

EXHIBIT H-19

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IN THE UNITED STATES PATENT
AND TRADEMARK OFFICE

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JUL 13 1987

GROUP 120

Application of:)	"PRODUCTION OF
FU-KUEN LIN)	ERYTHROPOIETIN"
Serial No: 675,298	)	Group Art Unit 127
Filed: November 30, 1984	)	Examiner - A. Tanenholtz

LETTER

SEE August 12, 1987

Hon. Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Attention: Official Draftsman

Sir:

Enclosed herewith are 23 sheets of formal drawings comprising Figure 5 through 21 submitted as replacements for Tables originally present in the above-identified application.

Figure 5	3 sheets replacing Table V
Figure 6	5 sheets replacing Table VI
Figure 7	1 sheet replacing Table XIV
Figure 8	1 sheet replacing Table XXI
Figure 9	1 sheet replacing Table VII
Figure 10	1 sheet replacing Table VIII
Figure 11	1 sheet replacing Table IX
Figure 12	1 sheet replacing Table X
Figure 13	1 sheet replacing Table XI
Figure 14	1 sheet replacing Table XII
Figure 15	1 sheet replacing Table XIII
Figure 16	1 sheet replacing Table XV

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- Figure 17 1 sheet replacing Table XVI
- Figure 18 1 sheet replacing Table XVII
- Figure 19 1 sheet replacing Table XVIII
- Figure 20 1 sheet replacing Table XIX
- Figure 21 1 sheet replacing Table XX

Charge any fees that may be incurred to our
 Deposit Account No. 13-2855. A duplicate copy of this sheet
 is enclosed.

Respectfully submitted,
 MARSHALL, O'TOOLE, GERSTEIN
 MURRAY & BICKNELL

By


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Chicago, Illinois
July 9, 1987

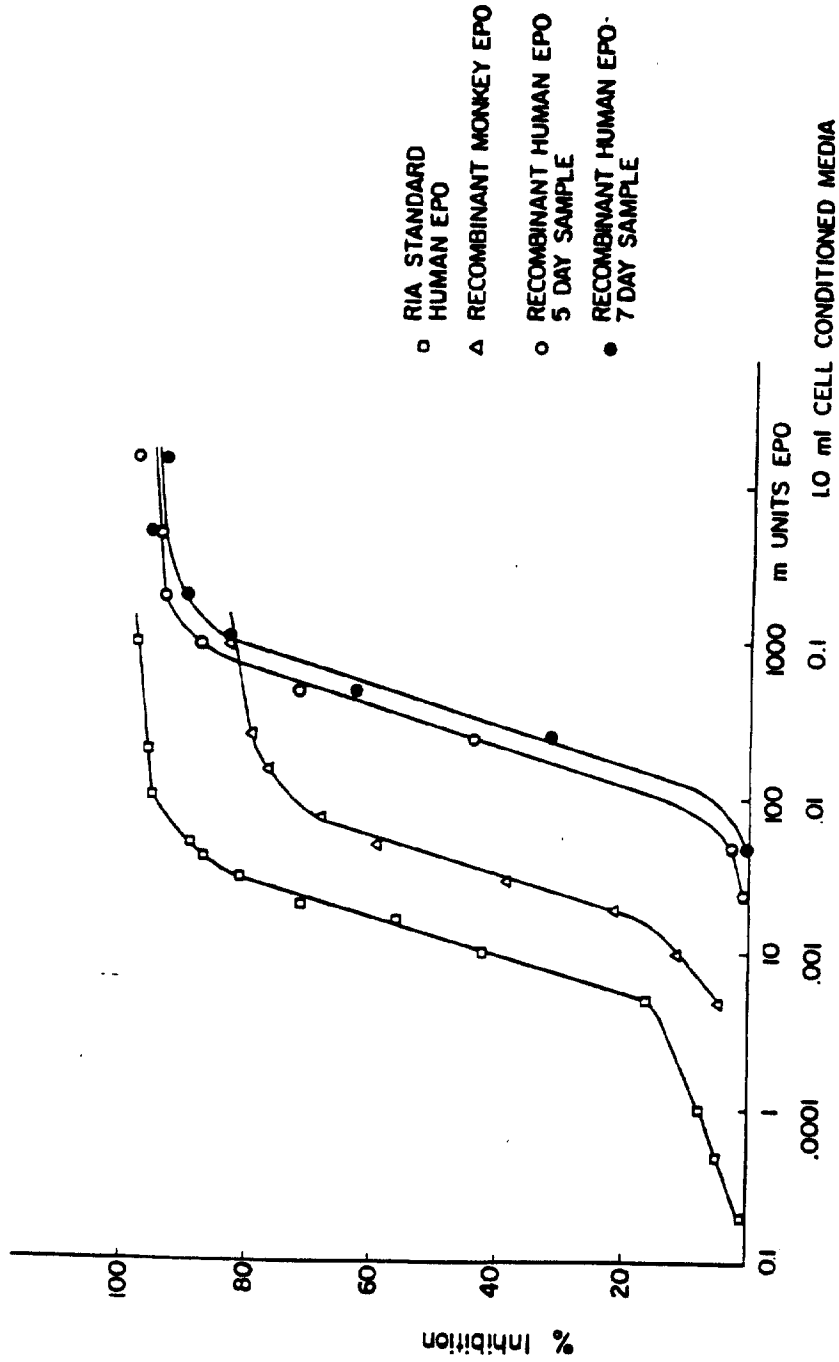
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435 240

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FIG. 1 Comparison of Recombinant Human & Monkey EPO in Radioimmunoassay



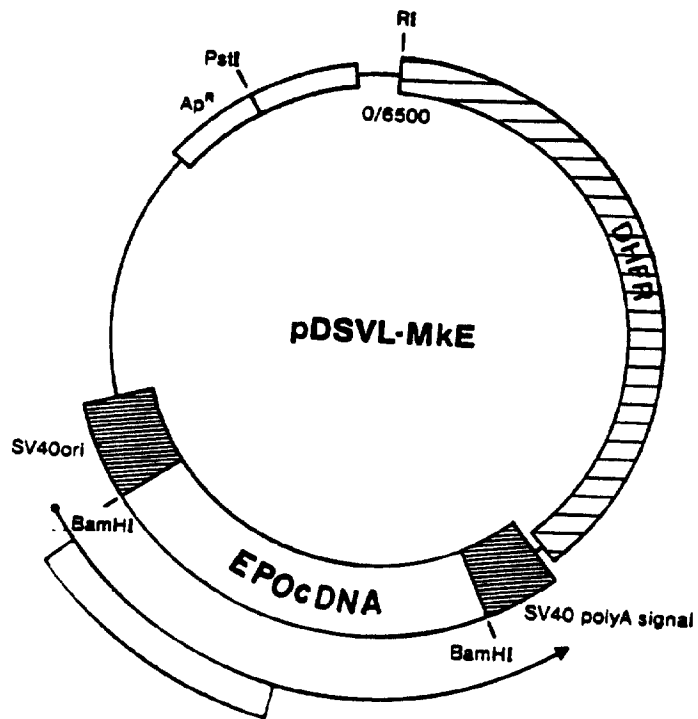
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FIG. 2



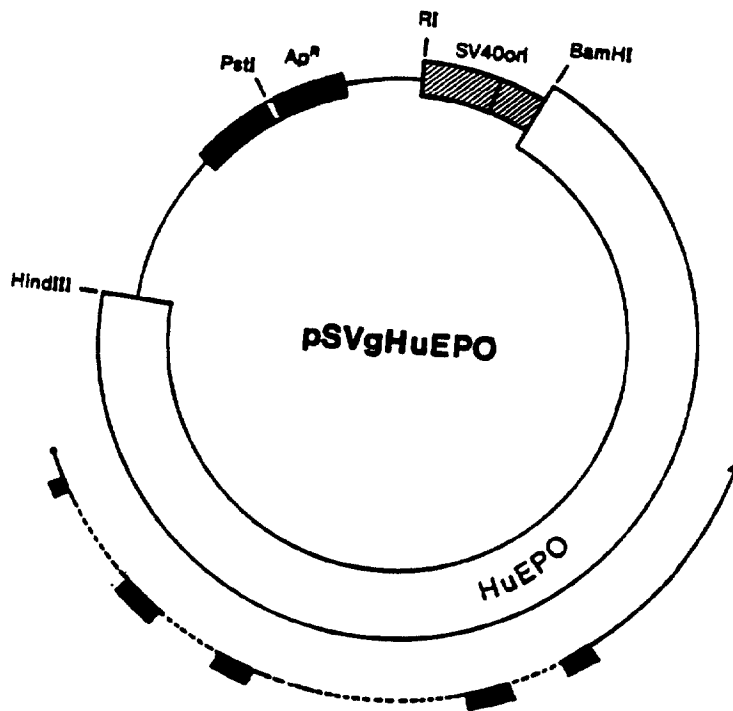
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FIG. 3



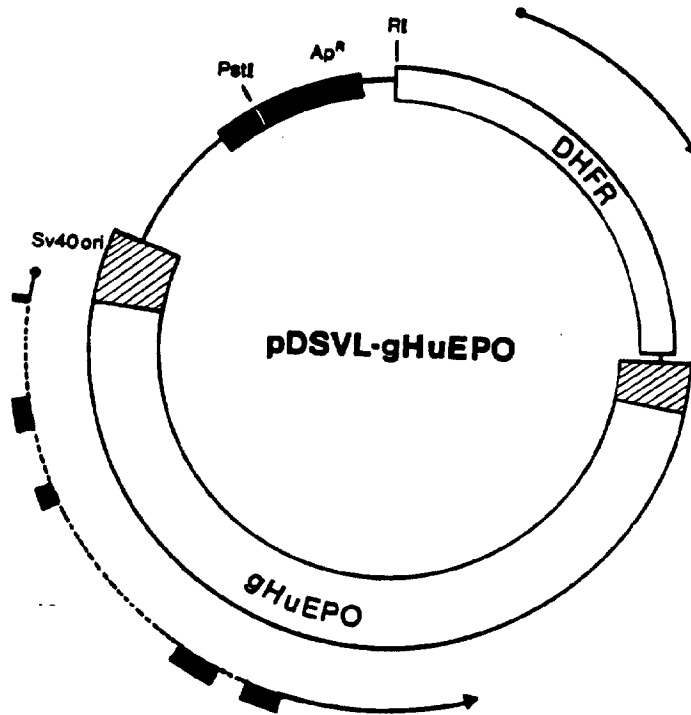
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FIG. 4



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FIG.5A

Translation of Monkey EPO cDNA

Sau3A
GATCCGGGGCCCTGGACAGCCGCCCTCCCTCCAGCCCGGTGGGGCTGGCCCTGGCC
CGCTGAACCTCCCGGATGAGGACTCCCGGTGGTACACCGCCGCTAGGICCGCTGAG

-27
Met Gly Val His Glu Cys Pro Ala Trp
GGACCCCGCCAGCCCGGAGATG GGG GTG CAC GAA TGT CCT GCC TGG

-10
Leu Trp Leu Leu Ser Leu Val Ser Leu Pro Leu Gly Leu Pro
CTG TGG CTT CTC CTG TCT CTC GTG TCG CTC CCT CTG GGC CTC CCA

-1 +1
Val Pro Gly Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu
GTC CCG GGC GCC CCA CCA CGC CTC ATC TGT GAC AGC CGA GTC CTG

20
Glu Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Val Thr Met
GAG AGG TAC CTC TTG GAG GCC AAG GAG GCC GAG AAT GTC ACG ATG

30
Gly Cys Ser Glu Ser Cys Ser Leu Asn Glu Asn Ile Thr Val Pro
GGC TGT TCC GAA AGC TGC AGC TTG AAT GAG AAT ATC ACC GTC CCA

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FIG.5B

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50
Asp Thr Lys Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly
GAC ACC AAA GTT AAC TTC TAT GCC TGG AAG AGG ATG GAG GTC GGG

60
Gln Gln Ala Val Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu
CAG CAG GCT GTA GAA GTC TGG CAG GGC CTG GCC CTG CTC TCA GAA

80
Ala Val Leu Arg Gly Gln Ala Val Leu Ala Asn Ser Ser Gln Pro
GCT GTC CTC CGG GGC CAG GCC GTG TTG GCC AAC TCT TCC CAG CCT

90
Phe Glu Pro Leu Gln Leu His Met Asp Lys Ala Ile Ser Gly Leu
TTC GAG CCC CTG CAG CTG CAC ATG GAT AAA GCC ATC AGT GGC CTT

110
Arg Ser Ile Thr Thr Leu Leu Arg Ala Leu Gly Ala Gln Glu Ala
CGC AGC ATC ACC ACT CTG CTT CGG GCG CTG GGA GCC CAG GAA GCC

120
Ile Ser Leu Pro Asp Ala Ala Ser Ala Ala Pro Leu Arg Thr Ile
ATC TCC CTC CCA GAT GCG GCC TCG GCT GCT CCA CTC CGA ACC ATC

140
Thr Ala Asp Thr Phe Cys Lys Leu Phe Arg Val Tyr Ser Asn Phe
ACT GCT GAC ACT TTC TGC AAA CTC TTC CGA GTC TAC TCC AAT TTC
    
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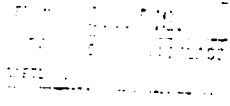
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FIG. 5C

150 Leu Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Ala Cys Arg Arg
 CTC CGG GGA AAG CTG AAG CTG TAC ACG GGG GAG GCC TGC AGG AGA
 160
 165 Gly Asp Arg OP
 GGG GAC AGA TGA CCAGGTGCGTCCAGCTGGGCACATCCACCACCTCCCTCACCACA
 CTGCCGTGCCACACCCCTCCCTCACCACCTCCGGAACCCCATCGAGGGGCTCTCAGCTAAG
 CCCCAGCCTGTCCCATGGACATCCAGTGGCCAGCAATGACATCTCAGGGCCAGAGAAC
 TGTCCAGAGCAACATCTAGATCTAAGGATGTCCAGGGCCAACTTGAGGGCCAGAGC
 AGGAAGCATTCAGAGAGCAGCTTTAARACTCAGGAGCAGAGACAATGCAGGAAACACCT
 GAGCTACTCGGCCACTGCAAAATTTGATGCAGGACACGCTTTGGAGGCAATTTACCTG
 TTTTGCACCTACCATCAGGACAGGATGACTGGAGACTTAGGTGGCAAGCTGTGACTT
 CTCAAGGCCTCACGGGCATCCCTTGGTGGCAAGAGCCCCCTTGACACTGAGAGAATA TT
 TTGCAATCTGCAGCAGGAAAATACGGACAGGTTTGGAGGTTGGAGGTACTTGACAG
 GTGTGTTGGGAAGCAGGGGCTAGGGTGGAGCTGGCATGCCAGTGCAGACCCGTTGAGAC
 AGGATGGGGCTGGCCCTCGGTTCTCGTGGGTCCAGCTT

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FIG. 6A

AAGCTTCGGGCTCCAGACCCAGCTACTTTCCGGAACTCAGCAACCCAGGCATCTCTGAGTCTCCGCCCA
AGACCGGGATGCCCCCCAGGGGAGGTGTCCGGGAGCCAGCCTTCCGAGATAGCACGCTCCGCCAGTCCC
AAGGGTCCCAACCCGGCTGCACCTCCCTCCCGGACCCAGGGCCCGGAGGACCCCAATGACCCACACCG
ACGCTGCAGCAGCCCCGCTACGCCCCCGCGAGCCTCAACCCAGGGCTCTGCCCTGCTCTGACCCCGG
GTGGCCCTACCCCTGGCGACCCCTCACGGCACACAGCCTCTCCCCACCCCAACCCGGCACGGCACATG
CAGATAACAGCCCGACCCCGCCAGAGCCGXAGAGTCCCTGGGCCACCCCGGCCGCTGCCCTGCCCTG
CGCCGCACCGGCTGTCTCCCGGAGCGGACCGGGCCACCGCCCGCCXGCTGCTCCGACACCCGGCC
CTTGGACAGCCGGCTCTCTCTAGGCCCGTGGGGCTGGCCCTGCACCCCGCAGCTTCCCGGATGAGGXX
CCCGGTGACCCGGCCGCCCAAGTGGCTGAGGGACCCCGGCCAAGCGGGAG
GTGAGTACTCGGGGCTGGGCGCTCCCGCGCGCGGGTTCCTGTTGAGCGGGGATTTAGCGCCCGGCT

-27
Met Gly Val His
ATG GGG GTG CAC G

39

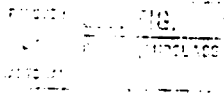
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FIG.6B

ATTGGCCAGAGGTGGCTGGTTCAAGGACCGGGGACTTGCAAGGACCCCGAAGGGGGGGTGGG
 GCAGCCTCCACCGTCCCGGGGACITGGGGGAGTCTTGGGGATGGCAAAACCTGGCCTGTTGAGGGGCA
 CAGTTTGGGGTTGGGAGGAGGTTGGGGTCTGCTGTCAGTTGTCGTTGTCAGTGTCTCG[I.S.]
 TTGCACAGCACAGATCAATAAGCCAGAGGACACCTGAGTCTTGCATGGTTGGGACAGGAGCCAG
 CTGGGGCAGAGACGTGGGGATGAAGGAGCTGCTCTCCACAGCCACCCCTTCCCCCCCCCGCCTGACTCT
 CAGCCTGGCTATCTGTTCTAG -23 -20
 Glu Cys Pro Ala Trp Leu Trp Leu Trp Leu Leu Ser Leu
 AA TGT CCT GCC TGG CTG TGG CTG TGG CTT CTC CTG TCC CTG
 -10 -1 +1
 Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Leu Gly Ala Pro Pro Arg Leu Ile Cys
 CTG TCG CTC CCT CTG GGC CTC CCA GTC CTG GGC GCC CCA CCA CGC CTC ATC TGT
 10 20
 Asp Ser Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile
 GAC AGC CGA GTC CTG GAG AGG TAC CTC TTG GAG GCC AAG GAG GCC GAG AAT ATC
 26
 Thr
 ACG GTGAGACCCCTTCCCCAGCACATCCACAGAACTCAGGCTCAGGGCTTCAGGGAAC TCC TCCAGAT
 CCAGGAACCTGGCACCITGGTTTGGGGTGGAGTTGGGAGGTAGACACTGCCCCCTTACATAAGATAAGTC

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FIG. 6C

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TGGTGGCCCAACCATACCTGAACACTAGGCAAGGCAAGCCAGCAGATCCAGCCCTGTGGCCAGGG
                27
CCAGAGCCCTCAGGGACCCCTTGACTCCCGGCTGTGTGCATTTCCAG
                30
                Thr Gly Cys Ala Glu
                ACC GGC TGT GCT GAA
                *
                40
His Cys Ser Leu Asn Glu Asn Ile Thr Val Phe Asp Thr Lys Val Asn Phe Tyr
CAC TGC AGC TTC AAT GAG AAT ATC ACT ATC GTC CCA GAC ACC AAA GTT AAT TTC TAT
                50
                Ala Trp Lys Arg Met Glu
                GCC TGG AAG AGC ATG GAG GTGAGTTCCTTTTTTTTTTTTTTTCCTTTTGGAGAACTCATT
                55
TGGCAGCCTGATTTTGGATGAAGGGAGAAATGATCGGGGAAAGGTAAATGGAGCAGCAGAGATGAGGCT
GCCTGGCCAGAGGCTCACGCTCTATAATCCAGGCTGAGATGGCCGAGATGGGAGAAATGCTTGAGCCCT
GGAGTTTCAGACCACCAACCTAGCCAGCATAGTGAGATCCCCCATCTCTACAAACATTTAAAAAATTAGTCAG
GTCGAAGTGGTGCATGGTGTAGTCCAGATATTTGGAAGGCTGAGGGGGGAGGATCGCTTGAGCCCAAGAA
TTTGAGGCTGCAGTGAGCTGTGATCACACCACCTGCACCTCCAGCCTCAGTGACAGAGTGAGGGCCCTGTCTCA
    
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U.S. PAT. & T.M. OFF. FIG. 17 CLASS

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FIG. 6D

AAAAGAAAAGAAAAGAAAATAATGAGGGCTGTATGGATACATTCATTATTCATTCACCTCACACT
 CACTCATTTCATTTCATTTCACACAGTCTTATTCATACCTTCCTGTTGGTCAGCTGGGCTTGG
 GGCTGCTGAGGGGACGAGGGGTGACATGGGTGACCTCCGACTCCAGAGTCCACTCCCTGTAG
 56 Val Gln Gln Ala Val Gln Val Trp Gln Gln Gly Leu Ala Leu Leu Ser Glu Ala
 GTC GGG CAG CAG GCC GTA GAA GTC TGG CAG GGC CTG GCC CTG CTG TCG GAA GCT 70
 Val Leu Arg Gly Gln Ala Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu 90
 GTC CTG CCG GGC CAG GCC CTG TTG GTC AAC TCT TCC CAG CCG TGG GAG CCC CTG
 Gln Leu His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu
 CAG CTG CAT GTG GAT AAA GCC GTC AGT GGC CTT CGC AGC CTC ACC ACT CTG CTT
 110 Arg Ala Leu Gly Ala Gln 115
 CCG GCT CTG GGA GCC CAG GTGAGTAGGAGGGACACTTCGCTTCCCTTCTGTAGAGGGGA
 GAAGGGTCTGTAAGGAGTACAGGAAGTGCCTGTTCCCTTCCCTTCTGTGGCAGTCCAGGACCTCCT
 116 Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala Ser Ala Ala
 GTTTCCTCTGGCAG ARG GAA GCC ATC TCC CCT CCA GAT GCG GCC TCA GCT GCT 120

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FIG. 6E

130 Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu Phe Arg Val Tyr Ser
 CCA CTC CGA ACA ATC ACT GCT GAC ACT TTC CGC AAA CTC TTC CGA GTC TAC TCC
 140
 150 Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Ala Cys Arg Thr Gly
 AAT TTC CTC CGG GGA AAG CTG AAG CTG TAC ACA GGG GAG GCC TGC AGG ACA GGG
 160
 166 Asp Arg OP
 GAC AGA TGA CCAGGTGTCTCCACCTGGGCATATCCACCACCTCCCTCACCACATTTGTTGGCCACA
 CCCTCCCCCACCCTCCTGACCCCGTCGAGGGCTCTCAGCTCAGGCCGAGCCGTGCCCATGGACACTCC
 AGTCCAGCAATGACATCTCAGGGCCAGAGCAACTGTCCAGAGCAACTCTGAGATCTAAGGATGTCAC
 AGGCCCACTTGAGGGCCAGAGCAGGAAGCATTCAGAGAGCACTTTAAACTCAGGGACAGAGCCATGC
 TGGGAGAGCCCTGAGCTCACTCGGCACCCTCGCAAAATTTGATGCCAGGACACGCTTTGGAGGGCATTAC
 CTGTTTCCACCTACCATCAGGGACAGGATGACCTGGAGACTTAGGTGGCAGCTGTGACTTCTCCAGG
 TCTCACGGGCATGGCCAC TCCC TTGGTGGCAAGAGCCCCCTTGACACGGGGTGGTGGCAACCATGAAGAC
 AXGATXGGGGCTGCCCTGCCCTCATGGGTCCAAAGTTTGTGTATTCTCAACCTATTGACAGACTGAA
 ACACAATATGAC

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CLASSIFICATION

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FIG. 7

ECEPO GENE

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          xbaI                               -1 1
          CTAG AAACCATGAG GGTAAATAAAA TAATGGCTCC GCGCGCTCTG
          TTTGGTACTC CCATTATTTT ATTACCGAGG CCGCGCAGAC

ATCTGCGACT CGAGAGTTCT GGAACGTTAC CTGCTGGAAG CTAAGAAGC
TAGACGCTGA GCTCTCAAGA CCTTGCAATG GACGACCTTC GATTTCTTC

TGAAAACATC ACCACTGGTT GTGCTGAACA CTGTTCTTTG AACGAAAACA
ACTTTTGTAG TGGTGACCAA CACGACTTGT GACAAGAAAC TTGCTTTTGT

TTACGGTACC AGACACCAAG GTTAACTTCT ACGCTTGGAA ACGTATGGAA
AATGCCATGG TCTGTGGTTC CAATTGAAGA TGCGAACCTT TGCATACCTT

GTTGGTCAAC AAGCAGTTGA AGTTTGGCAG GGTCTGGCAC TGCTGAGCGA
CAACCAGTTG TTCGTCAACT TCAAACCGTC CCAGACCGTG ACGACTCGCT

GGCTGTACTG CGTGGCCAGG CACTGCTGGT AACTCCTCT CAGCCGTGGG
CCGACATGAC GCACCGGTCC GTGACGACCA TTTGAGGAGA GTCGGCACCC

AACCGCTGCA GCTGCATGTT GACAAAGCAG TATCTGGCCT GAGATCTCTG
TTGGCGACGT CGACGTACAA CTGTTTCGTC ATAGACCGGA CTCTAGAGAC

ACTACTCTGC TGGTGCTCT GGGTGCACAG AAAGAGGCTA TCTCTCCGCC
TGATGAGACG ACGCAGGAGA CCCACGTGTC TTTCTCCGAT AGAGAGGCGG

GGATGCTGCA TCTGCTGCAC CGCTGCGTAC CATCACTGCT GATACCTTC
CCTACGACGT AGACGACGTG GCGACCGCATG GTAGTGACGA CTATGGAAGG

GCAAACTGTT TCGTGATAC TCTAACTTCC TCGGTGGTAA ACTGAAACTG
CGTTTGACAA AGCACATATG AGATTGAAGG ACGCACCATT TGACTTTGAC

TATACTGCGG AAGCATGCCG TACTGGTGAC CGCTAATAG SalI
ATATGACCGC TTCGTACGGC ATGACCACTG GCGATTATCA GCT

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FIG. 8

SCEPG GENE

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HindIII      ArgAla
ACCTTGGATA AAGAGCTCC ACCAAGATTG ATCTGTGACT CGAGAGTTTT
ACCTAT TTTCTCGAGG TGGTCTAAC TAGACACTGA GCTCTCAAAA

GGAAAGATAC TTGTTGGAAG CTAAGAAGC TGAAAACATC ACCACTGGTT
CCTTCTATG AACAACTTC GATTTCTTCG ACTTTTGTAG TGGTGACCAA

GTGCTGAACA CTGTTCTTTG AACGAAAACA TTACGGTACC AGACACCAAG
CACGACTTGT GACAAGAAAC TTGCTTTTGT AATGCCATGG TCTGTGTTT

GTTAACTTCT ACGCTTGGAA ACGTATGGAA GTTGGTCAAC AAGCTGTTGA
CAATTGAAGA TGCGAACCTT TGCATACCTT CAACCAGTTG TTCGACAACT

AGTTTGGCAA GGTTTGGCCT TGTATCTGA AGCTGTTTTG AGAGGTCAAG
TCAAACCGTT CCAAACCGGA ACAATAGACT TCGACAAAAC TCTCCAGTTT

CCTTGTGGT TAACCTTCTT CAACCATGGG AACCATTGCA ATTGCACGTC
GGAACAACCA ATTGAGAAGA GTTGGTACCC TTGGTAACGT TAACGTGCAG

GATAAAGCCG TCTCTGGTTT GAGATCTTTG ACTACTTTGT TGAGAGCTTT
CTATTTCCGC AGAGACCAA CTCTAGAAAC TGATGAAACA ACTCTCGAAA

GGGTGCTCAA AAGGAAGCCA TTTCCCACC AGACGCTGCT TGTGCCGCTC
CCCACGAGTT TTCCTTCGGT AAAGGGGTGG TCTGCCGACGA AGACGGCGAG

CATTGAGAAC CATCACTGCT GATACCTTCA GAAAGTTATT CAGAGTTTAC
GTAACCTTG GTAGTACGA CTATGGAAGT CTTCAATAA GTCTCAAATG

TCCAACCTCT TGAGAGGTAA ATTGAAGTTG TACACCGGTG AAGCCTGTAG
AGGTTGAAGA ACTCTCCATT TAACTTCAAC ATGTGGCCAC TTCGGACATC

AACTGGTGAC AGATAAGCCC GACTGATAAC AACAGTGTAG
TTGACCACTG TCTATTCGGG CTGACTATTG TTGTCACATC

ATGTAACAAA G SalI
TACATTGTTT CAGCT

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Comparison of Human and Monkey EPO Polypeptides

	-20	-10	+1	10	20	30	40
Human	MGVHECPAWLWLLLSLSPLGLPVLGAPPRLICDSRVLYLLEAKEAENITTCGAHCSLNENITVPDTK
Monkey	MGVHECPAWLWLLLSLSPLGLPVPGAPPRLICDSRVLYLLEAKEAENITTCGAHCSLNENITVPDTK	.....	.....	.....	.....	.....	.....
	50	60	70	80	90	100	110
Human	VNFYAKRMEVGGQAVEVWQGLALLSEAVLRGQALLVNSSQPWEPLQLHVDKAVSGLRSLTLLRALGAQKE	.....	.....	.....	.....	.....	.....
Monkey	VNFYAKRMEVGGQAVEVWQGLALLSEAVLRGQAVLANSSQPFEPQLHMDKATISGLRSITLLRALGAQ-E	.....	.....	.....	.....	.....	.....
	120	130	140	150	160		
Human	AISPPDAASAAPLRTITADTFRKLFRVYSNFRGKCLKLYTGEACRTGDR		
Monkey	AISLPDAASAAPLRTITADTFCKLFRVYSNFRGKCLKLYTGEACRAGDR		

FIG. 9

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ECEPO SECTION 1 OLIGONUCLEOTIDES

1. AATTCTAGAAACCATGAGGGTAATAAAATA
2. CCATTATTTTATTACCCTCATGGTTTCTAG
3. ATGGCTCCGCCGGCTGTGATCTGGAC
4. CTCGAGTCGCAGATCAGACCGCGGGAG
5. TCGAGAGTTCTGGAACGTTACCTGCTG
6. CTTCCAGCAGGTAACGTTCCAGAACT
7. GAAGCTAAAGAAGCTGAAAACATC
8. GTGGTGATGTTTTTCAGCTTCTTTAG
9. ACCACTGGTTGTGCTGAACACTGTTT
10. CAAAGAACAGTGTTCAGCACAACCA
11. TTTGAACGAAAACATTACGGTACCG
12. GATCCGGTACCGTAATGTTTTCGTT

FIG. 10

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CLASSIFICATION

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ECEPO SECTION 1

EcoRI XbaI
AATTCAG AAACCATGAG¹ GGTAATAAAA TAATGGCTCC³ GCGCGTCTG
GATC TTTGGTACTC CCATTATTTT ATTACGAGG⁴ CGGCCGACAC²

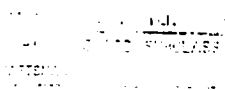
ATCTGGCAGT⁵ CGAGACTTCT⁶ GGAACGTTAC CTGCTGGAAG⁷ CTAAGAAGC
TAGACGCTGA GCTCTCAAGA⁸ CCTTGCAATG GACGACCTT⁹ GATTTCTTCG¹⁰

TGAAAACATC¹¹ ACCACTGGTT¹² GTGCTGAACA CTGTTCTTTG¹³ AACGAAACA¹⁴
ACTTTTGTAG¹⁵ TGGTCA¹⁶ CCAAC¹⁷ CACCACTTGT¹⁸ GACAAGAAAC¹⁹ TTGCTTTTGT²⁰

KpnI BamHI
TTACGGTACC G
AATGCCATGG CCTAG²¹

FIG. 11

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ECEPO SECTION 2 OLIGONUCLEOTIDES

1. AATTCGGTACCAGACACCAAGGT
2. GTTAACCTTGGTGTCTGGTACCG
3. TAAC TTCTACGCTTGGAAACGTAT
4. TTCCATACGTTTCCAAGCGTAGAA
5. GGAAGTTGGTCAACAAGCAGTTGAAGT
6. CCAAACCTTCAACTGCTTGTTGACCAAC
7. TTGGCAGGGTCTGGCACTGCTGAGCG
8. GCCTCGCTCAGCAGTGCCAGACCCTG
9. AGGCTGTACTGCGTGCCAGGCA
10. GCAGTGCCTGGCCACGCAGTACA
11. CTGCTGGTAAACTCCTCTCAGCCGT
12. TTCCCACGGCTGAGAGGAGTTACCA
13. GGGAAACCGCTGCAGCTGCATGTTGAC
14. GCTTTGTCAACATGCAGCTGCAGCGG
15. AAAGCAGTATCTGGCCTGAGATCTG
16. GATCCAGATCTCAGGCCAGATACT

FIG. 12

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ECEPO SECTION 2

EcoRI KpnI
 A ¹ATTGGTACC AGAC²CCAAG GT³AAC⁴TTC⁵ ACCT⁶TGGA ACGTAT⁷GGAA
 GCCATGG TCTGTGGTTC CANT⁸TAAGA TCCGAACCTT TGCATACCTT⁹

⁵GTGGT⁶C⁷AAC AAGCAGTTGA AGT⁸TGGCAG ⁷GGTCTGGCCAC TGCTGACCA
 CAACCA⁹GTG TTGGTCACT TC¹⁰AAC¹¹CTC CCAGACCGTG ACGACTGCT¹²

GGC⁹TGTACTG CGTGGCCAGG C¹⁰ATGGCTGGT ¹¹AACTCCTCT CAGCCGTGG
 CCG¹²ATGAC GCACCGGTCC GT¹³AC¹⁴CA¹⁵CCA TTTGAGGAGA GTCCGCACCC¹⁶

¹³AACCGT¹⁴GCA GCTGCATGTT GAC¹⁵AAAGCAG TATCTGGCCCT GAGATCTG
 TTTGGCGAGT CGACGTACAA CTGTTTCT¹⁶ ATAGACCGGA CTCTAGACCTAC

FIG. 13

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ECEPO SECTION 3

- 1. GATCCAGATCTCTGACTACTCTGC
- 2. ACGCAGCAGAGTAGTCAGAGATCTG
- 3. TGGGTGCTCTGGGTGCACAGAAAGAGG
- 4. GATAGCCTCTTTCTGTGCCACCCAGAGC
- 5. CTATCTCTCCGCCGGATGCTGCATCT
- 6. CAGCAGATGCAGCATCCGGCGGAGA
- 7. GCTGCACCGCTGCGTACCATCACTG
- 8. ATCAGCAGTGATGGTACGCAGCGGTG
- 9. CTGATACCTTCCGCAAACCTGTTTCG
- 10. ATACACGAAACAGTTTCCGGAAGGT
- 11. TGTATACTCTAACTTCTCTGCGTGGTA
- 12. CAGTTTACCACCCAGGAAGTTAGAGT
- 13. AACTGAAACTGTATAC TGGCGAAGC
- 14. GGCATGCTTCGCCAGTATACAGTTT
- 15. ATGCCGTACTGGTGACCGCTAATAG
- 16. TCGACTATTAGCGGTCACCAGTAC

FIG. 14

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ECEPO SECTION 3

BamHI BglII
GA TCCAGATCTCTG
GTCTAGAGAC

ACTACTCTGC ¹ TCGGTGCTCT ³ GGGTGCACAG AAAGAGGCTA ⁵ TCTCTCCGCC
TGATGAGACG ² ACGCAAGAGA CCCACGTGTC TTTCTCCGAT ⁴ AGAGAGGCGG

GGATGCTGCA TCT ⁷ CCTGCAC CGCTGCGTAC CATCACTGCT ⁹ GATACCTTCC
CCTACGACGT ⁶ AGACGACCTG ⁸ GCGACGCATG GTAGTGACCA CTATGGAAGG

GCAAACGTGT TCGTGTATAC ¹¹ TCTAACTTCC TGGTGGTAA ¹³ ACTGAAACTG
CGTTTGACAA ¹⁰ AGCACATATG ¹² AGATTGAAGG ACCCACCATT TGAQTTTGAC

TATACTGGCG AAGCAATGCCG ¹⁵ TACTGGTGAC CGCTAATAG SalI
ATATGACCGC ¹⁴ TTCGTACGGC ¹⁶ ATGACCACTG GCGATTATC AGCT

FIG. 15

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SCEPD SECTION 1 OLIGONUCLEOTIDES

1. AATTCAAGCTTGGATAAAAGAGCT
2. GTGGAGCTCTTTTATCCAAGCTTG
3. CCACCAAGATTGATCTGTGACTC
4. TCTCGAGTCACAGATCAATCTTG
5. GAGAGTTTTGGAAAGATACTTGTTG
6. CTTCCAACAAGTATCTTTCCAAAAC
7. GAAGCTAAAGAAGCTGAAAACATC
8. GTGGTGATGTTTTAGCTTCTTTAG
9. ACCACTGGTTGTGCTGAACACTGTTT
10. CAAAGAACAGTGTTCAGCACAACCA
11. TTTGAACGAAAACATTACGGTACCG
12. GATCCGGTACCGTAATGTTTTCGTT

FIG. 16

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SCEPO SECTION 1

EcoRI HindIII 1
AATTCA AGCTTGGATA
GT TCGAACCTAT
2

AAAGAGCTCC ACCAAGATTG ATCTGTGACT CAGAGTTTT
TTTCTCGAGG TGTTCTAAC TAGACACTGA GCTCTCAAAA
3
4

GGAAAGATAC TTGTTCAAG CTAAGAAGC TGAAAACATC ACCACTGGTT
CCTTCTATG AACAACCTTC GATTTCTTCG ACTTTTGTAG TGGTACCAA
5
6
7
8

GTGCTGAACA CTGTTCTTG AACGAAAACA TTACGGTACC G
CAGGACTTGT GACAAGAAAC TTGCTTTTGT AATGCCATGG CCTAG
9
10
11
12
KpnI BamHI

FIG. 17

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SCEPD SECTION 2 OLIGONUCLEOTIDES

1. AATTCGGTACCAGACACCAAGGT
2. GTTAACCTTGGTGTCTGGTACCG
3. TAACTTCTACGCTTGAAACGTAT
4. TTCCATACGTTTCCAAGCGTAGAA
5. GGAAGTTGGTCAACAAGCAGTTGAAGT
6. CCAAACCTCAACTGCTTGTGACCAAC
7. TTGGCAAGGTTTGGCCTTGTATCTG
8. GCTTCAGATAACAAGGCCAAACCTTG
9. AAGCTGTTTTGAGAGGTCAAGCCT
10. AACAAGGCTTGACCTCTCAAACA
11. TGTTGGTTAACTCTTCTCAACCATGGG
12. TGGTCCCATGGTTGAGAAGAGTTAACC
13. AACCATTGCAATTGCACGTCGAT
14. CTTTATCGACGTGCAATTGCAA
15. AAAGCCGTCTCTGGTTTGAGATCTG
16. GATCCAGATCTCAAACCAGAGACGG

FIG. 18

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 Washington, D.C. 20540

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SCEPO SECTION 2

EcoRI KpnI
 A ATTCGGTACC AGACACCAAG
 GCCATGG TCTGTGGTTC
 1 2

GTAACTTCT ACGCTTGAA ACGTATCGAA GTTGGTCAAC AAGCTGTTGA
 CAATTCAGAGA TGCGAACCTT TGCATACCTT CAACCAAGTTG TTCGACAAC
 3 4 5 6

AGTTGGCAA GGTTGGCCT TGTTATCTGA AGCTGTTTTG AGAGGTCAAG
 TCAAACGTT CCAAACCGGA ACAATAGACT TCGACAAAAC TCTCCAGTTC
 7 8 9 10

CCTTGTGGT TAACTCTTCT CAACCATGGG AACCATTGCA ATTGCACGTC
 GGAACAACCA ATTGAGAAGA GTTGGTACCC TTGGTAACGT TAACGTGCAG
 11 12 13 14

GATAAAGCCG TCTCTGGTTT BglII BamHI
 CTATTTCGGC AGAGACCAAA CTCTAGACCTA G
 15 16

FIG. 19

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SCEPO SECTION 3 OLIGONUCLEOTIDES

1. GATCCAGATCTTTGACTACTTTGTT
2. TCTCAACAAAGTAGTCAAAGATCTG
3. GAGAGCTTTGGGTGCTCAAAGGAAG
4. ATGGCTTCCTTTTGAGCACCCAAAGC
5. CCATTTCCCCACCAGACGCTGCTT
6. GCAGAAGCAGCGTCTGGTGGGGAA
7. CTGCCGCTCCATTGAGAACCATC
8. CAGTGATGGTTCTCAATGGAGCG
9. ACTGCTGATACCTTCAGAAAGTT
10. GAATAACTTTCTGAAGGTATCAG
11. ATTCAGAGTTTACTCCAACCTCT
12. CTCAAGAAGTTGGAGTAAACTCT
13. TGAGAGGTAATGAAGTTGTACAC
14. ACCGGTGTACAACCTTCAATTTACCT
15. CGGTGAAGCCTGTAGAACTGGT
16. CTGTCACCAGTTCTACAGGCTTC
17. GACAGATAAGCCCGACTGATAA
18. GTTGTATCAGTCGGGCTTAT
19. CAACAGTGTAGATGTAACAAAG
20. TCGACTTTGTTACATCTACACT

FIG. 20

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SCEPO SECTION 3

BamHI BglII 1
GATC CAGATCTTTG ACTACTTTGT TGAGAGCTTT
GTCTAGAAAC TGATGAAACA ACTCTCGAAA
2

3 5
GGGTGCTCAA AAGGAAGCCA TTTCCCACC AGACGCTGCT TCTGCCGCTC
CCCACGAGTT TTCCTTCGGT AAGGGGTGG TCTGCCGACGA AGACGGCGAG
4 6

7 9 11
CATTGAGAAC CATCACTGCT GATACCTTCA GAAAGTTATT CAGAGTTTAC
GTAACCTTTG GTAGTACGA CTATGGAAGT CTTTCAATAA GCTCAAATG
8 10 12

13 15
TCCAACCTCT TGAGAGGTAA ATTGAAGTTG TACACGGTG AAGCCTGTAG
AGGTTGAAGA ACTCTCCATT TAACTTCAAC ATGTGCCAC TTCGGACATC
14 16

17 19
AACTGGTAC AGATAAGCCC GACTGATAAC AACAGTGTAG
TTGACCACTG TCTATTCCGGG CTGACTATTG TTCTCACATC
18

SalI
ATGTAACAAA G
TACATTGTTT CAGCT
20

FIG. 21

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