAGGACATGGGCGGGGACAATAAGGGAATAAAAGCTGGCGAGCGCGGCACCCC1280
1281    ACCAGAGTCTGCTTCCACGCTGTGGGAGCTTTGTTCTCTTGCTCTACACAATAAATCTTGCTGCTGCTAA          1350
```

FIG. 5A

```
1       MALVLILQLLTLFPPASYHPKPWLGAQPATVVTPGVNVTLRCRAPQPAWRFGLFKPGEIAPLLFRDVSSELAEFFLEEVT  80
81      PAQGGSYRCCYRRPDWGPGVWSQPSDVLELLVTEELPRPSLVALPGPVVGPGANVSLRCAGRLRNMSFVLYREGVAAPLQ 160
161     YRHSAQPWADFTLLGARAPGTYSCYYHTPSAPYVLSQRSEVLVISWEDSGSSDYTRGNLVRLGLAGLVLISLGALVTFDW 240
241     RSQNRAPAGIRP                                                                      252
```

FIG. 5B

```
mOSCAR:    1 MVLSLILQLSTLWPACRADFTPTAPLASY-PQPWLGAHPA   39
hOSCAR:    1 MALVLILQLLTLWPLCHTDITPSVPPASYHPKPWLGAQPA   40

          40 AVVTPGINVTLTCRAPQSAWRFALFKSGLVTPLLLRDVSV   79
          41 TVVTPGVNVTLRCRAPQPAWRFGLFKPGEIAPLLFRDVSS   80

          80 ELAEFFLEEVTPAQGGSYHCRYRKTDWGPGVWSQPSNVLE  119
          81 ELAEFFLEEVTPAQGGIYRCCYRRPDWGPGVWSQPSDVLE  120

         120 LLVTDQLPRPSLVALPGPVVAPGANVSLRCAGRIPGMSFA  159
         121 LLVTEELPRPSLVALPGPVVGPGANVSLRCAGRLRNMSFV  160

         160 LYRVGVATPLQYIDSVQPWADFLLIGTHTPGTYCCYYHTP  199
         161 LYREGVAAPLQYRHSAQPWADFTLLGARAPGTYSCYYHTP  200

         200 SAPYVLSQRSQPLVISFEGSGSLDYTQGNLIRLGLAGMVL  239
         201 SAPYVLSQRSEVLVISWEDSGSSDYTRGNLVRLGLAGLVL  240

         240 ICLGIIVTCDWHSRSSAFDGLLPQQN                265
         241 ISLGALVTFDWRSQNRAPAGIRP                  263
```

FIG. 6

```
   1 gcccggccta gaggggctaa tttttatcta tctatctatc tatctatcta tctatctatc
  61 tatctaacac agtatcacac caagagcctg gcacataata ggtgctaatt tttctctgtc
 121 aaccaatcta tcaatcgatc aattaatcac agcaagggcc tggcacataa ttggtgttaa
 181 tttttatcta tccatcaatc aatcacagca agggcctggc acttaacagg tgctaatttt
 241 tatctatcta tctatctatc tatctatcta tccatccatc catctatcta tctttcaatc
 301 acagcaaggg cctggcacat aataggtgca aatttttatc tatctgtcaa tcaatgacag
 361 caagagtctg gcacataata ggttcttatt tttaaaacag acagatatct ttctatctgt
 421 ctatctatat ttaaagacat ggtctcactc tatcacccag gctggagtgc agtggcacaa
 481 tttatttatt ttttagacag ggtctcgctc tgttgcccag gctgctcttg aactcttggg
 541 ctcaagcgat cctcctgcct ccacctcctg actagtattt gtttctagag ttaataaaat
 601 gaacaccaca ggttatgact gaaccccctg ctaatttttc cacagtgcca tagggctatg
 661 acacagtcac ccacaggccc ccacctcgat actctcttcc gtaaatgagg atctgggtct
 721 ggttttctga tgttgcctca tttcctggga ggggagaggg tgcgacCAAG CCCTGGCTCC
 781 AGCTCTAGCG GGTATCTGCC CACCATGGCC CTGGTGCTGA TCCTCCAGCT GCTGACCCTC
 841 Tgtgagtcac ccctttcttc tccctgggtt cctggctggg gttgggggca gagagagagg
 901 caatggagac ccagacaccc tgcaggggga ccaggcagca ggtttgggat tctaggttca
 961 aataaagaac agggctgggg cccagacccc tgggtcctaa agcaagagaa cacagattcc
1021 cgaaagagga aggaggtggg gacaggtatc tctggttctt gaggcaggaa gaggtcagga
1081 gacagggagg actcccagat tcttatatgg gaggggatg gaagccagga ctcctgattc
1141 cctgggaaaa gggggctggg aaacagtggc tcttagctcc tgagagaaga gggaaatggg
1201 gacccagatt cctgaactcg tgagaggaga aactctacga tcattgttcc ctggaaaggt
1261 ggagttcaag ggcctgaact cttggttgcc caggccagag gggtctgcgt tcagacttct
1321 tcggtaggtg ggcaatggat gtccaaattt ctgcctactg agacaggagg agggagggat
1381 aagattctca tttcccagag gagataggag ctgggaactc agattcctgg gttaccaatg
1441 agatggggct ggccacaaag ggttttgaaa agaactcgct gttgggcgca gcggctcatg
1501 cctgtgggag ccgaggccca gcactttggg aggccgaggc gggtggatca cctgaggaca
1561 ggagttcaag accagcctga ccaacatggc gaaaccctc tctactaaaa atacaaagat
1621 tagcctggtg tggtggcggg cacttgtagt cccagctact acggaggctg aggcaggaga
1681 atcacttgaa cctgggaggc agaggttgca gtgagctgag atcacaccac tacactccag
1741 cctgggcgac agagtgagag tctgcctcag acaaaaaaaa aaaaaggaaa aagaaactag
1801 tccctcaacc tcctacagGG CCTCTGTGTC ACACAGACAT CACTCCGTCT Ggtgagtagc
1861 cacccatcc actctccttt tgttgctgac acccctttc caattactca gattttattt
1921 tggtgcccaa tcccatccca gatatcctta ttttcctccc tccctccatt ccttccttct
1981 tttctcattc cccttagTGG CCATTATAGg tgagtactga agaccaggaa cttctgaggc
2041 agaggcctaa gctaggacct cagtttcacc atcgtattca tttatatgtg accatatgac
2101 ctagaacaag tcacagcttg ctaagactcc atttccttct ctgtaaaatg ggccgctgtg
```

FIG. 7A

```
2161 agatctcatc aaatcacatg tgcaaaaccc tgagcctggc acagtacagg gcttaagaaa
2221 taggatcttg ggctgggcgc aatggccaac gtctgtaatc ccagcacttt gggaggcaga
2281 ggcgggcgga tcacaaggtc agatcgagat catcctggct aatgtggtga aaccccgtct
2341 ctactaaaaa aaaaaaaaaa aaaaaaaaaa aattagccgg gtgtggtggg acgcacctgt
2401 aatcccagct actcaggagg ctgaggcaag agaatcgctt gaacccagga ggcagaggtt
2461 gcagtaagct gagatcgcgc cactgcactc cagcctgggt gacagtgcaa gactccactt
2521 caaaaacaaa caaacaaaca aacaaacaaa aactcttttg gagatatttc agtgtcgcta
2581 tagctatctc tacctattta ttttatttat ttatttattt attttgagac cagtttctct
2641 ctgtcgccca ggccggagtg cagtggtgca atctcggctc actgcaacca cctcctgggt
2701 tcaagggatt ctcctgcctc agcctcctga gtagctggga ctacaggcac acaccacaat
2761 gcccggataa tttttgtatt tttagtagag acagggtttc cccatgttgg tcaggctggt
2821 ctggaactcc tgacctcagg tgatccctct gcctcagcct cccaaagtgt tgggattaca
2881 aacatgagcc ccctcacccg acccttattt ttattcattt ttagagatgg ggtctcattg
2941 tgtcacccgg gctggagtac ggtggctcta tcatagctca ctgcagcttt gaattcctgg
3001 gctcagacaa tcctccagcc tcagcctccc aaagtgcatg ccaccatgga gttctcactc
3061 tgttgcccag gctggagtgc agtggcatga tctcagctaa ctgcagcctc cgactctagg
3121 gttcaagtaa ttctcctact cagcatccca aacagctgga actacaagct agcactacca
3181 cgcctggcta atttttctgt ttttagtaga gatgggattt taccatgttg gtcaggctgg
3241 tcttgaactc ctgacctcag gtgatgcacc caccttgtgc ctcccaaagt gctgggatta
3301 cagctgtgag ccaccggacc caacagcctt cctgtactct taatttgtgt gatttgtgaa
3361 taagtgatat ctgccagtac tatcatttgt cctccagttt tgtcttttag catacacaac
3421 ttaagaaatt tgaagtggtc aaattaatta atcttccata caacttttta ttttatattt
3481 taagaagcct tccttacccc aagacaaata tattttccta tagtttttg aatactttta
3541 tagtttaaaa aaaaagaaac acagggtctt taattaatct ggaagttgtt ttgggaaatg
3601 gtatgaggta gggatccaac atttttcttt tccaaatagc aagttttggc aactcttgaa
3661 atactatatt gcaaatattc tggaaagcta tttaaaatta gagttctggc tgggcgtggt
3721 ggctcacacc tgtaatccca gcactttggg aggccgaggt gggaggattg ctcgagccca
3781 agagttcaag agtagcctgg gcaatatagc gaatgctcgt ctctactaaa aattaaaaaa
3841 aaaaaattag cctggtgtag tggcatgtgc ctgtggtccc aggtactcag gaggctgagg
3901 tggaggactg tttgagccca agagattgag gctgcagtga gttgagaaca tgccactgca
3961 ctcctgcctg agcaacacag caagaccctg cctcaaaaaa aaaaaaaaaa aaaaaaaaag
4021 tctgggtgtg gtggcacaag cttgtaaact tagcactttg ggaggccgag gtgggaggat
4081 tgcttgaggc cagtagttta agaccaacct gctcaacata gggagaccgc cccctcccat
4141 ctcattactt aaaaataata ataataataa aattacagag ttctgggacc tgacctttg
4201 aaactgtgtt tacaaactgt ggagtaaagc tcagaagttt ctgtcctgcc cctctgattt
4261 gcacctggtt ttaacaaggc ttgattgtag tccagtctct ccctgatttt acaaacagga
4321 aactgaggct aagaaagggg cagtaattgt ccaaggtgat tttcctcctt ccccaacttc
```

FIG. 7B

4 MAR 2005

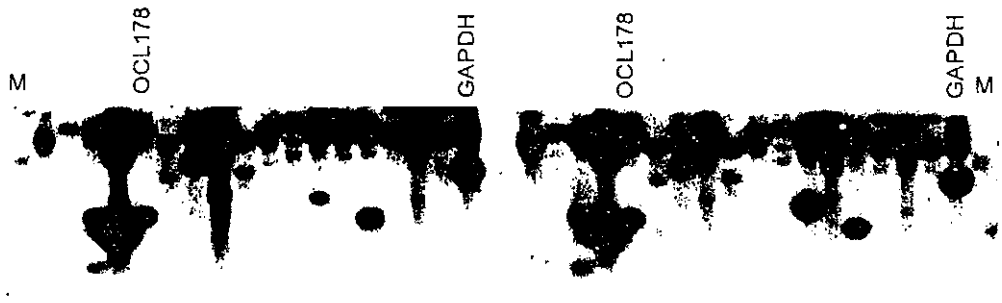

```
4381 cctttcatct tctggggctc ccaggaggcc cgaggaccca ggcagccccg tttattcagT
4441 CCCCCCAGCT TCATACCACC CTAAGCCATG GCTGGGAGCT CAGCCGGCTA CAGTTGTGAC
4501 CCCTGGGGTC AACGTGACCT TGAGATGCCG GGCACCCCAA CCCGCTTGGA GATTTGGACT
4561 TTTCAAGCCT GGAGAGATCG CTCCCCTTCT CTTCCGGGAT GTGTCCTCCG AGCTGGCAGA
4621 ATTCTTTCTG GAGGAGGTGA CTCCAGCCCA AGGGGGAATT TACCGCTGCT GCTACCGAAG
4681 GCCAGACTGG GGGCCGGGTG TCTGGTCCCA GCCCAGCGAT GTCCTGGAGC TGCTGGTGAC
4741 AGgtgaggtc ctggggtcgg ggaggagaag tgggtggaac aagggagttg ggggagggac
4801 agagagatat agggaaagag agacannnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn
4861 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn
4921 nnnnnagcga gagacagagg agaaggagaa acagagcgag cgagcgagcg gaagacgctc
4981 acgcggcccc ggactctcac cccgtctctg cagAGGAGCT GCCGCGGCCG TCGCTGGTGG
5041 CGCTGCCCGG GCCGGTGGTG GGTCCTGGCG CCAACGTGAG CCTGCGCTGC GCGGGCCGCC
5101 TGCGGAACAT GAGCTTCGTG CTGTACCGCG AGGGCGTGGC GGCCCCGCTG CAGTACCGCC
5161 ACTCCGCGCA GCCCTGGGCC GACTTCACGC TGCTGGGCGC CCGCGCCCCC GGCACCTACA
5221 GCTGCTACTA TCACACGCCC TCCGCGCCCT ACGTGCTGTC GCAGCGCAGC GAGGTGCTGG
5281 TCATCAGCTG GGAAGgtgag ggccctgagg cccggcccgc ctcctccgcc ccaggaatgc
5341 aggccccagg acctccgccc tcagacccag gagcccaggc ccccagcctc tcctccttca
5401 gacccagggg tctagtcctg cagcccctcc tccctcagac ccaggattcc tgggacccag
5461 ccccteetcc ctcagatcca ggagtctagt cctccagctc ctcctccctc agacccagga
5521 ttcccgggcc ccagtacctc ctccctcaga cccaggactc caggcccccа gcccctcctt
5581 cctggaccca ggactccagg ccccagccc ctccttcctg atccagcagt ccaggcccca
5641 gcccccttctt cctggaccca ggagttgaag cctccatcga ctccccctca actttgagac
5701 tgtagagtca ggtccctaag tccaccccag gggctggaaa cctggagttc agggcccaga
5761 ctttggggtc cgggagctga tggccccтct ctcccggctc cgcccgcagA CTCTGGCTCC
5821 TCCGACTACA CCCGGGGGAA CCTAGTCCGC CTGGGGCTGG CCGGGCTGGT CCTCATCTCC
5881 CTGGGCGCGC TGGTCACTTT TGACTGGCGC AGTCAGAACC GCGCTCCTGC TGGTATCCGC
5941 CCCTGAGCCC CAGGAGCACT GCAGCCCGAG ACTTCCAACC TGAGTGGCGG AGAAGCTGGG
6001 ACCCTGGGCT GGACTGTCCT TTCCTGCAGC CCCACAGTCC TGCTGGCTGA GCTCCGCGGA
6061 ACGGTCCTTA GACCCCGCTG TGCCCTGTGC TGTAGCTTCT TTCCAGGCCT TTCCCAAGGA
6121 GTAGCTGAAA GGAAGACGCG ATTAGTGGTT AAGACTTCCA AGCCAGAAGA CAGAGGGTTC
6181 GAATCCCAGC ACTGCCGTCT ACTCACTGTA GTAGTAGCAG CTACAGAAAG GTAGTAGTGA
6241 GACGTGAAGC CAGCTGGACT TCCTGGGTTG AATGGGGACC TGGAGAACTT TTCTGTCTTA
6301 CAAGAGGATT GTAAAATGGA CCAATCAGCA CTCTGTAAGA TGGACCAATC AGCGCTCTGT
6361 AAAATGGACC AATCAGCAGG ACATGGGCGG GGACAATAAG GGAATAAAAG CTGGCGAGCG
6421 CGGCACCCCA CCAGAGTCTG CTTCCACGCT GTGGGAGCTT TGTTCTCTTG CTCTACACAA
6481 TAAATCTTGC TGCTGCTAAc tctttaggtc cgtgccatct ttaagcgctg taacactcac
6541 cacgaaggtc cctggctcca ttcttaaagt cagcgagacc acaaacccac aggaaggaac
```

FIG. 7C

```
6601 caactctgga cacggtagca gcattcagaa agcgcccttc cccaactctc tcttgccttg
6661 acggtaaaat ggatgcactg ataaaaccca cttcatagga ttgttgtagg attcagtggg
6721 taatacacat aaaacattta aagcagtaac tggcccgtag taagtgttca ataaatgtta
6781 gctaccctgt aacaccgatt tctaccagac tcagtgccga aaggaaggtc tcacctttt
6841 gccatcaagc ataatcaagc acgacttttt ctttctttct ttctttttt ttttgagag
6901 aagatctcac tccacccagg ctggagtgca gtggcgtgat ctcggttcac tgcaacatcc
6961 gcctcccggg ttcaagtgat tctcgtgcct cagtctcctg agtagctggg attacaggtg
7021 tgcgctatca cgcccagcta atttttgtat ttttagtaga gatggagttt tgccaaattg
7081 gccaggtggt ctcgaactcc tgacctcaag tgatccacct gcctcggcct cccgaatagc
7141 tgggattaca ggtgcgtacc accatgtccg gctaatgttt gtatttttag tagagacggg
7201 gtttcaccat gttgaccaga ctggtcttga actcctgacc tcaagtgatc cgcccgcctc
7261 aagaactgaa ttttgaagtc taattagcca cctgggggcg ctaacgtgtt gaaaagacgg
7321 gaggagagac tgagcgggtc ttccggggtt tgatctcagt gccagagggg ccttggtaga
7381 acatatgtgg gacaacctcc ccggcatatg tggctgtggg aaataataac aattttaaaa
7441 aaggaataag ccgggggtgc tggctcacac ctgtgatcct agcactttgg gaggccgagg
7501 caggtggatc acgaagtcag aagttcgaga ccagcctgga caacatggtg aaaccccgtc
7561 tctactaaaa atacaaaaat tagccgggcg tggtggcggg cgcctgtaat cccagctact
7621 cgggaggctg aggcaggaga attgcttgaa cccaggaggc ggaggttgta gtgagccgag
7681 attgcatcac tgcacactcc agcctgggtg acagagcaaa actccgtctc aaaaaaaaaa
7741 aaaaaaaaaa aaagaataaa gaagagacgc aggttataag gaaggcacca gacctggatg
7801 aggctgtgat gtcatcaaat ccagtcttcc cactttataa atgggaaaat ggtggaaaga
7861 gaggtgatat taagtttacc taaacatgta caggaagtca gtggcacatc agggagtctt
```

FIG. 7D

Southern blot analysis with total cDNA probes



Probe : Bone marrow-drived macrophage cDNA Bone marrow-drived osteoclast cDNA

FIG. 8A FIG. 8B

Northern Blot Analysis

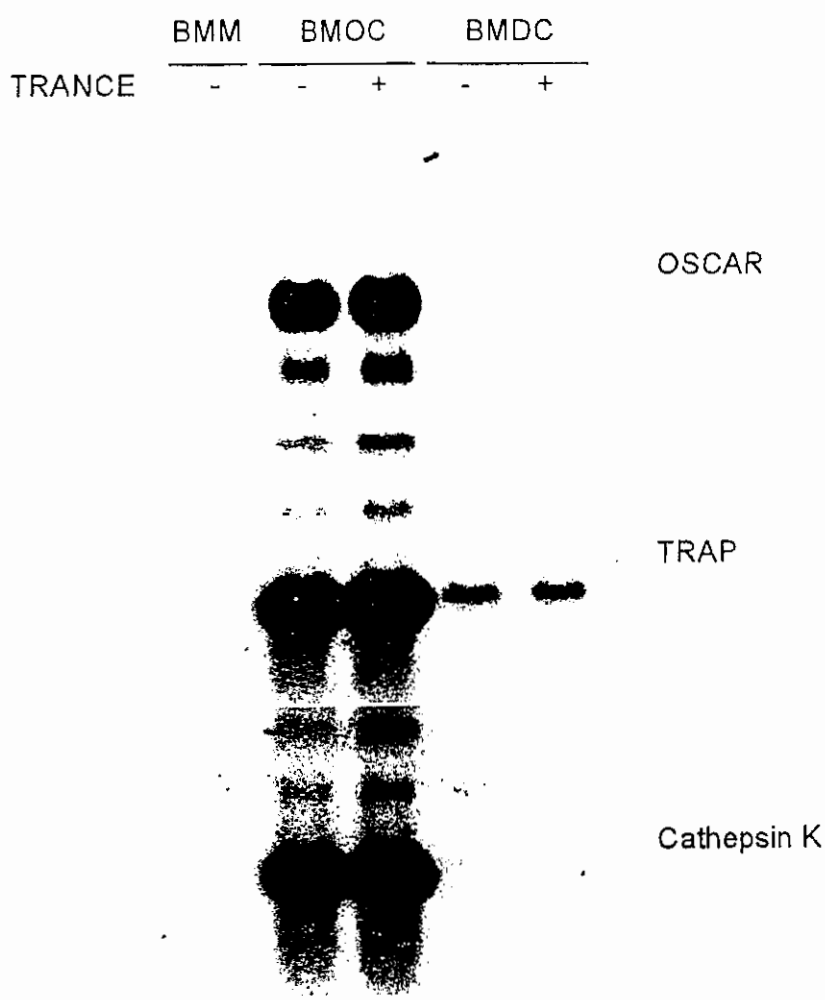


FIG. 9

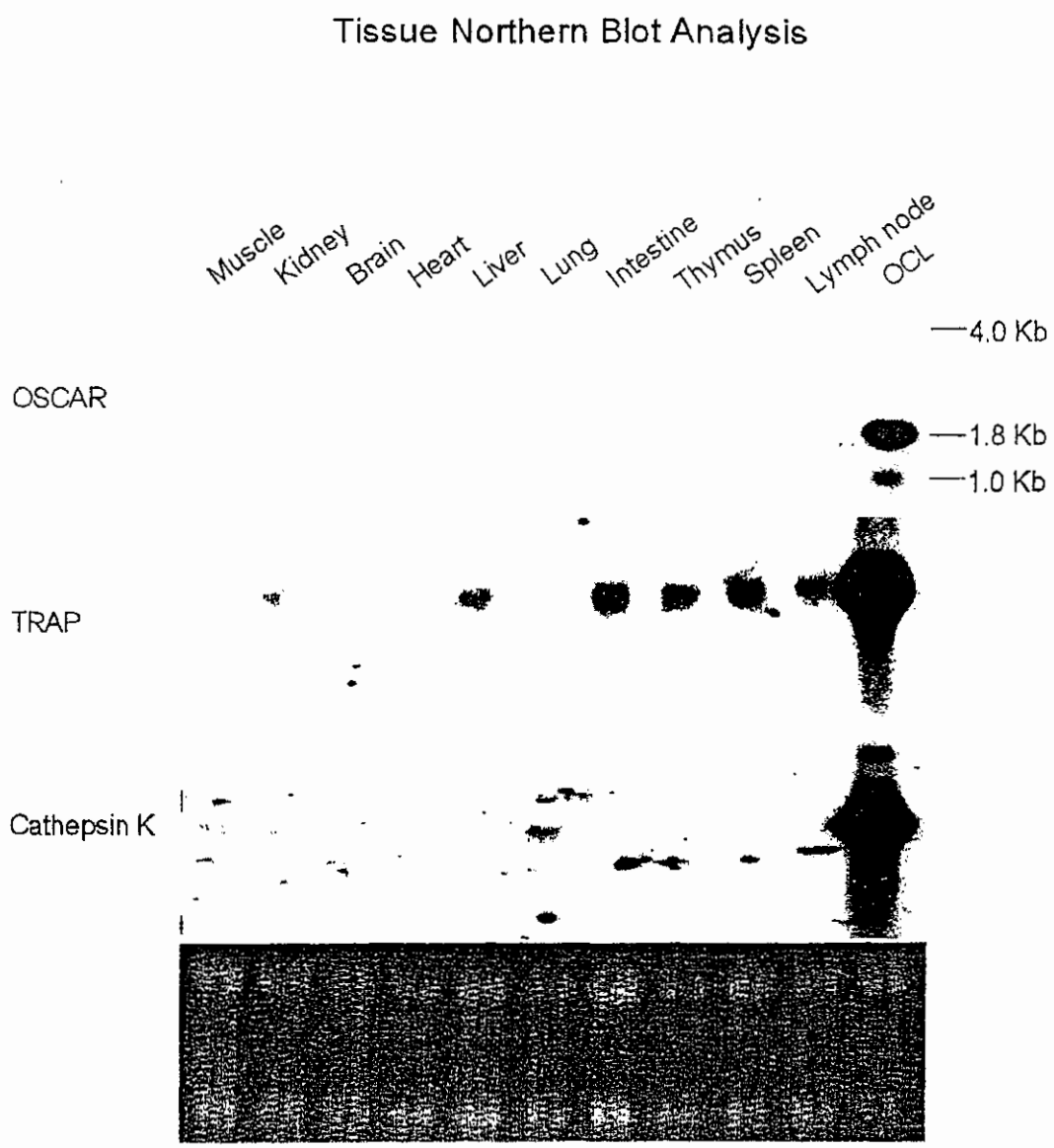

Tissue Northern Blot Analysis
Muscle
Kidney
Brain
Heart
Liver
Lung
Intestine
Thymus
Spleen
Lymph node
OCL
4.0 Kb
OSCAR
1.8 Kb
1.0 Kb
TRAP
Cathepsin K

FIG. 10

OSCAR Northern blot analysis

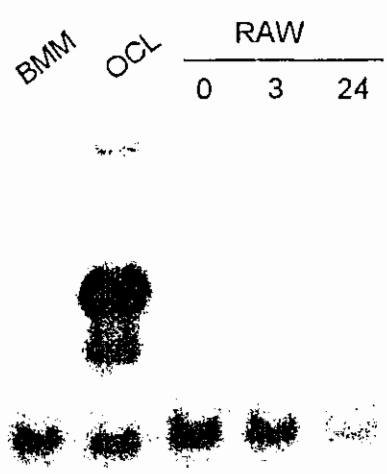


FIG. 11A

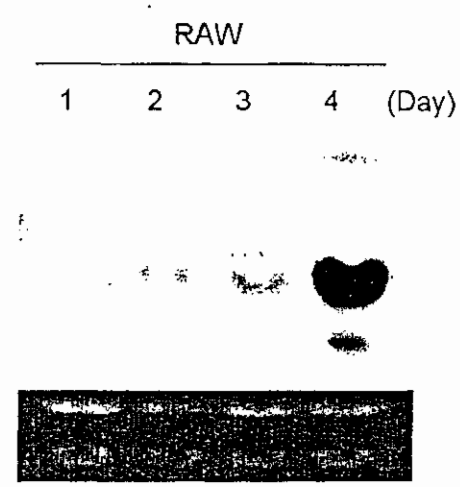


FIG. 11B

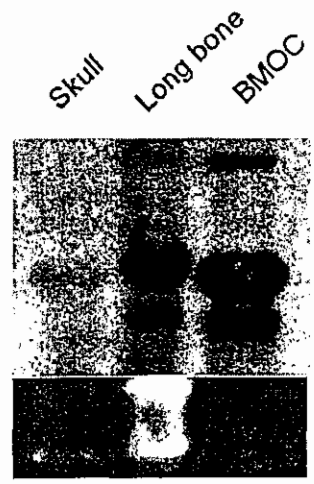


FIG. 11C

Genomic Southern blot analysis with OSCAR-Ecdo pro

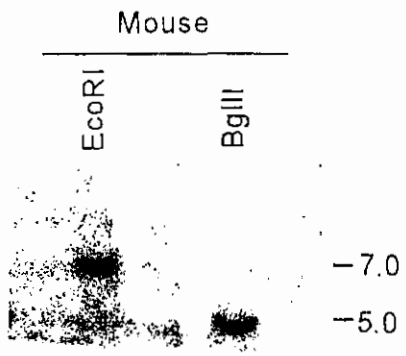


FIG. 12A

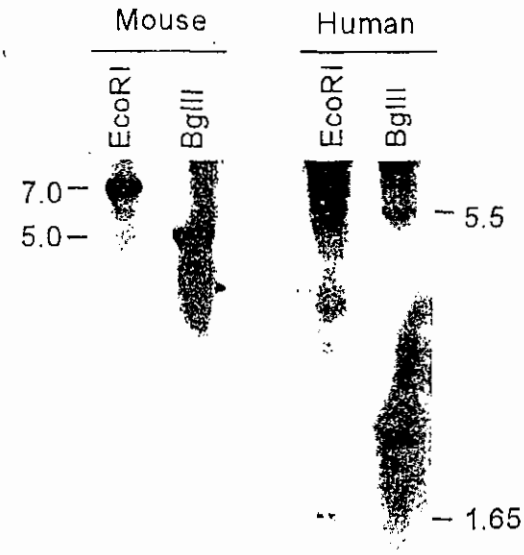


FIG. 12B

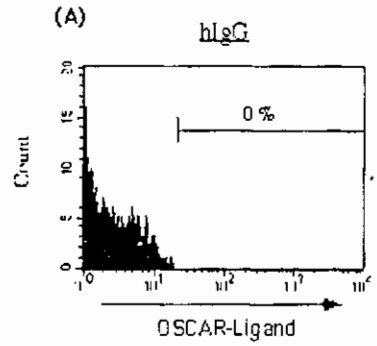


FIG. 13A

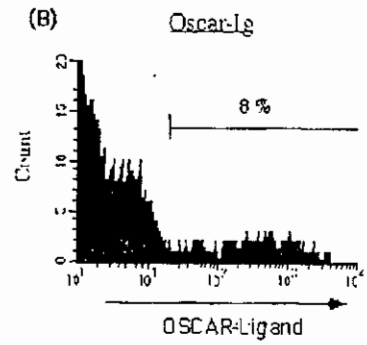


FIG. 13B

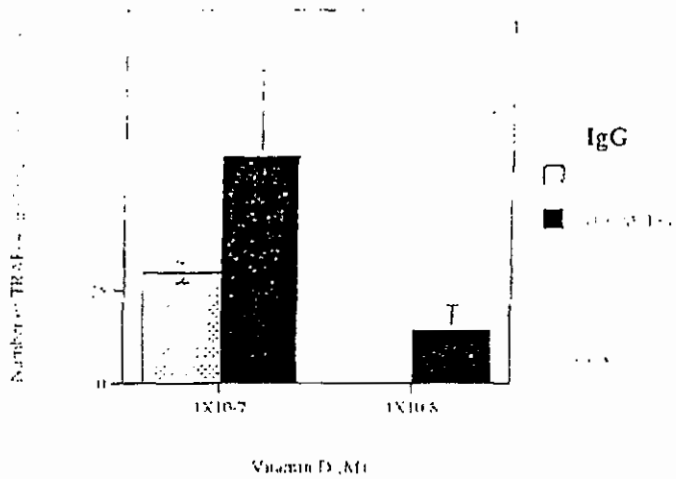


FIG. 14

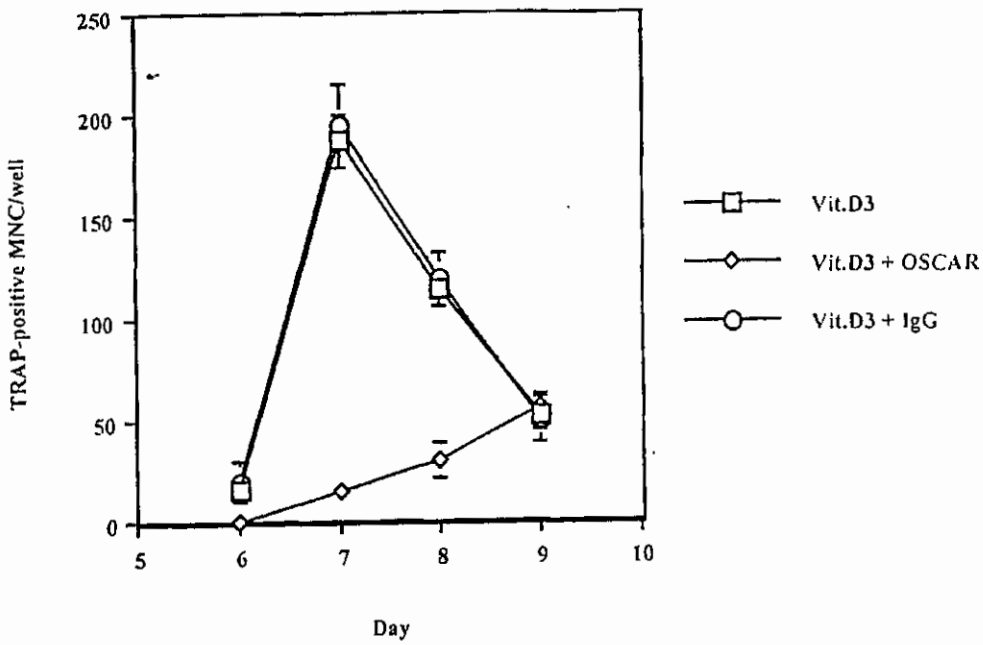


FIG. 15A

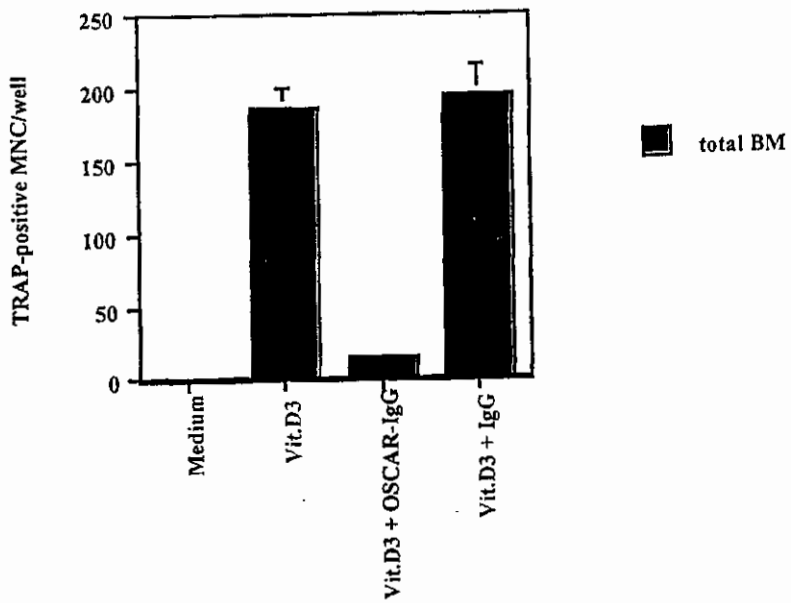


FIG. 15B

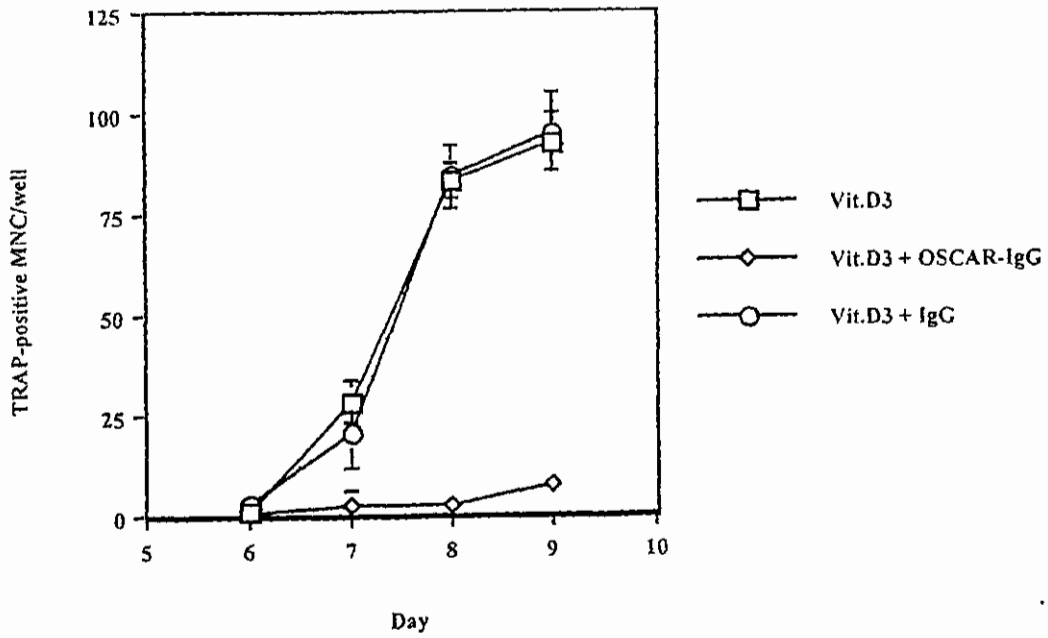
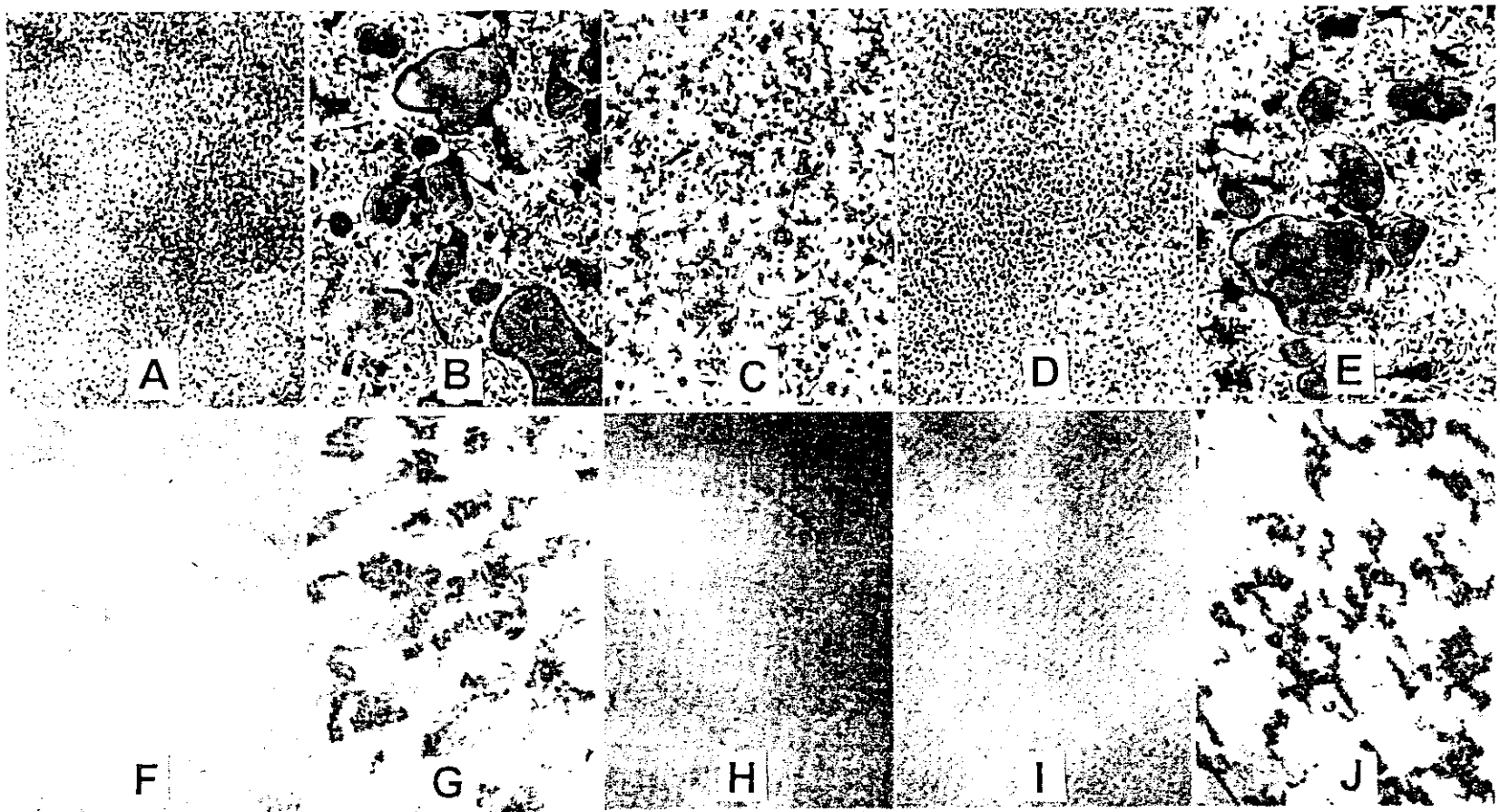

125
100
75
50
25
0
5
6
7
8
9
10
TRAP-positive MNC/well
Day
Vit.D3
Vit.D3 + OSCAR-IgG
Vit.D3 + IgG

FIG. 15C



Mouse Bone Marrow Culture (Day 3)

FIG. 16

- 4 MAR 2005

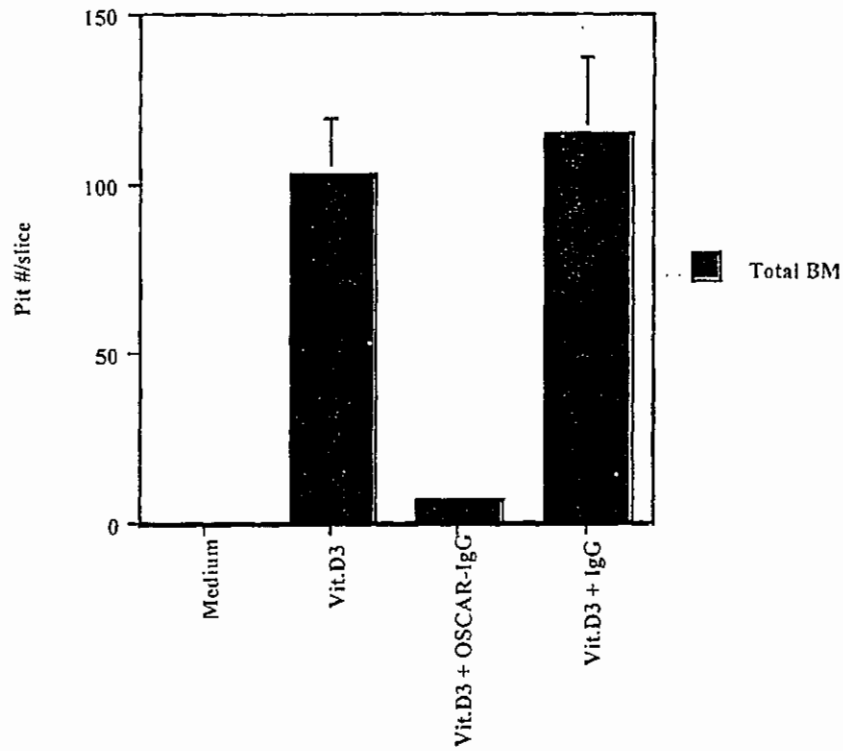

150
100
50
0
Pit #/slice
Total BM
Medium
Vit.D3
Vit.D3 + OSCAR-IgG
Vit.D3 + IgG

FIG. 17

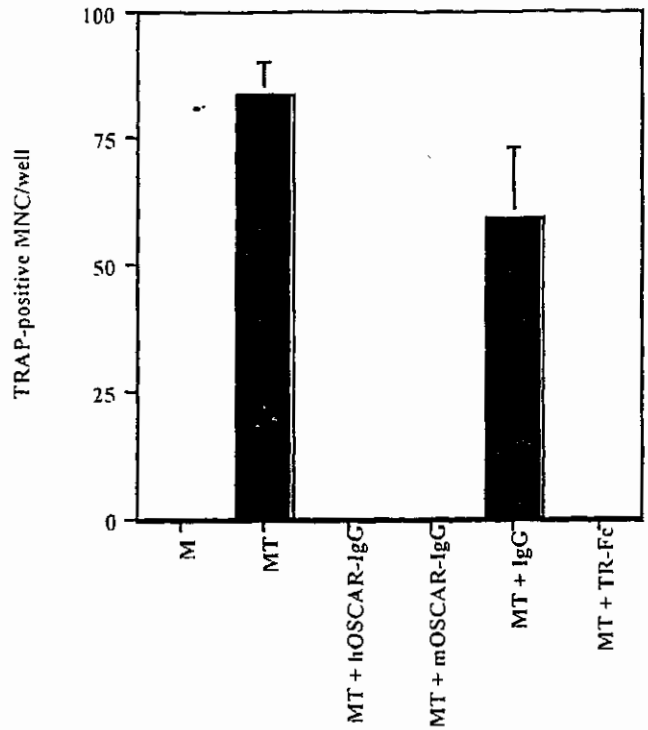


FIG. 18A

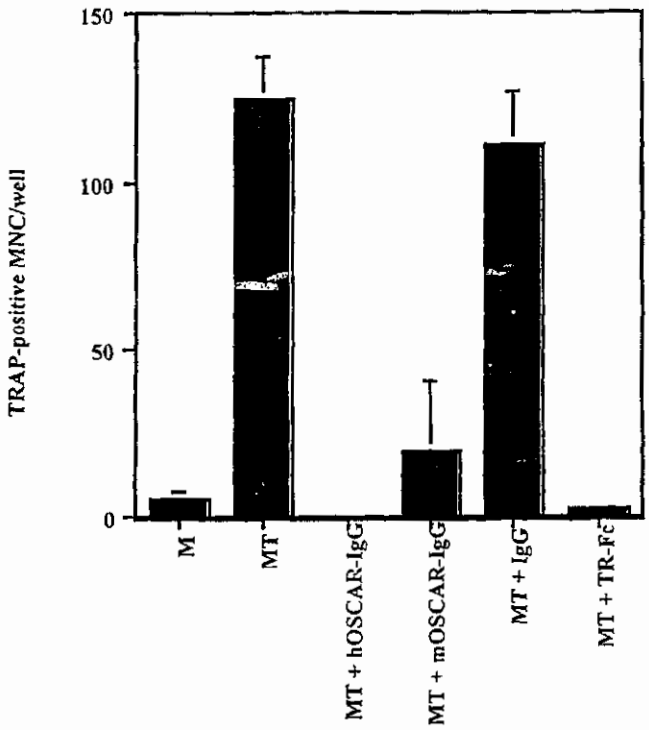


FIG. 18B

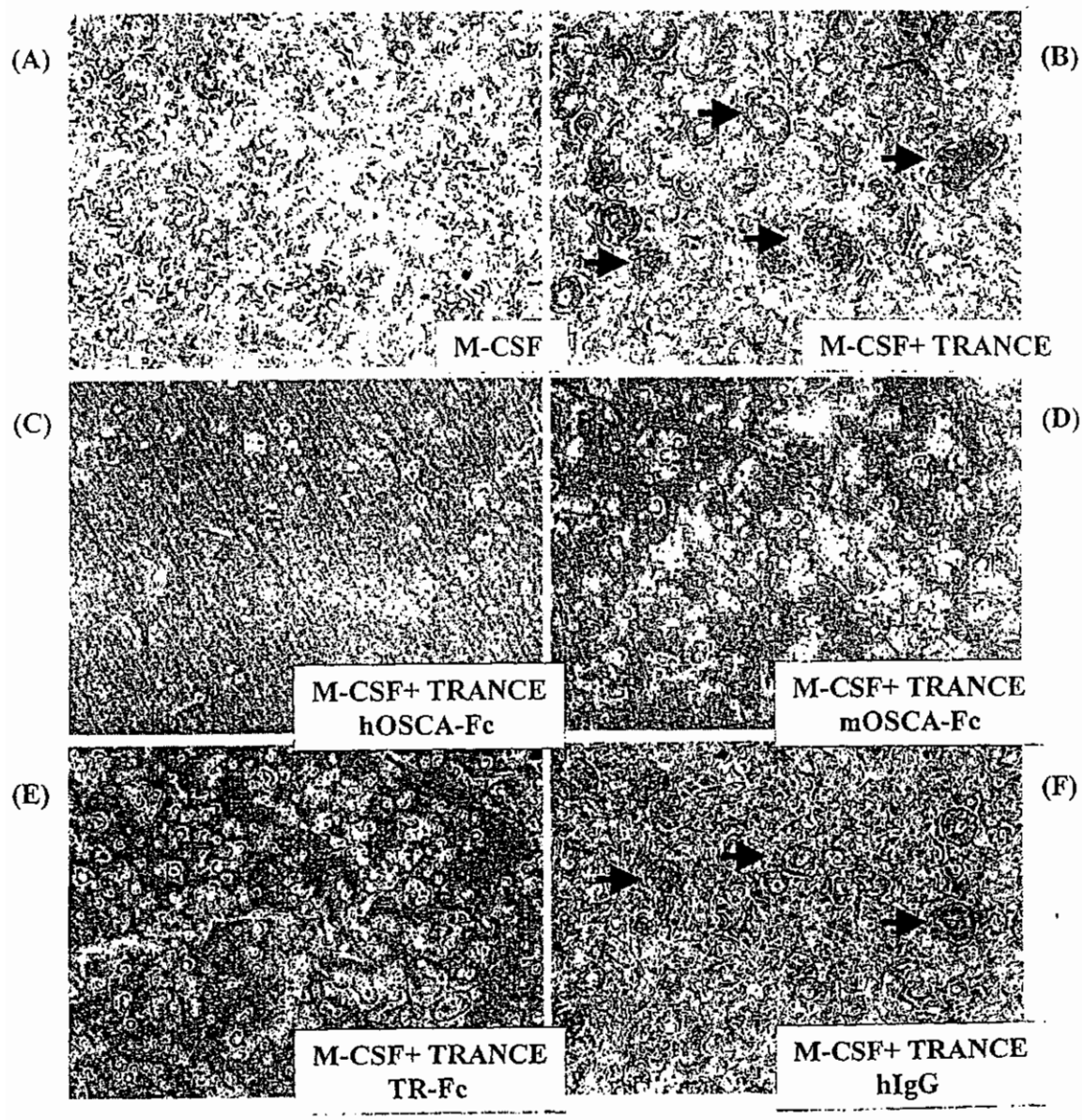

(A)
M-CSF
(B)
M-CSF+ TRANCE
(C)
M-CSF+ TRANCE
hOSCA-Fc
(D)
M-CSF+ TRANCE
mOSCA-Fc
(E)
M-CSF+ TRANCE
TR-Fc
(F)
M-CSF+ TRANCE
hIgG

FIG. 19

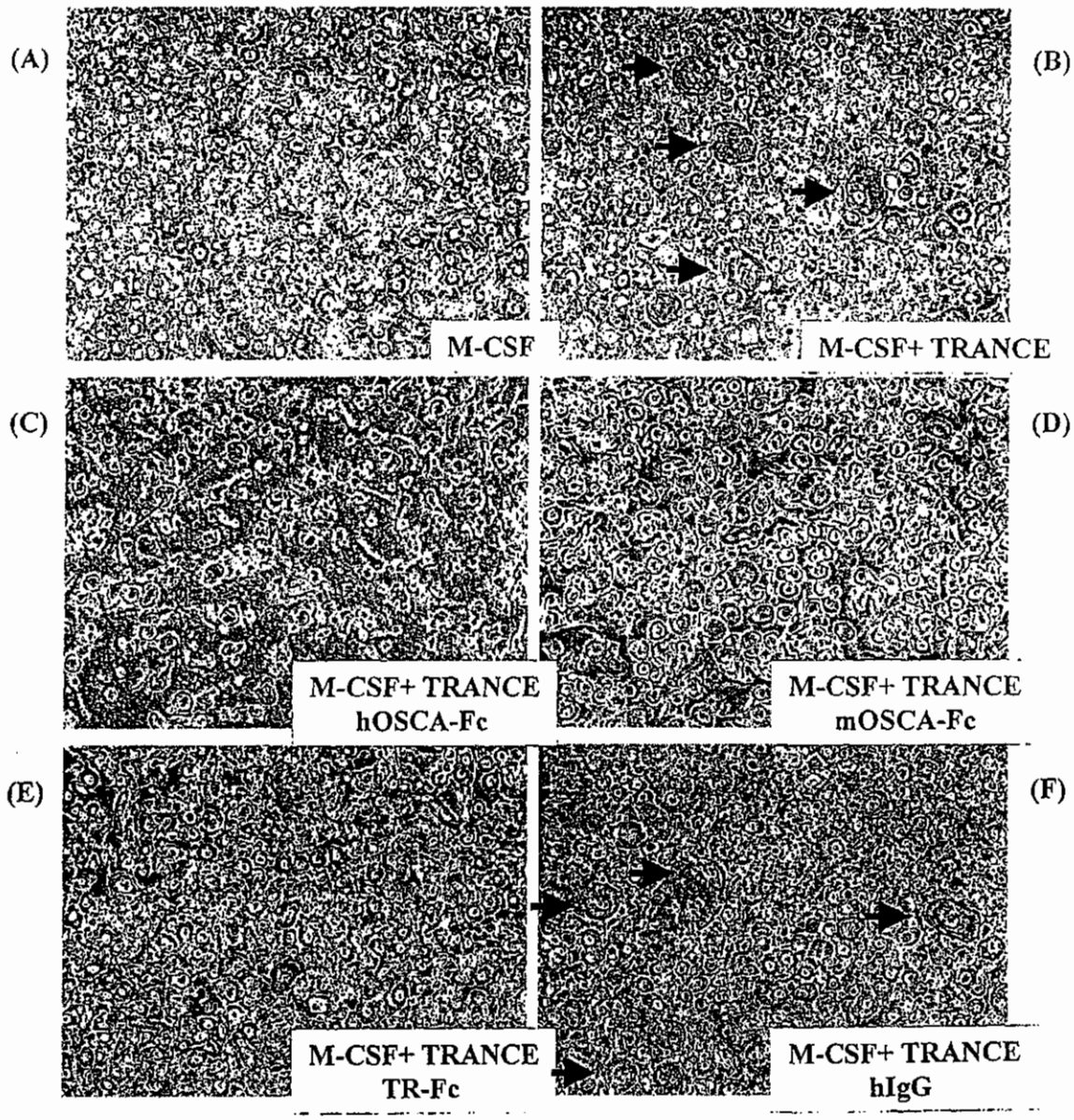

(A)
(B)
M-CSF
M-CSF+ TRANCE
(C)
(D)
M-CSF+ TRANCE
hOSCA-Fc
M-CSF+ TRANCE
mOSCA-Fc
(E)
(F)
M-CSF+ TRANCE
TR-Fc
M-CSF+ TRANCE
hIgG

FIG. 20

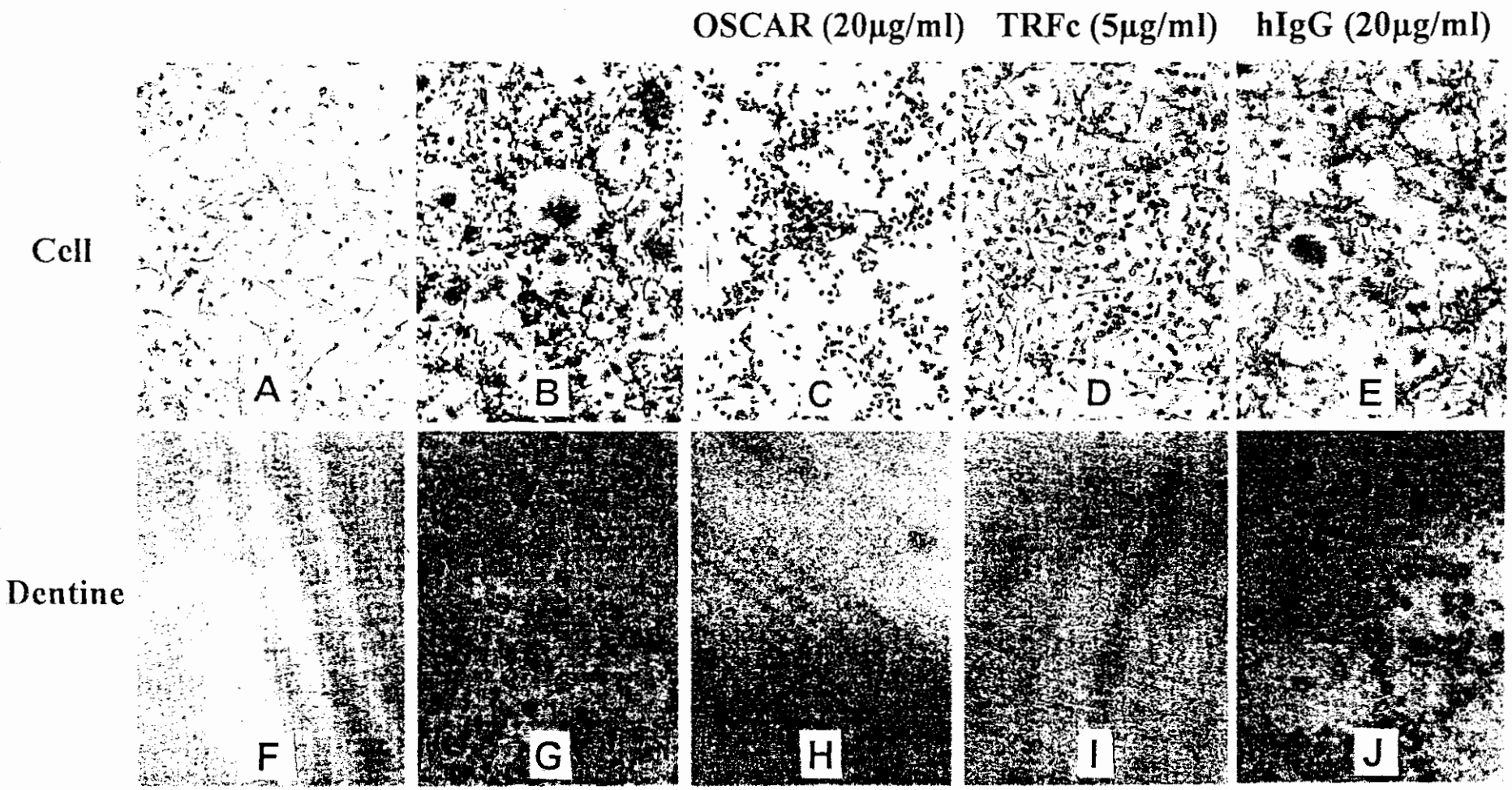

OSCAR (20μg/ml)
TRFc (5μg/ml)
hIgG (20μg/ml)
Cell
Dentine
A
B
C
D
E
F
G
H
I
J
TRANCE 0 ng/ml 200 ng/ml 200 ng/ml 200 ng/ml 200 ng/ml
M-CSF 30 ng/ml 30 ng/ml 30 ng/ml 30 ng/ml 30 ng/ml
Human Monocyte Culture (Day 3)

FIG. 21

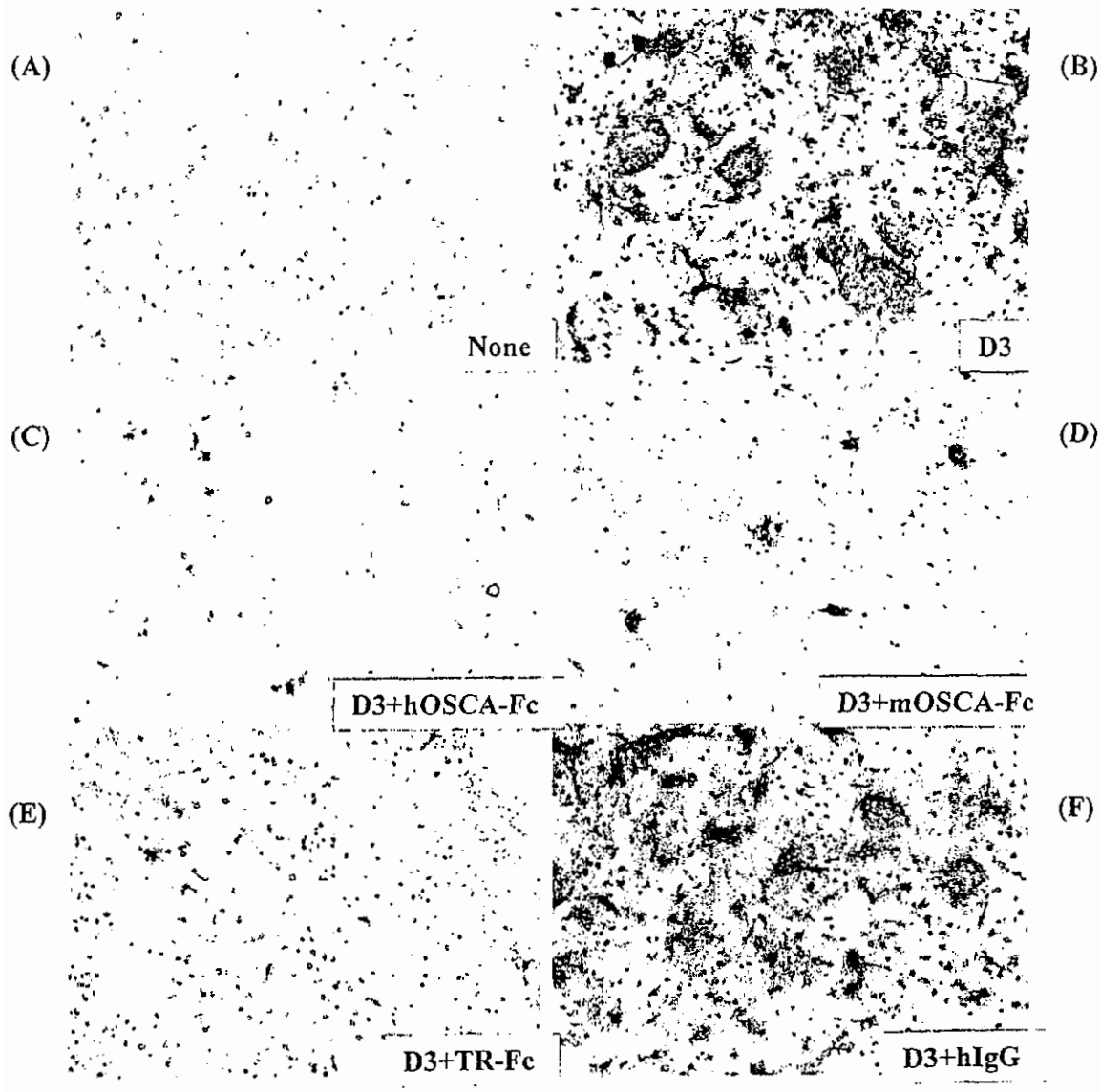


FIG. 22

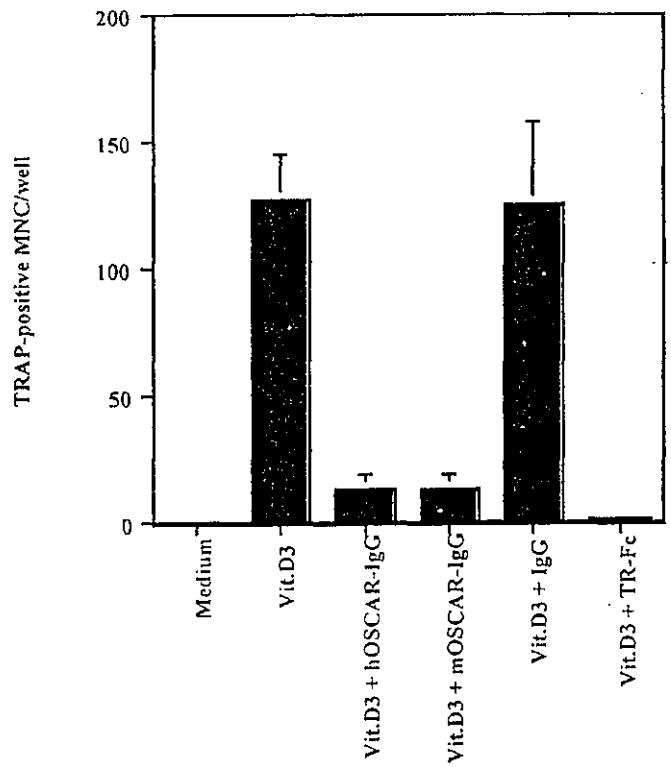

TRAP-positive MNC/well
200
150
100
50
0
Medium
Vit.D3
Vit.D3 + hOSCAR-IgG
Vit.D3 + mOSCAR-IgG
Vit.D3 + IgG
Vit.D3 + TR-Fc

FIG. 23

```
   1  CAAGCCCTGGCTCCAGCTCTAGCGGGTATCTGCCCACCATGGCCCTGGTGCTGATCCTCCAGCTGCTGACCCTCTGGCCT    80
  81  CTGTGTCACACAGACATCACTCCGTCTGTCCCCCCAGCTTCATACCACCCTAAGCCATGGCTGGGAGCTCAGCCGGCTAC   160
 161  AGTTGTGACCCCTGGGGTCAACGTGACCTTGAGATGCCGGGCACCCCAACCCGCTTGGAGATTTGGACTTTTCAAGCCTG   240
 241  GAGAGATCGCTCCCCTTCTCTTCCGGGATGTGTCCTCCGAGCTGGCAGAATTCTTTCTGGAGGAGGTGACTCCAGCCCAA   320
 321  GGGGGAAGTTACCGCTGCTGCTACCGAAGGCCAGACTGGGGGCCGGGTGTCTGGTCCCAGCCCAGCGATGTCCTGGAGCT   400
 401  GCTGGTGACAGAGGAGCTGCCGCGGCCGTCGCTGGTGGCGCTGCCCGGGCCGGTGGTGGGTCCTGGCGCCAACGTGAGCC   480
 481  TGCGCTGCGCGGGCCGCCTGCGGAACATGAGCTTCGTGCTGTACCGCGAGGGCGTGGCGGCCCCGCTGCAGTACCGCCAC   560
 561  TCCGCGCAGCCCTGGGCCGACTTCACGCTGCTGGGCGCCCGCGCCCCCGGCACCTACAGCTGCTACTATCACACGCCCTC   640
 641  CGCGCCCTACGTGCTGTCGCAGCGCAGCGAGGTGCTGGTCATCAGCTGGGAAGGTGAGGGCCCTGAGGCCCGGCCCGCCT   720
 721  CCTCCGCCCCAGGAATGCAGGCCCCAGGACCTCCGCCCTCAGACCCAGGAGCCCAGGCCCCCAGCCTCTCCTCCTTCAGA   800
 801  CCCAGGGGTCTAGTCCTGCAGCCCCTCCTCCCTCAGACCCAGGATTCCTGGGACCCAGCCCCTCCTCCCTCAGATCCAGG   880
 881  AGTCTAGTCCTCCAGCTCCTCCTCCCTCAGACCCAGGATTCCCGGGCCCCAGTACCTCCTCCCTCAGACCCAGGACTCCA   960
 961  GGCCCCCAGCCCCTCCTTCCTGGACCCAGGACTCCAGGCCCCCAGCCCCTCCTTCCTGATCCAGCAGTCCAGGCCCCAGC  1040
1041  CCCTTCTTCCTGGACCCAGGAGTTGAAGCCTCCATCGACTCCCCCTCAACTTTGAGACTGTAGAGTCAGGTCCCTAAGTC  1120
1121  CACCCCAGGGGCTGGAAACCTGGAGTTCAGGGCCCAGACTTTGGGGTCCGGGAGCTGATGGCCCCTCTCTCCCGGCTCCG  1200
1201  CCCGCAGACTCTGGCTCCTCCGACTACACCCGGGGGAACCTAGTCCGCCTGGGGCTGGCCGGGCTGGTCCTCATCTCCCT  1280
1281  GGGCGCGCTGGTCACTTTTGACTGGCGCAGTCAGAACCGCGCTCCTGCTGGTATCCGCCCCTGAGCCCCAGGAGCACTGC  1360
1361  AGCCCGAGACTTCCAACCTGAGTGGCGGAGAAGCTGGGACCCTGGGCTGGACTGTCCTTTCCTGCAGCCCCACAGTCCTG  1440
1441  CTGGCTGAGCTCCGCGGAACGGTCCTTAGACCCCGCTGTGCCCTGTGCTGTAGCTTCTTTCCAGGCCTTTCCCAAGGAGT  1520
1521  AGCTGAAAGGAAGACGCGATTAGTGGTTAAGACTTCCAAGCCAGAAGACAGAGGGTTCGAATCCCAGCACTGCCGTCTAC  1600
1601  TCACTGTAGTAGTAGCAGCTACAGAAAGGTAGTAGTGAGACGTGAAGCCAGCTGGACTTCCTGGGTTGAATGGGGACCTG  1680
1681  GAGAACTTTTCTGTCTTACAAGAGGATTGTAAAATGGACCAATCAGCACTCTGTAAGATGGACCAATCAGCGCTCTGTAA  1760
1761  AATGGACCAATCAGCAGGACATGGGCGGGGACAATAAGGGAATAAAAGCTGGCGAGCGCGGCACCCCACCAGAGTCTGCT  1840
1841  TCCACGCTGTGGGAGCTTTGTTCTCTTGCTCTACACAATAAATCTTGCTGCTGCTAA                          1897
```

FIG. 24A

```
  1  MALVLILQLLTLWPLCHTDITPSVPPASYHPKPWLGAQPATVVTPGVNVTLRCRAPQPAWRFGLFKPGEIAPLLFRDVSS   80
 81  ELAEFFLEEVTPAQGGSYRCCYRRPDWGPGVWSQPSDVLELLVTEELPRPSLVALPGPVVGPGANVSLRCAGRLRNMSFV  160
161  LYREGVAAPLQYRHSAQPWADFTLLGARAPGTYSCYYHTPSAPYVLSQRSEVLVISWEGEGPEARPASSAPGMQAPGPPP  240
241  SDPGAQAPSLSSFRPRGLVLQPLLPQTQDSWDPAPPPSDPGV                                         282
```

FIG. 24B

```
   1  ATGGCCCTGGTGCTGATCCTCCAGCTGCTGACCCTCTTCCCCCCAGCTTCATACCACCCTAAGCCATGGCTGGGAGCTCA    80
  81  GCCGGCTACAGTTGTGACCCCTGGGGTCAACGTGACCTTGAGATGCCGGGCACCCCAACCCGCTTGGAGATTTGGACTTT   160
 161  TCAAGCCTGGAGAGATCGCTCCCCTTCTCTTCCGGGATGTGTCCTCCGAGCTGGCAGAATTCTTTCTGGAGGAGGTGACT   240
 241  CCAGCCCAAGGGGGAAGTTACCGCTGCTGCTACCGAAGGCCAGACTGGGGGCCGGGTGTCTGGTCCCAGCCCAGCGATGT   320
 321  CCTGGAGCTGCTGGTGACAGAGGAGCTGCCGCGGCCGTCGCTGGTGGCGCTGCCCGGGCCGGTGGTGGGTCCTGGCGCCA   400
 401  ACGTGAGCCTGCGCTGCGCGGGCCGCCTGCGGAACATGAGCTTCGTGCTGTACCGCGAGGGCGTGGCGGCCCCGCTGCAG   480
 481  TACCGCCACTCCGGCGCAGCCCTGGGCCGACTTCACGCTGCTGGGCGCCCGCGCCCCCGGCACCTACAGCTGCTACTATCA   560
 561  CACGCCCTCCGCGCCCTACGTGCTGTCGCAGCGCAGCGAGGTGCTGGTCATCAGCTGGGAAGGTGAGGGCCCTGAGGCCC   640
 641  GGCCCGCCTCCTCCGCCCCAGGAATGCAGGCCCCAGGACCTCCGCCCTCAGACCCAGGAGCCCAGGCCCCCAGCCTCTCC   720
 721  TCCTTCAGACCCAGGGGTCTAGTCCTGCAGCCCCTCCTCCCTCAGACCCAGGATTCCTGGGACCCAGCCCCTCCTCCCTC   800
 801  AGATCCAGGAGTCTAGTCCTCCAGCTCCTCCTCCCTCAGACCCAGGATTCCCGGGCCCCAGTACCTCCTCCCTCAGACCC   880
 881  AGGACTCCAGGCCCCCAGCCCCTCCTTCCTGGACCCAGGACTCCAGGCCCCCAGCCCCTCCTTCCTGATCCAGCAGTCCA   960
 961  GGCCCCAGCCCCTTCTTCCTGGACCCAGGAGTTGAAGCCTCCATCGACTCCCCCTCAACTTTGAGACTGTAGAGTCAGGT  1040
1041  CCCTAAGTCCACCCCAGGGGCTGGAAACCTGGAGTTCAGGGCCCAGACTTTGGGGTCCGGGAGCTGATGGCCCCTCTCTC  1120
1121  CCGGCTCCGCCCGCAGACTCTGGCTCCTCCGACTACACCCGGGGGAACCTAGTCCGCCTGGGGCTGGCCGGGCTGGTCCT  1200
1201  CATCTCCCTGGGCGCGCTGGTCACTTTTGACTGGCGCAGTCAGAACCGCGCTCCTGCTGGTATCCGCCCCTGAGCCCCAG  1280
1281  GAGCACTGCAGCCCGAGACTTCCAACCTGAGTGGCGGAGAAGCTGGGACCCTGGGCTGGACTGTCCTTTCCTGCAGCCCC  1360
1361  ACAGTCCTGCTGGCTGAGCTCCGCGGAACGGTCCTTAGACCCCGCTGTGCCCTGTGCTGTAGCTTCTTTCCAGGCCTTTC  1440
1441  CCAAGGAGTAGCTGAAAGGAAGACGCGATTAGTGGTTAAGACTTCCAAGCCAGAAGACAGAGGGTTCGAATCCCAGCACT  1520
1521  GCCGTCTACTCACTGTAGTAGTAGCAGCTACAGAAAGGTAGTAGTGAGACGTGAAGCCAGCTGGACTTCCTGGGTTGAAT  1600
1601  GGGGACCTGGAGAACTTTTCTGTCTTACAAGAGGATTGTAAAATGGACCAATCAGCACTCTGTAAGATGGACCAATCAGC  1680
1681  GCTCTGTAAAATGGACCAATCAGCAGGACATGGGCGGGGACAATAAGGGAATAAAAGCTGGCGAGCGCGGCACCCCACCA  1760
1761  GAGTCTGCTTCCACGCTGTGGGAGCTTTGTTCTCTTGCTCTACACAATAAATCTTGCTGCTGCTAA                1826
```

FIG. 25A

```
   1  MALVLILQLLTLFPPASYHPKPWLGAQPATVVTPGVNVTLRCRAPQPAWRFGLFKPGEIAPLLFRDVSSELAEFFLEEVT    80
  81  PAQGGSYRCCYRRPDWGPGVWSQPSDVLELLVTEELPRPSLVALPGPVVGPGANVSLRCAGRLRNMSFVLYREGVAAPLQ   160
 161  YRHSAQPWADFTLLGARAPGTYSCYYHTPSAPYVLSQRSEVLVISWEGEGPEARPASSAPGMQAPGPPPSDPGAQAPSLS   240
 241  SFRPRGLVLQPLLPQTQDSWDPAPPPSDPGV                                                     271
```

FIG. 25B

```
   1  TCAGAGTGAAAAAGGCAGGGTCAACCTTTTCCTCAGCTCCACGGAGAGTGCCCACCATGGTCCTGTCGCTGATACTCCAG    80
  81  CTGTCGACTCTCTGTGAGCTGTCCCTCCCCTGGCCTGCATGCCGTGCTGACTTCACACCAACAGCGCCCCTAGCCTCATA   160
 161  CCCCCAGCCATGGCTGGGAGCTCATCCTGCTGCAGTTGTGACTCCTGGGATCAACGTGACCTTGACTTGCCGCGCACCTC   240
 241  AATCTGCCTGGCGGTTTGCACTCTTCAAAAGTGGCCTTGTCACCCCTCTGCTCCTCCGGGATGTGTCCGTTGAGCTGGCT   320
 321  GAGTTCTTCCTGGAAGAAGTGACTCCGGCCCAAGGGGGCAGTTATCACTGCCGCTACCGCAAGACAGACTGGGGGCCAGG   400
 401  TGTCTGGTCTCAGCCCAGTAATGTTCTGGAACTGCTGGTAACGGATCAGCTCCCCAGACCATCACTGGTGGCACTGCCTG   480
 481  GGCCTGTGGTGGCCCCGGGAGCCAACGTAAGCCTGCGCTGTGCAGGCCGCATACCGGGCATGAGTTTTGCACTGTACCGC   560
 561  GTAGGCGTGGCAACCCCTCTGCAGTATATTGACTCTGTGCAGCCCTGGGCTGACTTCCTTTTGATCGGCACACACACACC   640
 641  TGGCACCTACTGTTGCTATTACCACACGCCTTCTGCCCCCTATGTGCTATCACAGCGCAGCCAGCCACTGGTCATCAGTT   720
 721  TCGAAGGTTCTGGCTCCTTGGACTATACCCAGGGAAACCTCATCCGTTTGGGGCTGGCAGGAATGGTCCTCATCTGCTTG   800
 801  GGCATCATAGTTACTTGTGATTGGCACAGCAGGAGCTCTGCCTTTGATGGTCTCCTGCCCCAGCAAAACTGAAGAGACTG   880
 881  CCTGGAGATGGACAGAGAAGCTGGGATCCTTGGTGACCAGCCCCTCTGAAACACTCTAGGCCTCCAGACTCCACCAGATA   960
 961  CTCATTCTTCACCACACTGTCAGGCTTGTTGAAGGATTAAAGGAAGTGACTGGCCTGTGGTAAATGATGTTCAGCTAATG  1040
1041  TTAGTGACTTTATCCTCCCTTGAAAACCTCTATTTCCTTCCTGTGCCTTATTTCCGGCTCCCCACCTCTCCTTTCTTTTT  1120
1121  CTTTCTGGCCGCGTTGGGATCATAGGTTCATTCTACCACACCCAGCAAAAATTTCTAATTCCATATTTTAAGGGTAATAC  1200
1201  CCAGGCCTCAGCCGTGTGTAGAGGCAAAAAAGACAACTTCCAGGAGTTGATTTTCTCTGTCCATCCTGTAGGTCCTAGGG  1280
1281  TTTGAACTCAGGCTGCCAGGCTTAGCCACAACAACTTTACCCACTGAGCCATCTGGCTGGCTCCTAAGTAATTTATGTTT  1360
1361  TTATATATATGAATGCTTTGCCTGTATGCATGTAGGCCTCGCTCCCCAAGGAAGCCAGAAGAAGGCATCTGATCTCTTGG  1440
1441  AATTAGAGTTACAGATGGGTGTGAGCCACCATGTAGTGCTAGAAGCCCCAACCAAGGTCCTCTAGAAGAGTAGCCAGTAC  1520
1521  TCTTAACTGCTAAGCCATCTCTCCAAGGCCCCCAAATCTATAAGATTAAAGTACTCATTCTCTCTTCTCTTCCAATGTTT  1600
1601  TGGGGGTTTGTTCGTTTGTTTTTTAGTGCAATTTTTTAGTATTGAACCCAGGTCCTTCTACGTGCTAGGCAAGTACTTTA  1680
1681  CCCTGTGCTACAATCCCATCTCCCAGGTAATTTTTAAAAAATTAATCATAAATTTTTGATGTTTTGGAAACAGTCTTATT  1760
1761  CTGTAATGTAAAATGACTTGAACTTGAATAAATGTTCCTGCCTCAGCCTCTTGAATACCAAAAAAAAAAAAAA        1833
```

FIG. 26A

```
   1  MVLSLILQLSTLCELSLPWPACRADFTPTAPLASYPQPWLGAHPAAVVTPGINVTLTCRAPQSAWRFALFKSGLVTPLLL   80
  81  RDVSVELAEFFLEEVTPAQGGSYHCRYRKTDWGPGVWSQPSNVLELLVTDQLPRPSLVALPGPVVAPGANVSLRCAGRIP  160
 161  GMSFALYRVGVATPLQYIDSVQPWADFLLIGTHTPGTYCCYYHTPSAPYVLSQRSQPLVISFEGSGSLDYTQGNLIRLGL  240
 241  AGMVLICLGIIVTCDWHSRSSAFDGLLPQQN                                                    271
```

FIG. 26B

```
   1  GGCACGAGGCAACCTTTTCCTCAGCTCCACGGAGAGTGCCCACCATGGTCCTGTCGCTGATACTCCAGCTGTCGACTCTC    80
  81  TGTGAGCTGTCCCTCCCCTGGCCTGCATGCCGTGCTGACTTCACACCAACAGCGCCCCTAGCCTCATACCCCCAGCCATG   161
 161  GCTGGGAGCTCATCCTGCTGCAGTTGTGACTCCTGGGATCAACGTGACCTTGACTTGCCGCGCACCTCAATCTGCCTGGC   240
 241  GGTTTGCACTCTTCAAAAGTGGCCTTGTCACCCCTCTGCTCCTCCGGGATGTGTCCGTTGAGCTGGCTGAGTTCTTCCTG   320
 321  GAAGAAGTGACTCCGGCCCAAGGGGGCAGTTATCACTGCCGCTACCGCAAGACAGACTGGGGGCCAGGTGTCTGGTCTCA   400
 401  GCCCAGTAATGTTCTGGAACTGCTGGTAACGGATCAGCTCCCCAGACCATCACTGGTGGCACTGCCTGGGCCTGTGGTGG   480
 481  CCCCGGGAGCCAACGTAAGCCTGCGCTGTGCAGGCCGCATACCGGGCATGAGTTTTGCACTGTACCGCGTAGGCGTGGCA   560
 561  ACCCCTCTGCAGTATATTGACTCTGTGCAGCCCTGGGCTGACTTCCTTTTGATCGGCACACACACACCTGGCACCTACTG   640
 641  TTGCTATTACCACACGCCTTCTGCCCCCTATGTGCTATCACAGCGCAGCCAGCCACTGGTCATCAGTTTCGAAGGTAAGA   720
 721  AGCTCTGGCTCTCCTCCTTCAGACCCAGGCGACCAGGGGACATCAACTCCATTAAACTTAGAGACAACTCCATCTGTGTG   800
 801  TCAGAAACACAGAAAAGCAACAAGACTCTGGGATACAGAACCAACACCCTGTCTCCCTCGTTTTGGCTCGCAGGTTCTGG   880
 881  CTCCTTGGACTATACCCAGGGAAACCTCATCCGTTTGGGGCTGGCAGGAATGGTCCTCATCTGCTTGGGCATCATAGTTA   960
 961  CTTGTGATTGGCACAGCAGGAGCTCTGCCTTTGATGGTCTCCTGCCCCAGCAAAACTGAAGAGACTGCCTGGAGATGGAC  1040
1041  AGAGAAGCTGGGATCCTTGGTGACCAGCCCCTCTGAAACACTCTAGGCCTCCAGACTCCACCAGATACTCATTCTTCACC  1120
1121  ACACTGTCAGGCTTGTTGAAGGATTAAAGGAAGTGACTGGCCTGTGGTAAATGATGTTCAGCTAATGTTAGTGACTTTAT  1200
1201  CCTCCCTTGAAAACCTCTATTTCCTTCCTGTGCCTTATTTCCGGCTCCCCACCTCTCCTTTCTTTTTCTTTCTGGCCGCG  1280
1281  TTGGGATCATAGGTTCATTCTACCACACCCAGCAAAAATTTCTAATTCCATATTTTAAGGGTAATACCCAGGCCTCAGCC  1360
1361  GTGTGTAGAGGCAAAAAAGACAACTTCCAGGAGTTGATTTTCTCTGTCCATCCTGTAGGTCCTAGGGTTTGAACTCAGGC  1440
1441  TGCCAGGCTTAGCCACAACAACTTTACCCACTGAGCCATCTGGCTGGCTCCTAAGTAATTTATGTTTTTATATATATGAA  1520
1521  TGCTTTGCCTGTATGCATGTAGGCCTCGCTCCCCAAGGAAGCCAGAAGAAGGCATCTGATCTCTTGGAATTAGAGTTACA  1600
1601  GATGGGTGTGAGCCACCATGTAGTGCTAGAAGCCCCAACCAAGGTCCTCTAGAAGAGTAGCCAGTACTCTTAACTGCTAA  1680
1681  GCCATCTCTCCAAGGCCCCCAAATCTATAAGATTAAAGTACTCATTCTCTCTTCTCTTCCAATGTTTTGGGGGTTTGTTC  1760
1761  GTTTGTTTTTTAGTGCAATTTTTTAGTATTGAACCCAGGTCCTTCTACGTGCTAGGCAAGTACTTTACCCTGTGCTACAA  1840
1841  TCCCATCTCCCAGGTAATTTTTAAAAAATTAATCATAAATTTTTGATGTTTTGGAAACAGTCTTATTCTGTAATGTAAAA  1920
1921  TGACTTGAACTTGAATAAATGTTCCTGCCTCAGCAAAAAAAAAAAAAAAAAAA                              1974
```

FIG. 27A

```
   1  MVLSLILQLSTLCELSLPWPACRADFTPTAPLASYPQPWLGAHPAAVVTPGINVTLTCRAPQSAWRFALFKSGLVTPLLL    80
  81  RDVSVELAEFFLEEVTPAQGGSYHCRYRKTDWGPGVWSQPSNVLELLVTDQLPRPSLVALPGPVVAPGANVSLRCAGRIP   160
 161  GMSFALYRVGVATPLQYIDSVQPWADFLLIGTHTPGTYCCYYHTPSAPYVLSQRSQPLVISFEGKKLWLSSFRPRRPGDI   240
 241  NSIKLRDNSICVSETQKSNKTLGYRTNTLSPSFWLAGSGSLDYTQGNLIRLGLAGMVLICLGIIVTCDWHSRSSAFDGLL   320
 321  PQQN                                                                                324
```

FIG. 27B