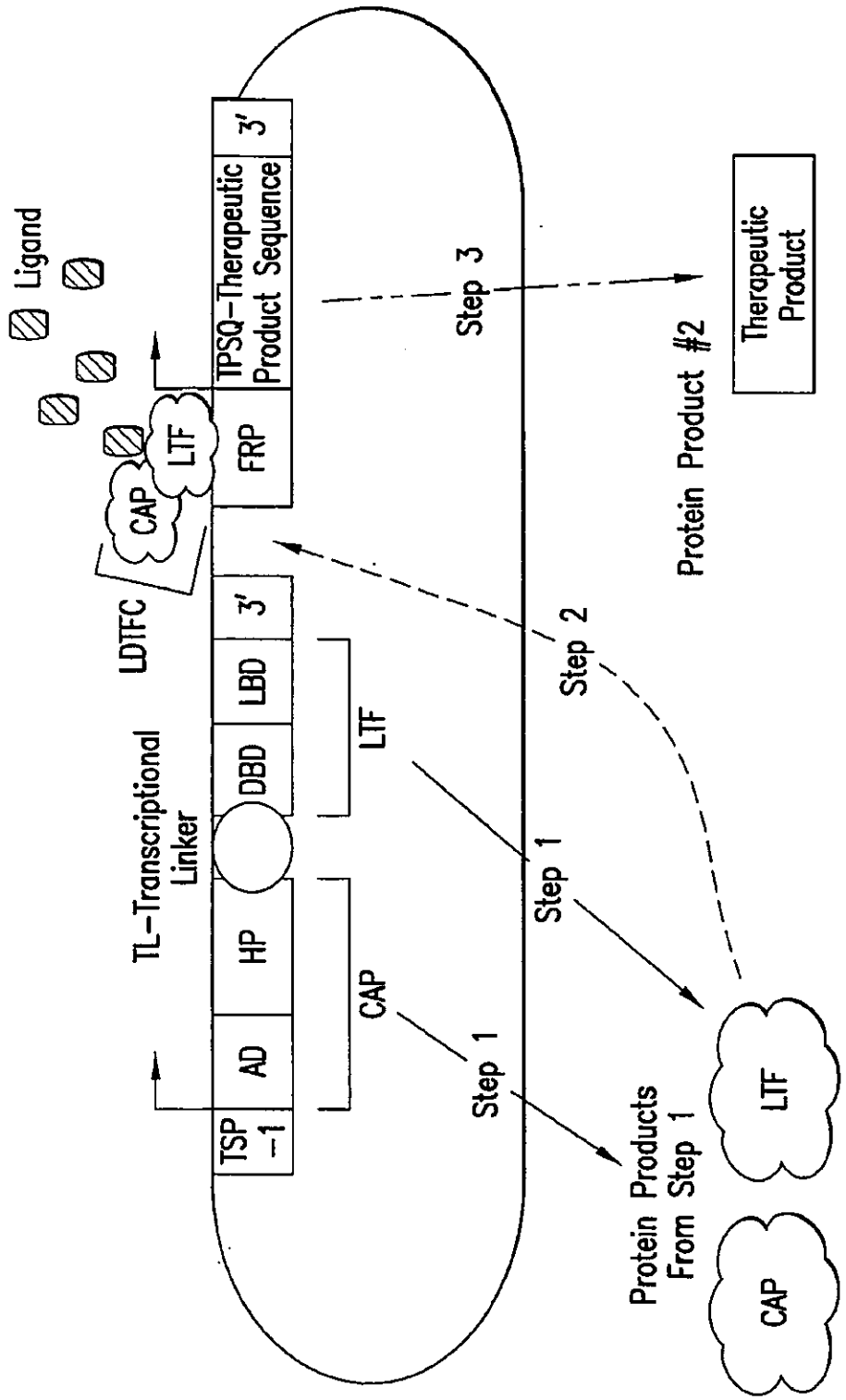

Ligand
TSP -1
AD
HP
DBD
LBD
3'
TL-Transcriptional Linker
LDTFC
CAP
LTF
FRP
TPSQ-Therapeutic Product Sequence
3'
Step 1
Step 1
Step 2
Step 3
CAP
LTF
Protein Products From Step 1
Protein Product #2
Therapeutic Product

FIG. 1

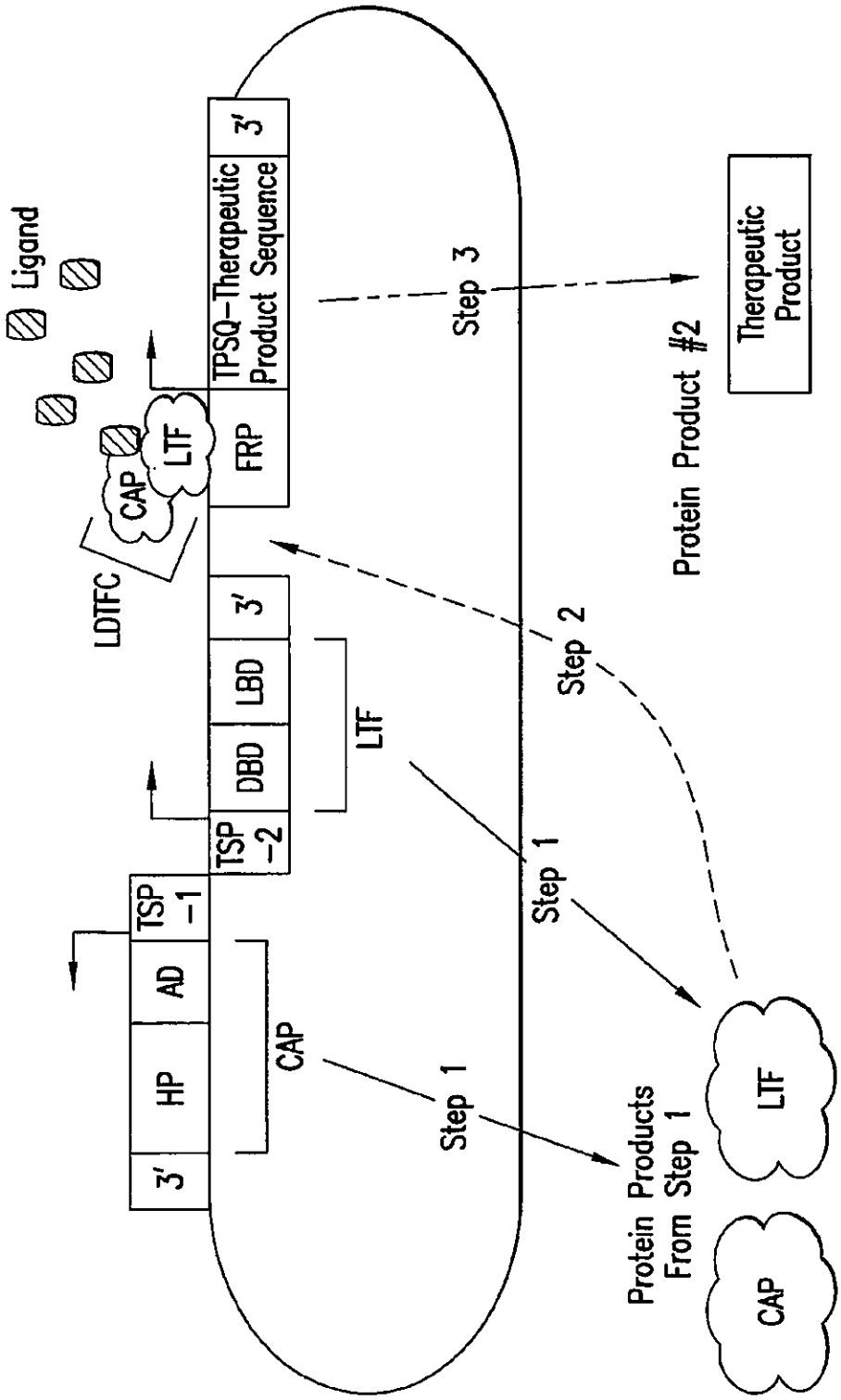

Ligand
LDTFC
CAP
LTF
FRP
TPSQ–Therapeutic Product Sequence
3'
TSP –2
DBD
LBD
3'
TSP –1
AD
HP
3'
LTF
CAP
Step 1
Step 1
Step 2
Step 3
Protein Products From Step 1
LTF
CAP
Protein Product #2
Therapeutic Product

FIG.2

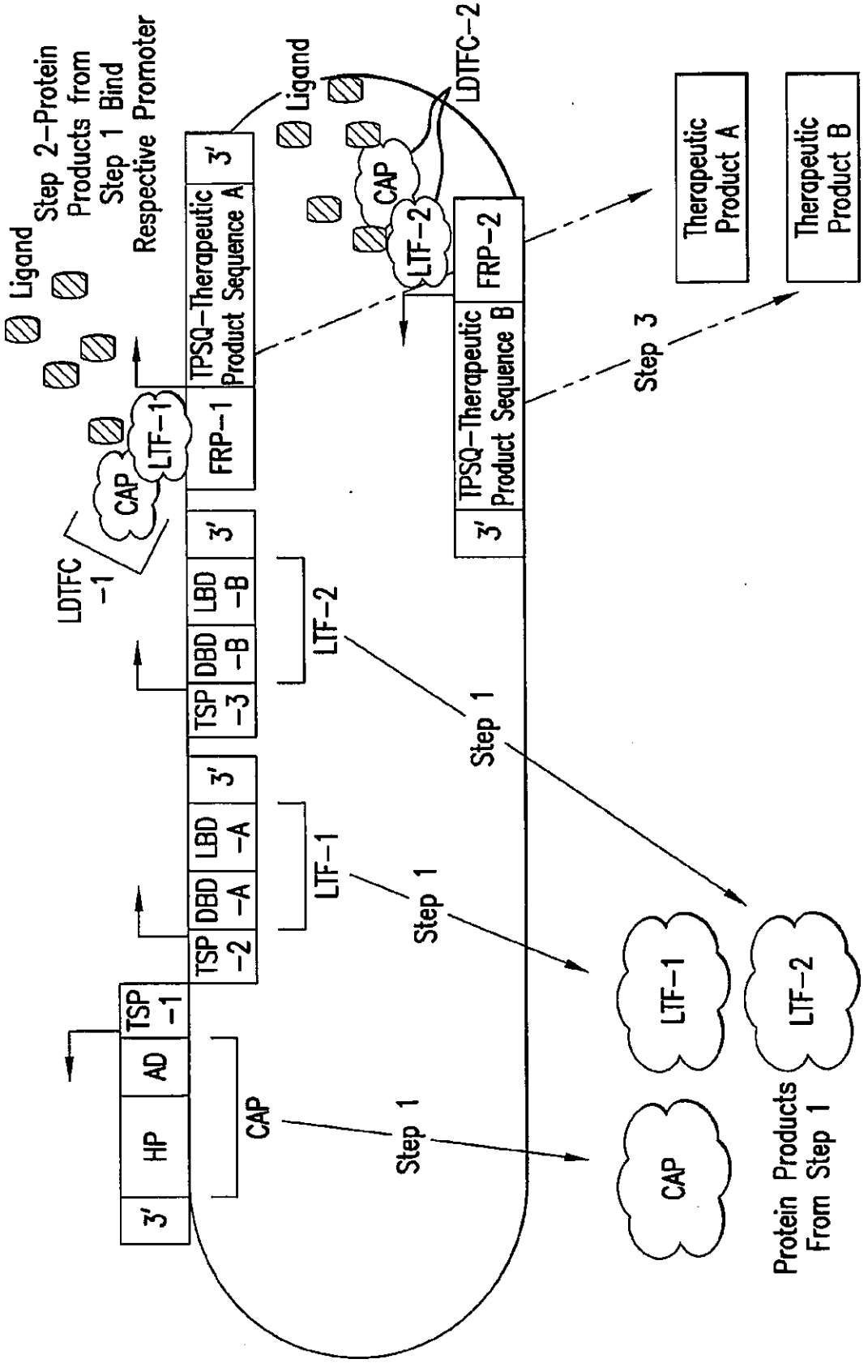

Step 2–Protein Products from Step 1 Bind Respective Promoter
Ligand
Ligand
LDTFC–2
CAP
LTF–2
FRP–2
TPSQ–Therapeutic Product Sequence A
3'
CAP
LTF–1
FRP–1
LDTFC –1
TPSQ–Therapeutic Product Sequence B
3'
Therapeutic Product A
Therapeutic Product B
Step 3
TSP –3
DBD –B
LBD –B
3'
LTF–2
Step 1
TSP –2
DBD –A
LBD –A
3'
LTF–1
Step 1
TSP –1
AD
HP
3'
CAP
Step 1
LTF–1
LTF–2
CAP
Protein Products From Step 1

FIG.3

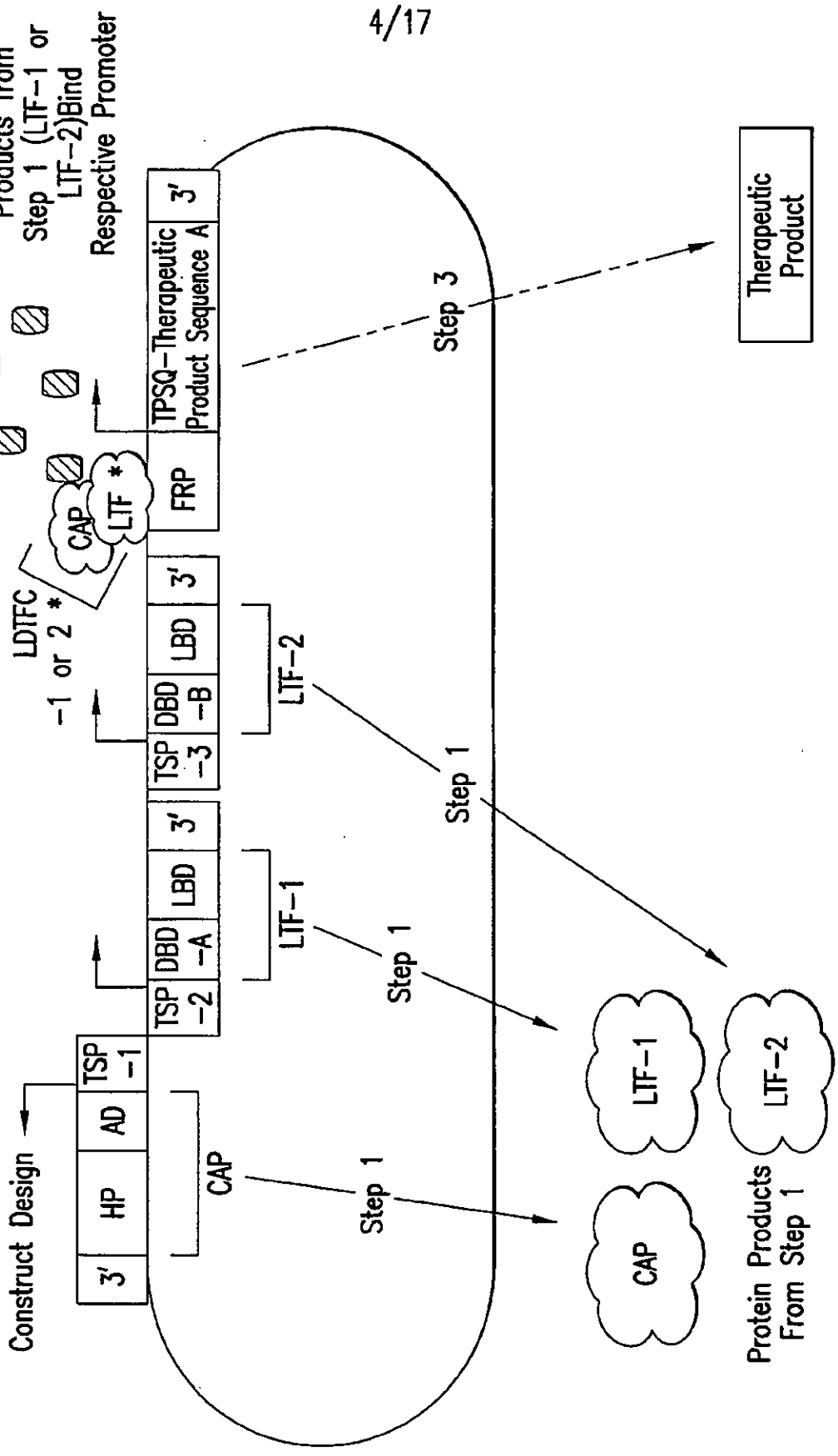

Ligand
* Step 2–Protein Products from Step 1 (LTF–1 or LTF–2)Bind Respective Promoter
TPSQ–Therapeutic Product Sequence A
3'
FRP
CAP
LTF *
LDTFC –1 or 2 *
TSP –3
DBD –B
LBD
3'
LTF–2
TSP –2
DBD –A
LBD
3'
LTF–1
TSP –1
AD
HP
3'
Construct Design
CAP
Step 1
Step 1
Step 1
Step 3
LTF–1
LTF–2
CAP
Protein Products From Step 1
Therapeutic Product

FIG.4

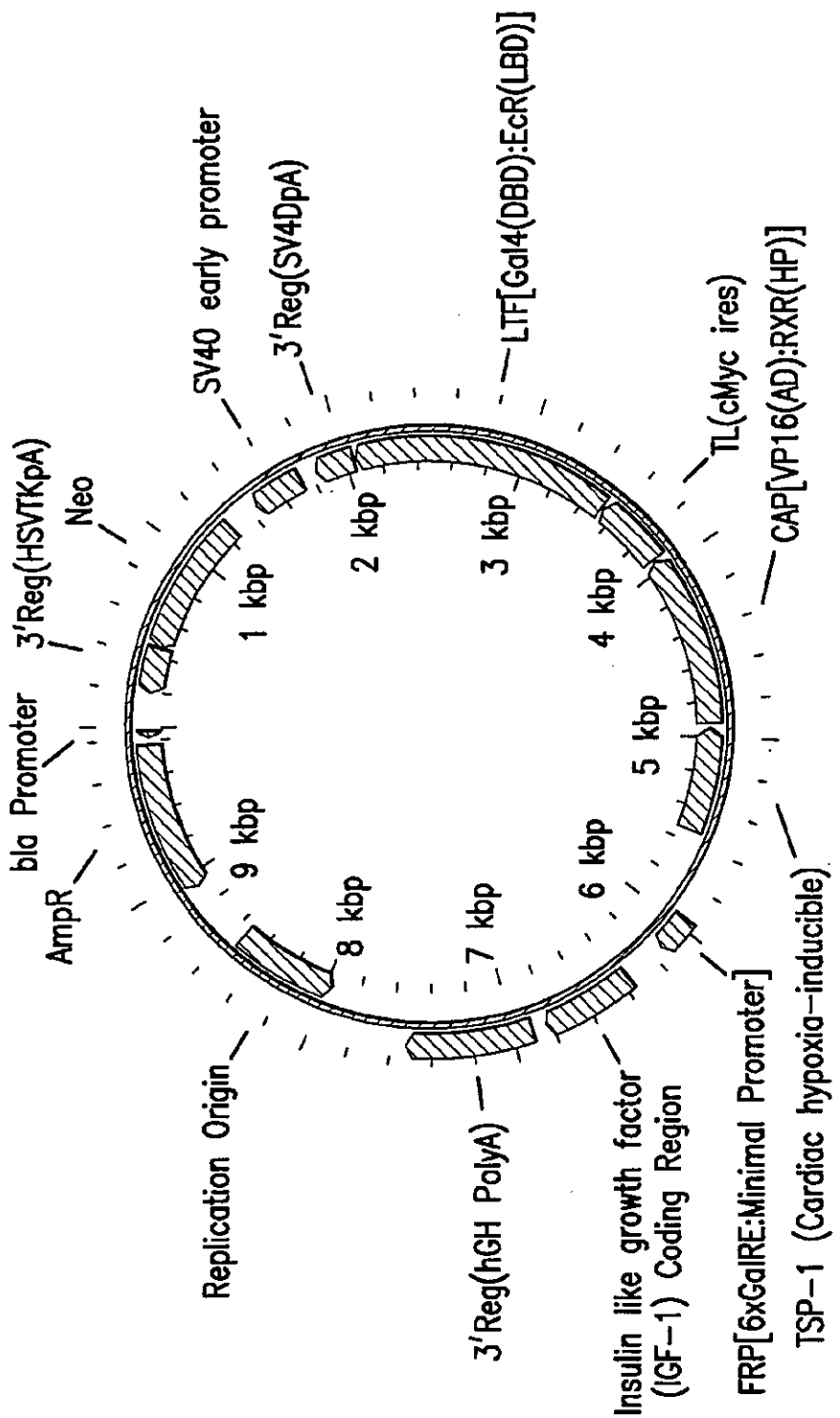

1 kbp
2 kbp
3 kbp
4 kbp
5 kbp
6 kbp
7 kbp
8 kbp
9 kbp
SV40 early promoter
3'Reg(SV40pA)
LTF[Gal4(DBD):EcR(LBD)]
TL(cMyc ires)
CAP[VP16(AD):RXR(HP)]
Sequence from (9861bp)
TSP-1 (Cardiac hypoxia-inducible)
FRP[6xGalRE:Minimal Promoter]
Insulin like growth factor (IGF-1) Coding Region
3'Reg(hGH PolyA)
Replication Origin
AmpR
bla Promoter
3'Reg(HSVTKpA)
Neo

FIG.5

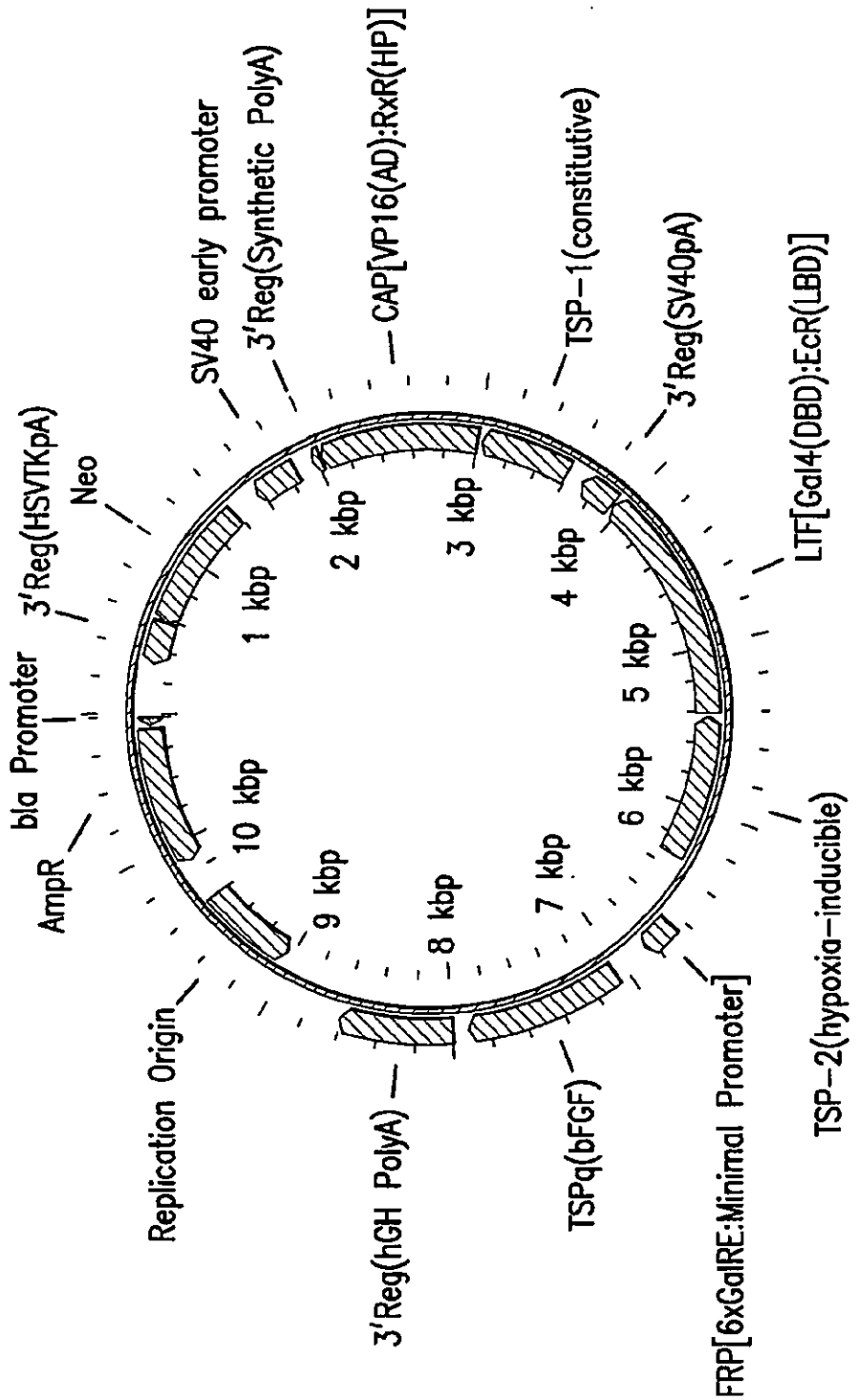

bla Promoter
AmpR
3'Reg(HSVTKpA)
Neo
SV40 early promoter
3'Reg(Synthetic PolyA)
CAP[VP16(AD):RxR(HP)]
TSP-1(constitutive)
3'Reg(SV40pA)
LTF[Gal4(DBD):EcR(LBD)]
Sequence from (10823bp)
TSP-2(hypoxia-inducible)
FRP[6xGalRE:Minimal Promoter]
TSPq(bFGF)
3'Reg(hGH PolyA)
Replication Origin
1 kbp
2 kbp
3 kbp
4 kbp
5 kbp
6 kbp
7 kbp
8 kbp
9 kbp
10 kbp

FIG.6

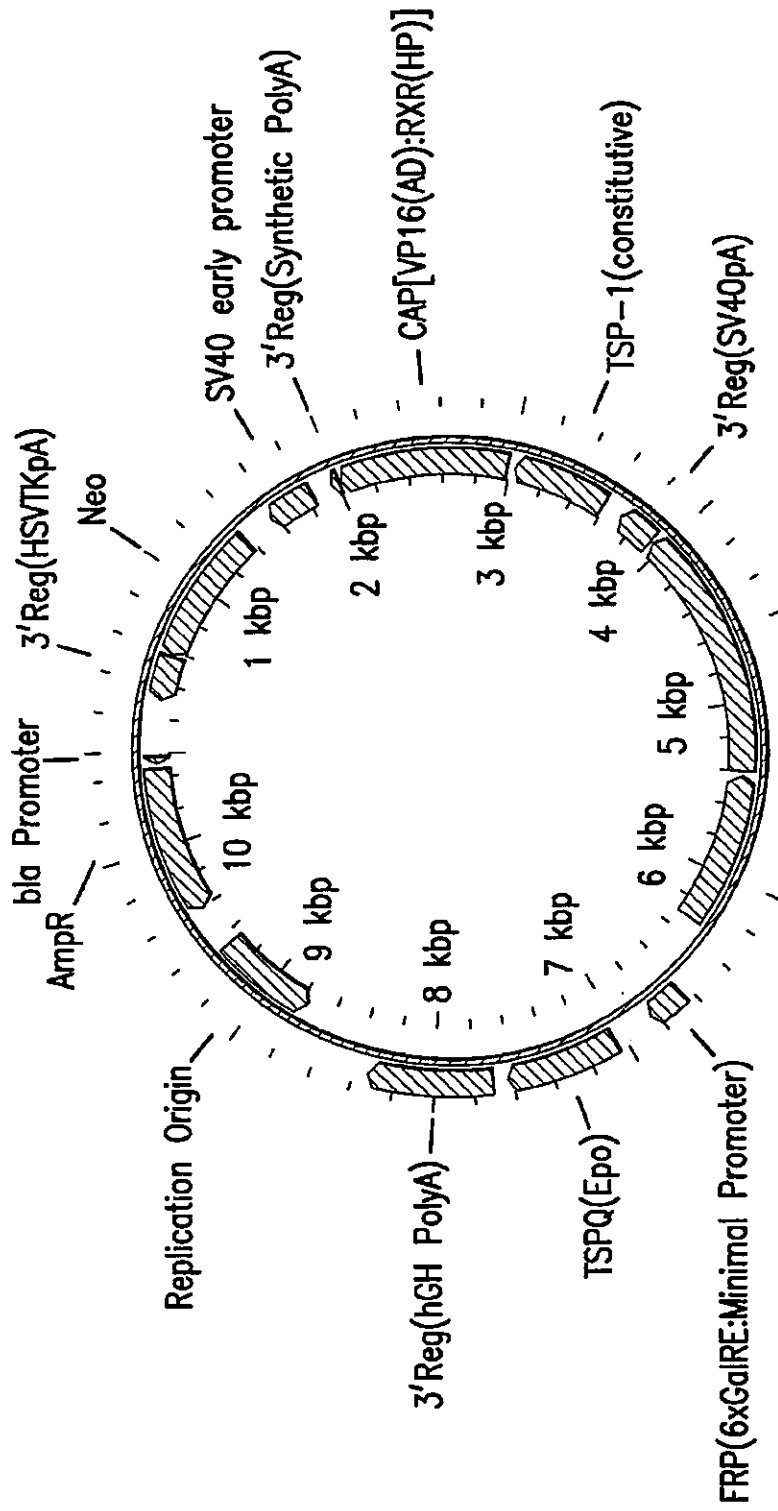

1 kbp
2 kbp
3 kbp
4 kbp
5 kbp
6 kbp
7 kbp
8 kbp
9 kbp
10 kbp
SV40 early promoter
3'Reg(Synthetic PolyA)
CAP[VP16(AD):RXR(HP)]
TSP-1(constitutive)
3'Reg(SV40pA)
LTF[Gal4(DBD):EcR(LBD)]
TSP2(Hypoxia-inducible)
FRP(6xGalRE:Minimal Promoter)
TSPQ(Epo)
3'Reg(hGH PolyA)
Replication Origin
AmpR
bla Promoter
3'Reg(HSVTKpA)
Neo
Sequence from (10538bp)

FIG.7

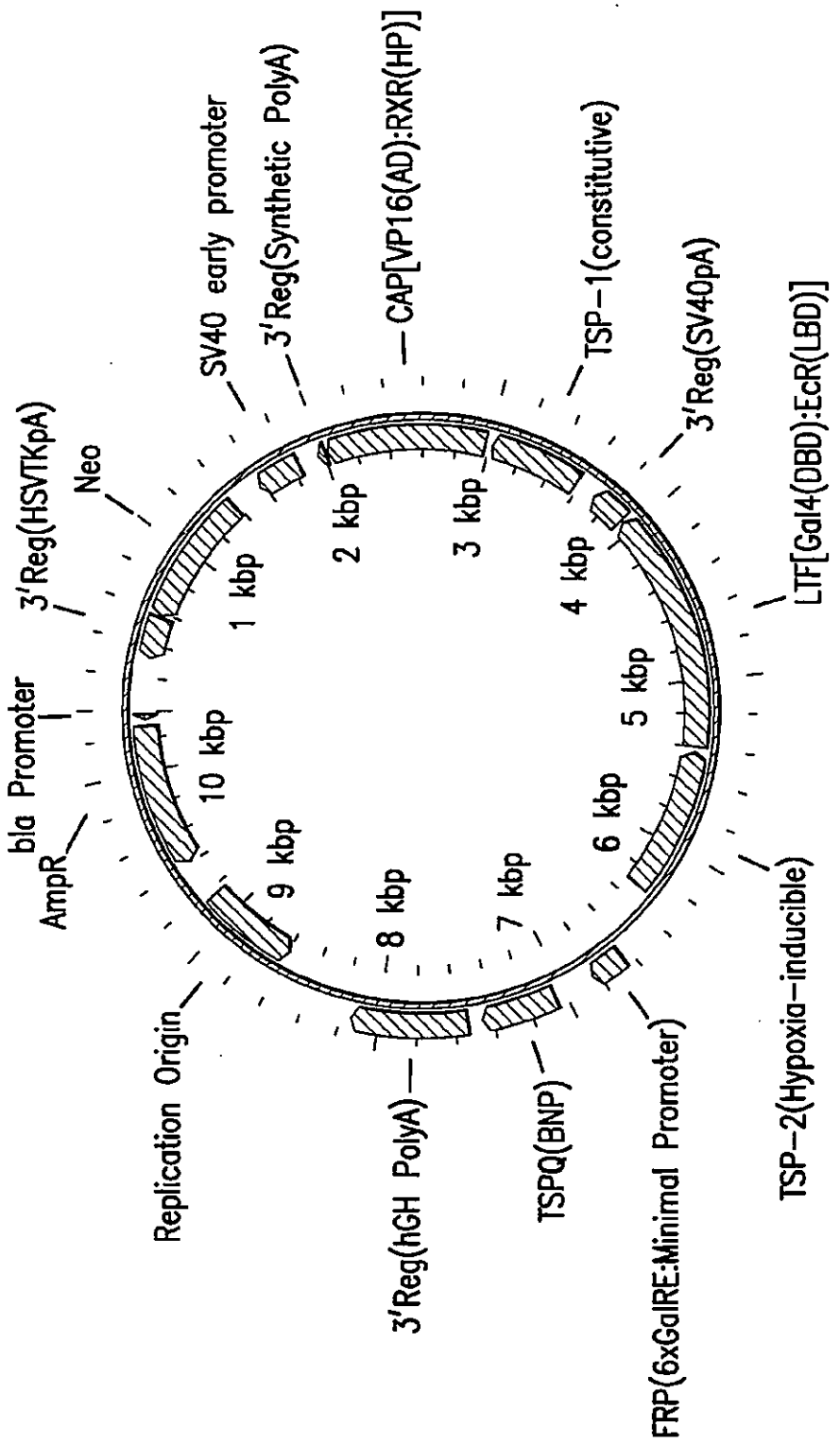

bla Promoter
AmpR
3'Reg(HSVTKpA)
Neo
SV40 early promoter
3'Reg(Synthetic PolyA)
CAP[VP16(AD):RXR(HP)]
TSP-1(constitutive)
3'Reg(SV40pA)
LTF[Gal4(DBD):EcR(LBD)]
TSP-2(Hypoxia-inducible)
FRP(6xGalRE:Minimal Promoter)
TSPQ(BNP)
3'Reg(hGH PolyA)
Replication Origin
1 kbp
2 kbp
3 kbp
4 kbp
5 kbp
6 kbp
7 kbp
8 kbp
9 kbp
10 kbp
Sequence from (10361bp)

FIG.8

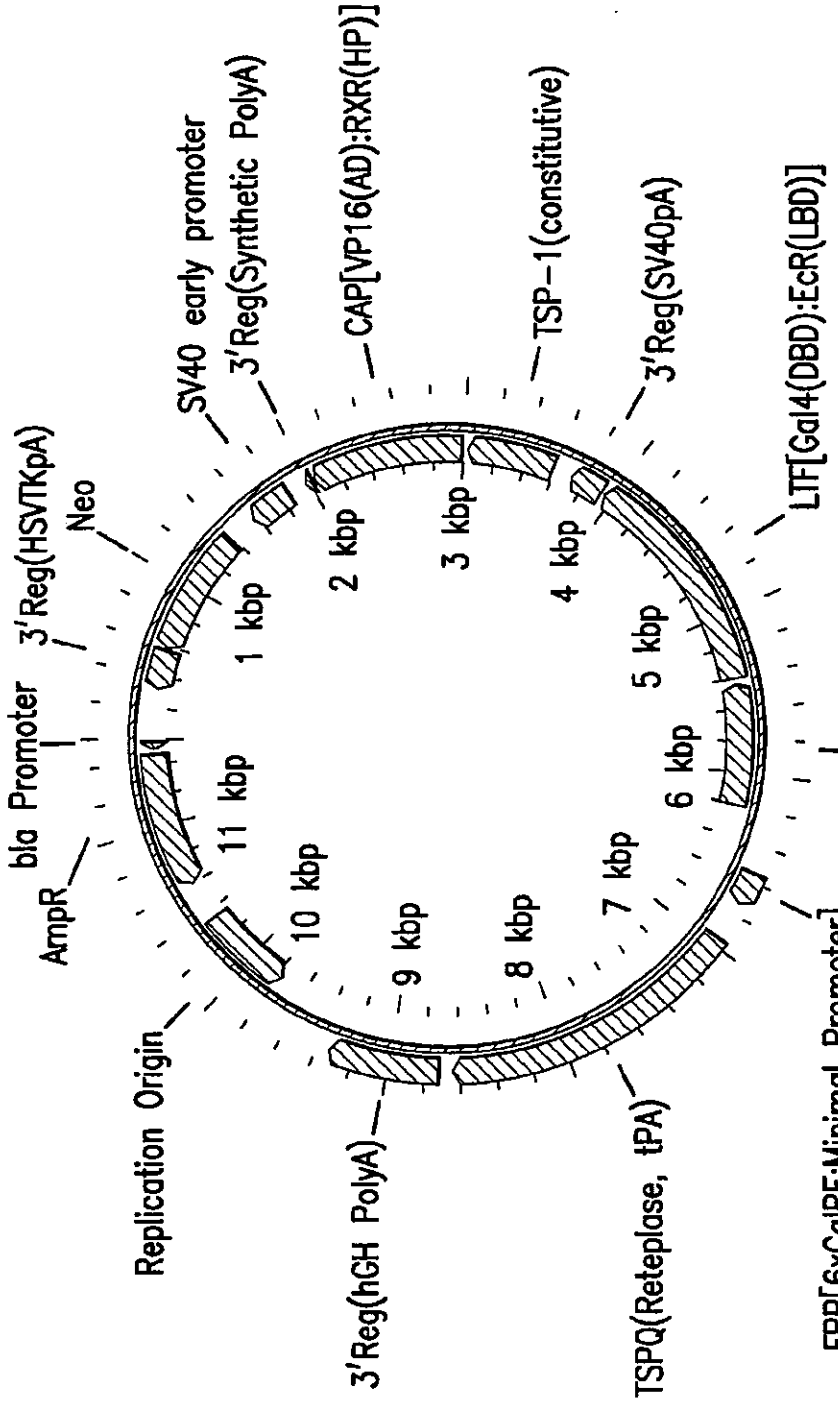

bla Promoter
AmpR
3'Reg(HSVTKpA)
Neo
SV40 early promoter
3'Reg(Synthetic PolyA)
CAP[VP16(AD):RXR(HP)]
TSP-1(constitutive)
3'Reg(SV40pA)
LTF[Gal4(DBD):EcR(LBD)]
TSP-2(hypoxia-inducible)
Sequence from (11545bp)
FRP[6xGalRE:Minimal Promoter]
TSPQ(Reteplase, tPA)
3'Reg(hGH PolyA)
Replication Origin
1 kbp
2 kbp
3 kbp
4 kbp
5 kbp
6 kbp
7 kbp
8 kbp
9 kbp
10 kbp
11 kbp

FIG.9

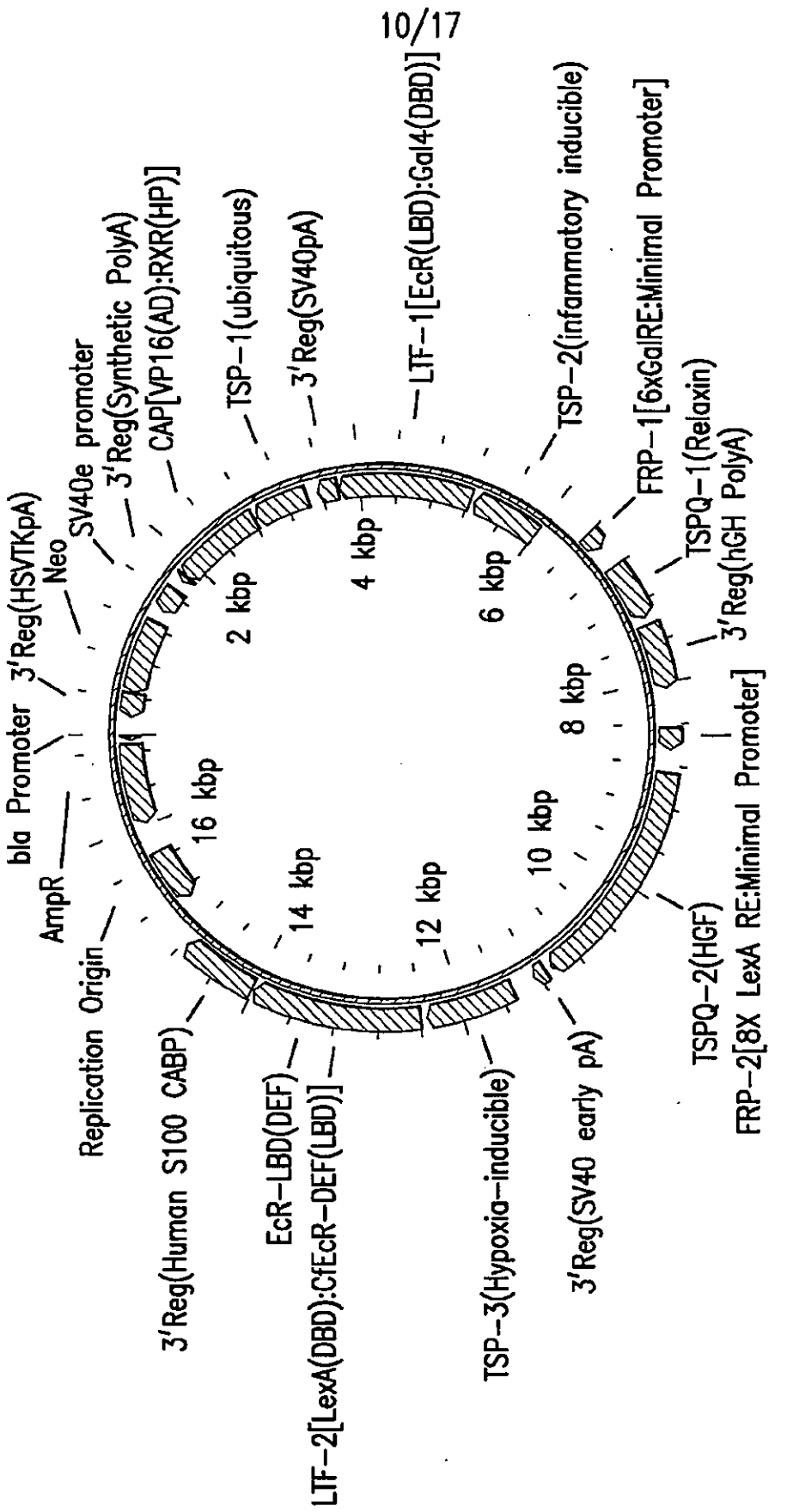

bla Promoter
AmpR
Replication Origin
3'Reg(HSVTKpA)
Neo
SV40e promoter
3'Reg(Synthetic PolyA)
CAP[VP16(AD):RXR(HP)]
TSP-1(ubiquitous
3'Reg(SV40pA)
LTF-1[EcR(LBD):Gal4(DBD)]
TSP-2(inflammatory inducible)
FRP-1[6xGalRE:Minimal Promoter]
TSPQ-1(Relaxin)
3'Reg(hGH PolyA)
TSPQ-2(HGF)
FRP-2[8X LexA RE:Minimal Promoter]
3'Reg(SV40 early pA)
TSP-3(Hypoxia-inducible)
LTF-2[LexA(DBD):CfEcR-DEF(LBD)]
EcR-LBD(DEF)
3'Reg(Human S100 CABP)
2 kbp
4 kbp
6 kbp
8 kbp
10 kbp
12 kbp
14 kbp
16 kbp
Sequence from (16979bp)

FIG.10

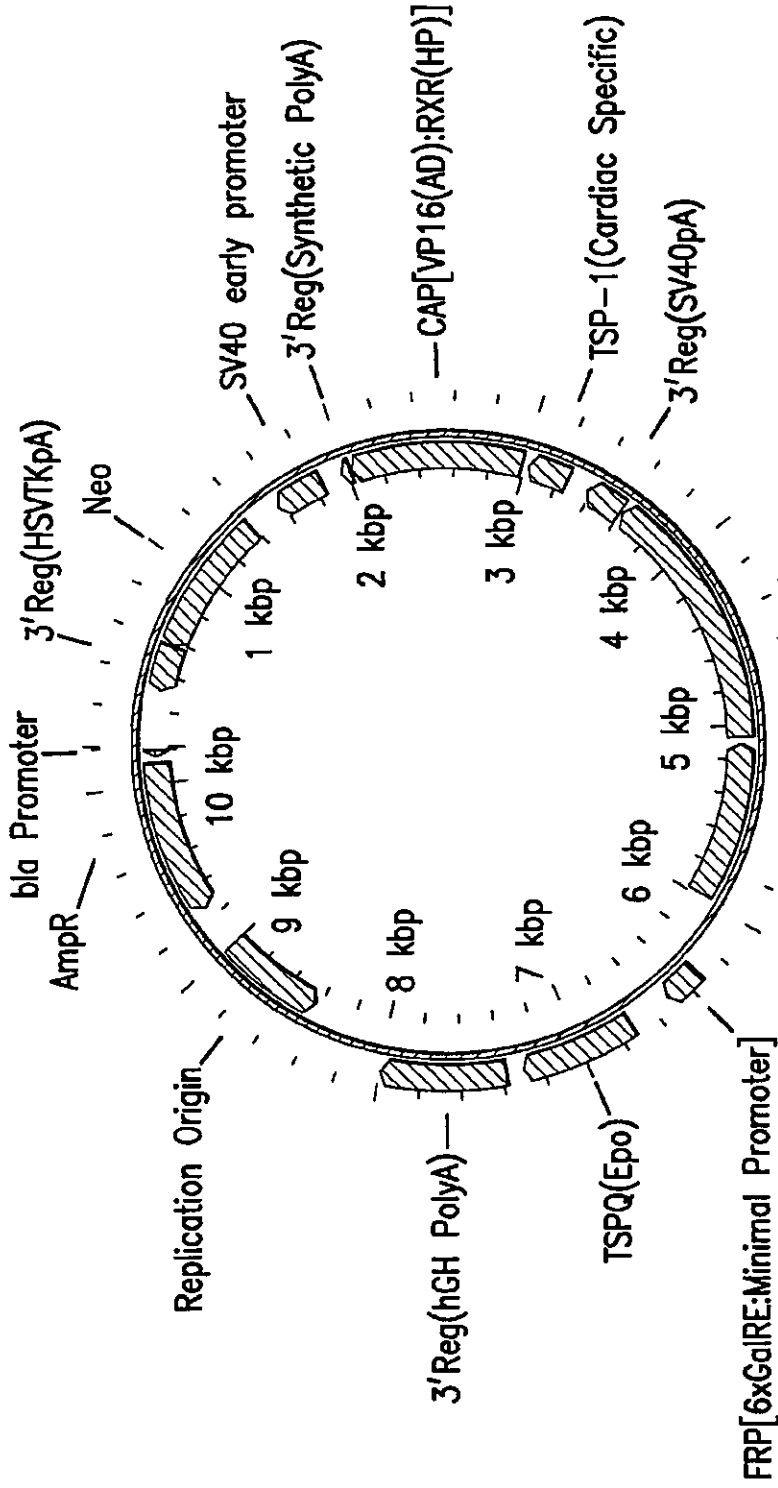

bla Promoter
AmpR
3'Reg(HSVTKpA)
Neo
SV40 early promoter
3'Reg(Synthetic PolyA)
CAP[VP16(AD):RXR(HP)]
TSP-1(Cardiac Specific)
3'Reg(SV40pA)
LTF[Gal4(DBD):EcR(LBD)]
Sequence from (10207bp)
TSP-2(ischemic,inducible)
FRP[6xGalRE:Minimal Promoter]
TSPQ(Epo)
3'Reg(hGH PolyA)
Replication Origin
1 kbp
2 kbp
3 kbp
4 kbp
5 kbp
6 kbp
7 kbp
8 kbp
9 kbp
10 kbp

FIG. 11

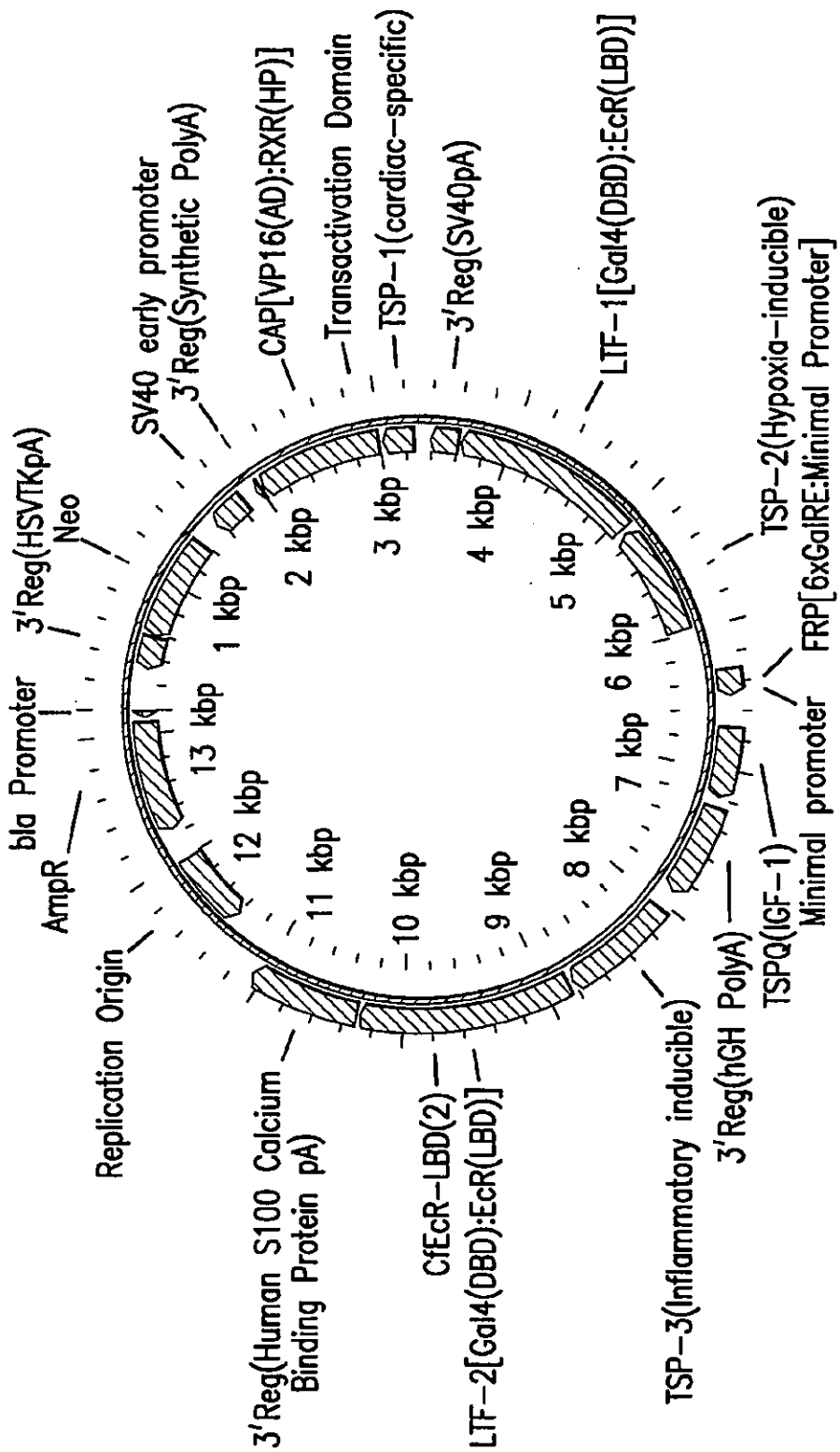

bla Promoter
AmpR
Replication Origin
3'Reg(HSVTKpA)
Neo
SV40 early promoter
3'Reg(Synthetic PolyA)
CAP[VP16(AD):RXR(HP)]
Transactivation Domain
TSP-1(cardiac-specific)
3'Reg(SV40pA)
LTF-1[Gal4(DBD):EcR(LBD)]
TSP-2(Hypoxia-inducible)
FRP[6xGalRE:Minimal Promoter]
Minimal promoter
TSPQ(IGF-1)
3'Reg(hGH PolyA)
TSP-3(Inflammatory inducible)
CfEcR-LBD(2)
LTF-2[Gal4(DBD):EcR(LBD)]
3'Reg(Human S100 Calcium Binding Protein pA)
1 kbp
2 kbp
3 kbp
4 kbp
5 kbp
6 kbp
7 kbp
8 kbp
9 kbp
10 kbp
11 kbp
12 kbp
13 kbp
Sequence from (13188bp)

FIG. 12

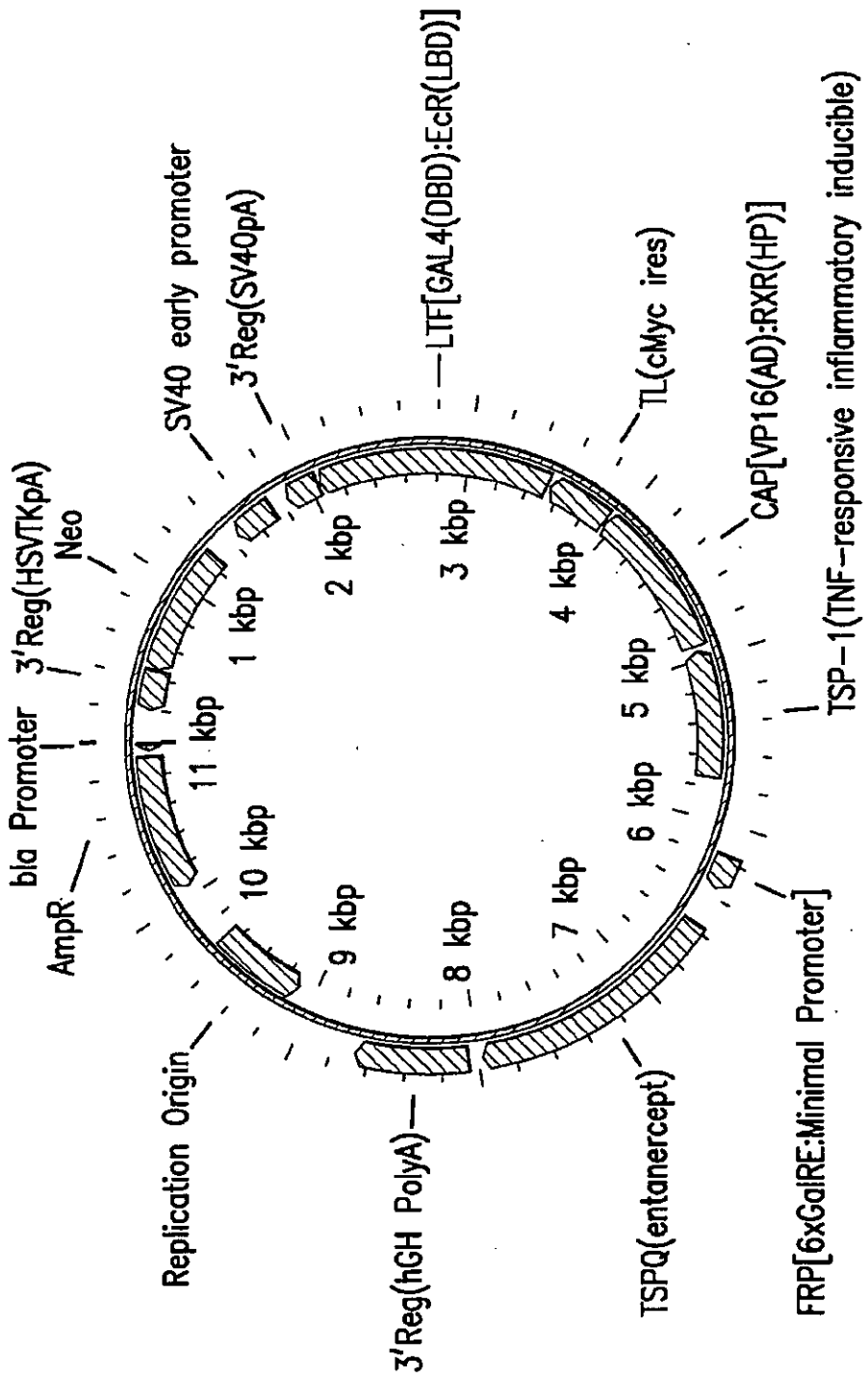

bla Promoter
AmpR
3'Reg(HSVTKpA)
Neo
SV40 early promoter
3'Reg(SV40pA)
LTF[GAL4(DBD):EcR(LBD)]
TL(cMyc ires)
CAP[VP16(AD):RXR(HP)]
TSP-1(TNF-responsive inflammatory inducible)
Sequence from (11013bp)
FRP[6xGalRE:Minimal Promoter]
TSPQ(entanercept)
3'Reg(hGH PolyA)
Replication Origin
1 kbp
2 kbp
3 kbp
4 kbp
5 kbp
6 kbp
7 kbp
8 kbp
9 kbp
10 kbp
11 kbp

FIG. 13

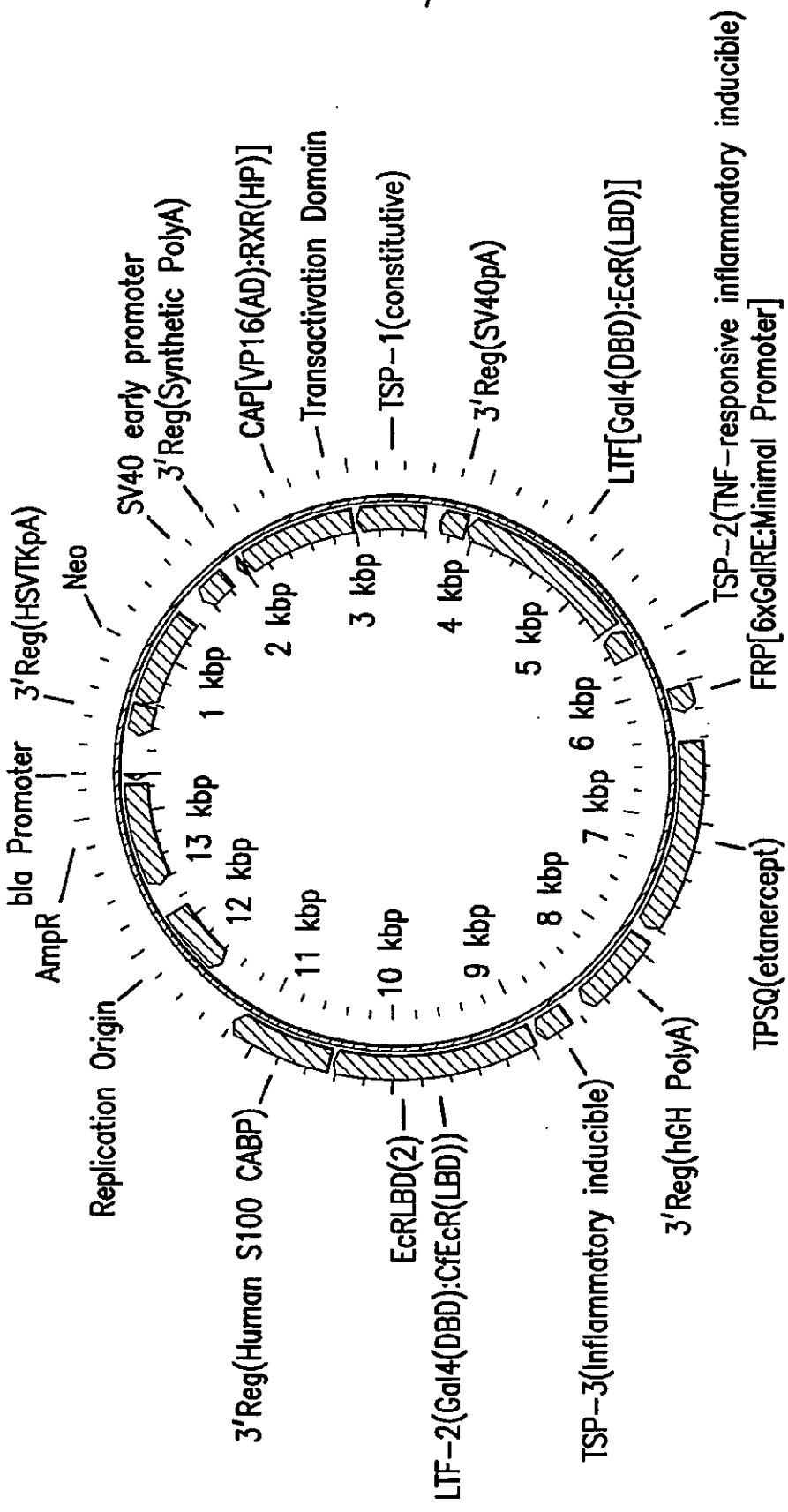

bla Promoter
AmpR
3'Reg(HSVTKpA)
Neo
SV40 early promoter
3'Reg(Synthetic PolyA)
CAP[VP16(AD):RXR(HP)]
Transactivation Domain
TSP-1(constitutive)
3'Reg(SV40pA)
LTF[Gal4(DBD):EcR(LBD)]
TSP-2(TNF-responsive inflammatory inducible)
FRP[6xGalRE:Minimal Promoter]
Sequence from (13314bp)
TPSQ(etanercept)
3'Reg(hGH PolyA)
TSP-3(Inflammatory inducible)
LTF-2(Gal4(DBD):CfEcR(LBD))
EcRLBD(2)
3'Reg(Human S100 CABP)
Replication Origin
1 kbp
2 kbp
3 kbp
4 kbp
5 kbp
6 kbp
7 kbp
8 kbp
9 kbp
10 kbp
11 kbp
12 kbp
13 kbp

FIG.14

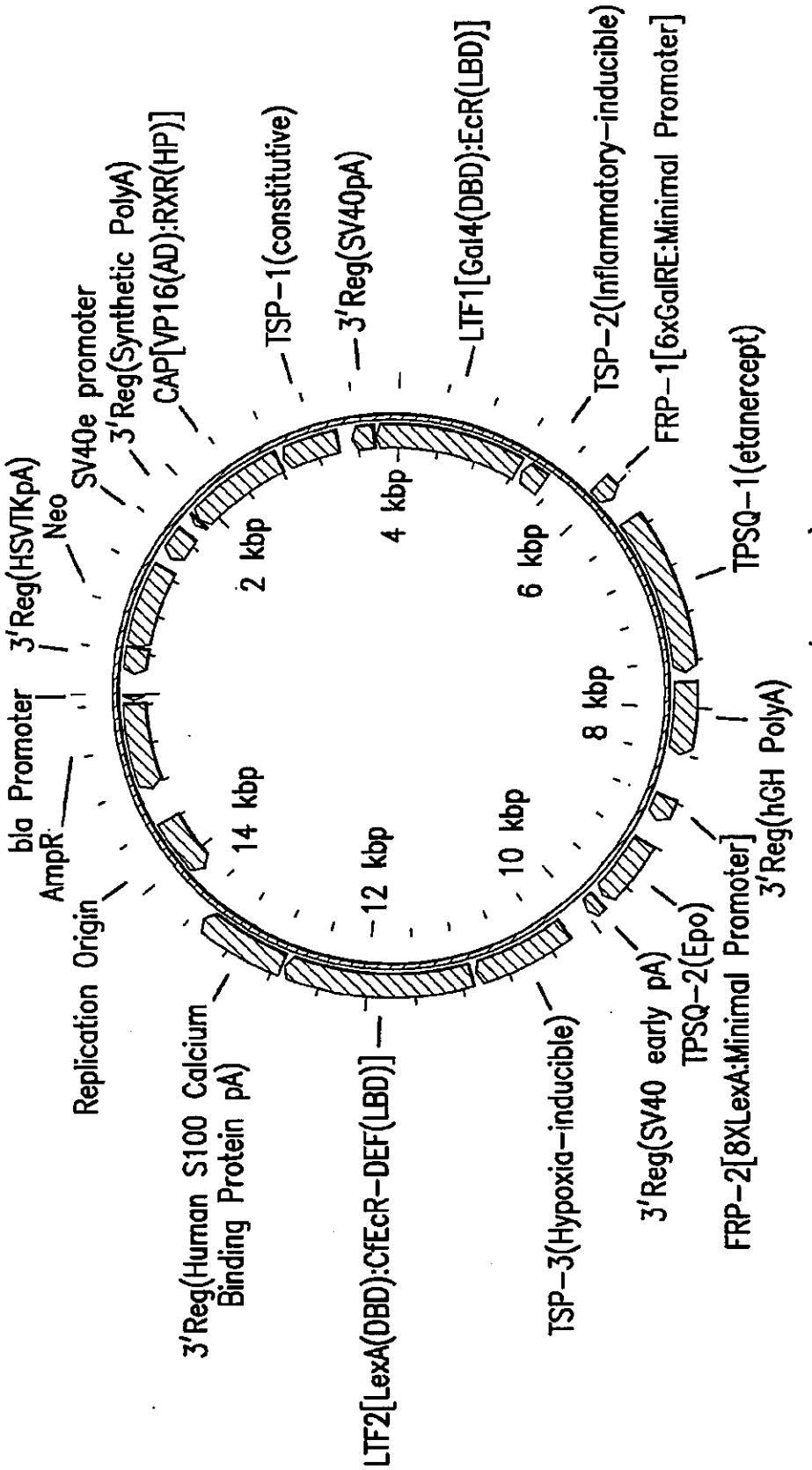
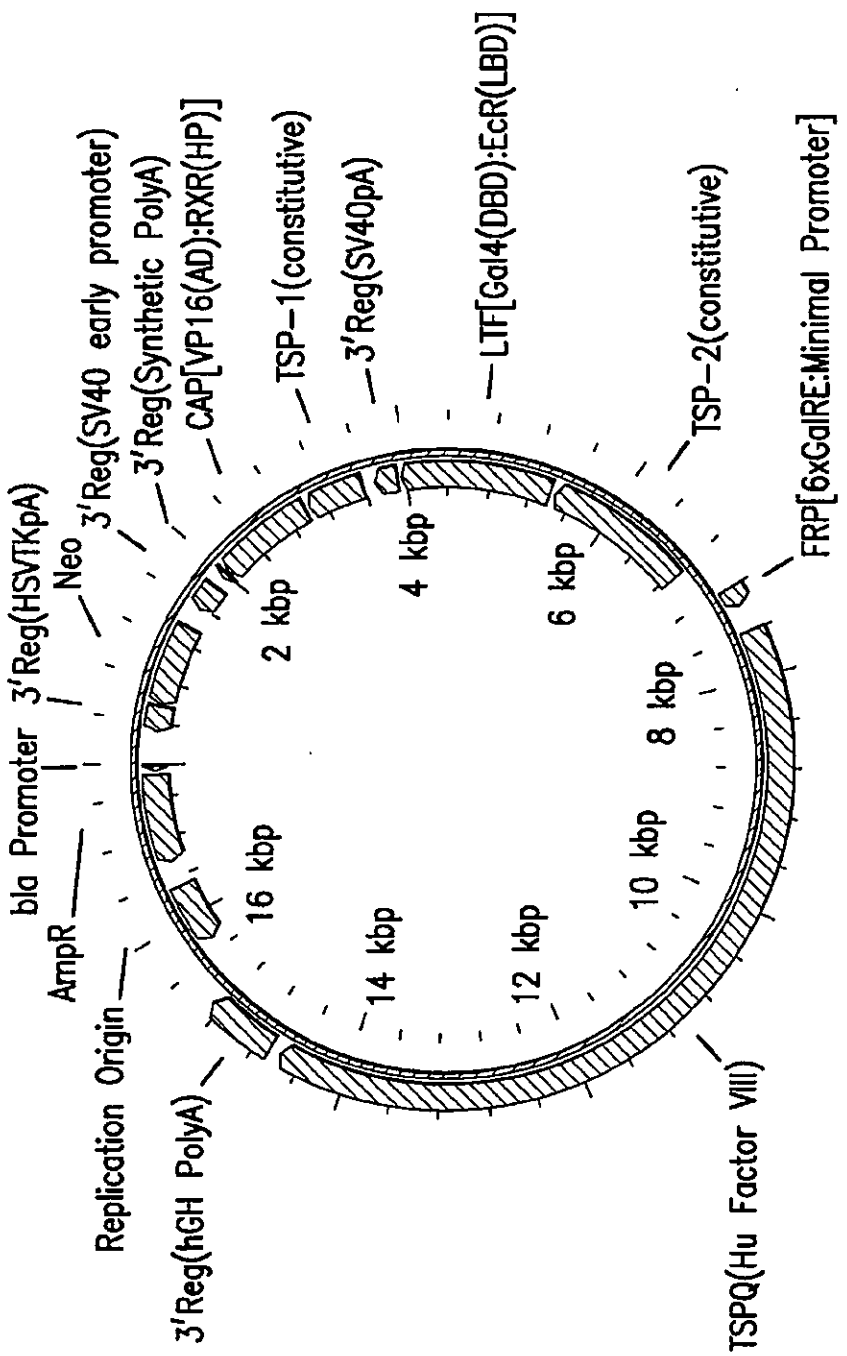
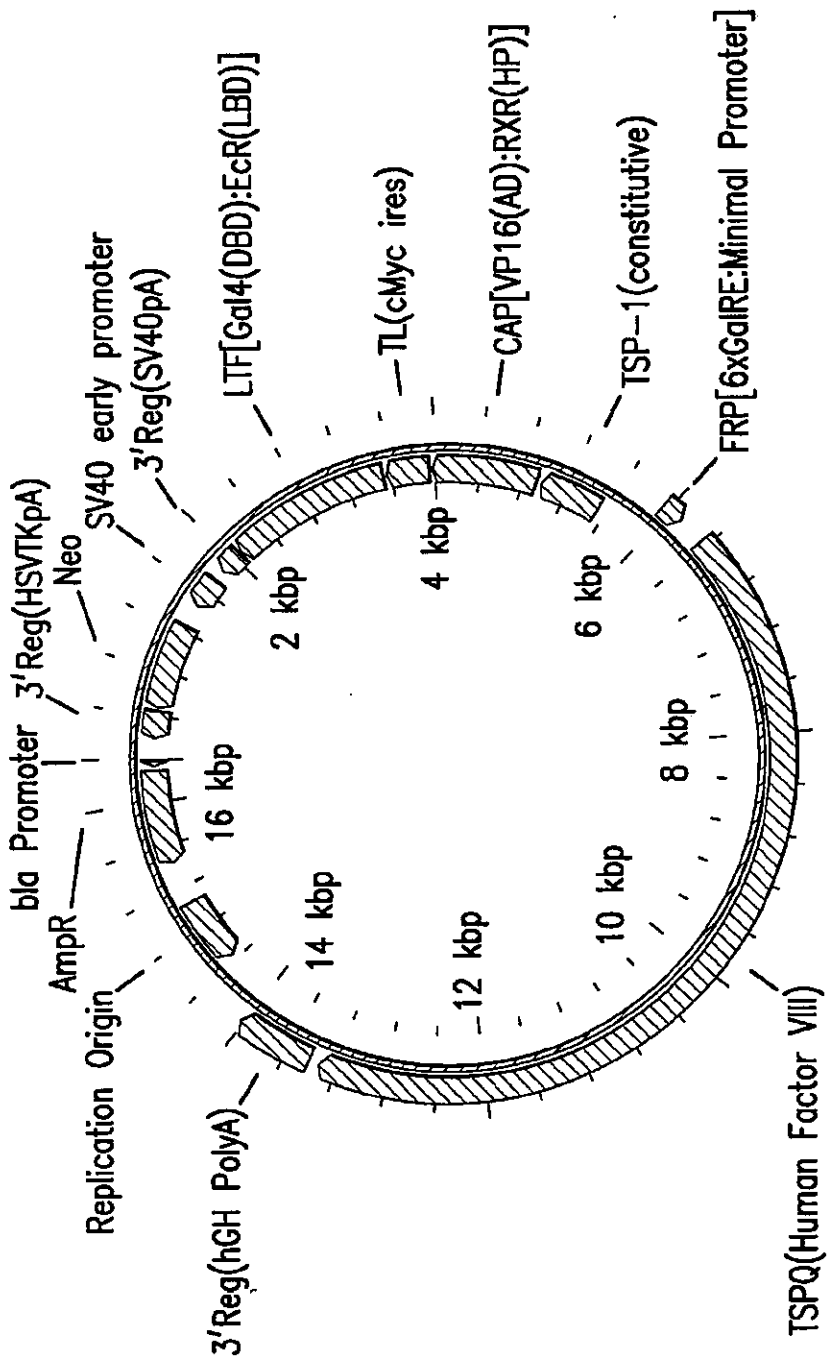

bla Promoter
AmpR
Replication Origin
3'Reg(HSVTKpA)
Neo
SV40e promoter
3'Reg(Synthetic PolyA)
CAP[VP16(AD):RXR(HP)]
TSP-1(constitutive)
3'Reg(SV40pA)
LTF1[Gal4(DBD):EcR(LBD)]
TSP-2(Inflammatory-inducible)
FRP-1[6xGalRE:Minimal Promoter]
TPSQ-1(etanercept)
Sequence from (15706bp)
3'Reg(hGH PolyA)
FRP-2[8XLexA:Minimal Promoter]
TPSQ-2(Epo)
3'Reg(SV40 early pA)
TSP-3(Hypoxia-inducible)
LTF2[LexA(DBD):CfEcR-DEF(LBD)]
3'Reg(Human S100 Calcium Binding Protein pA)
2 kbp
4 kbp
6 kbp
8 kbp
10 kbp
12 kbp
14 kbp

FIG. 15



Sequence from (17505bp)

FIG.16



Sequence from (16379bp)

FIG.17