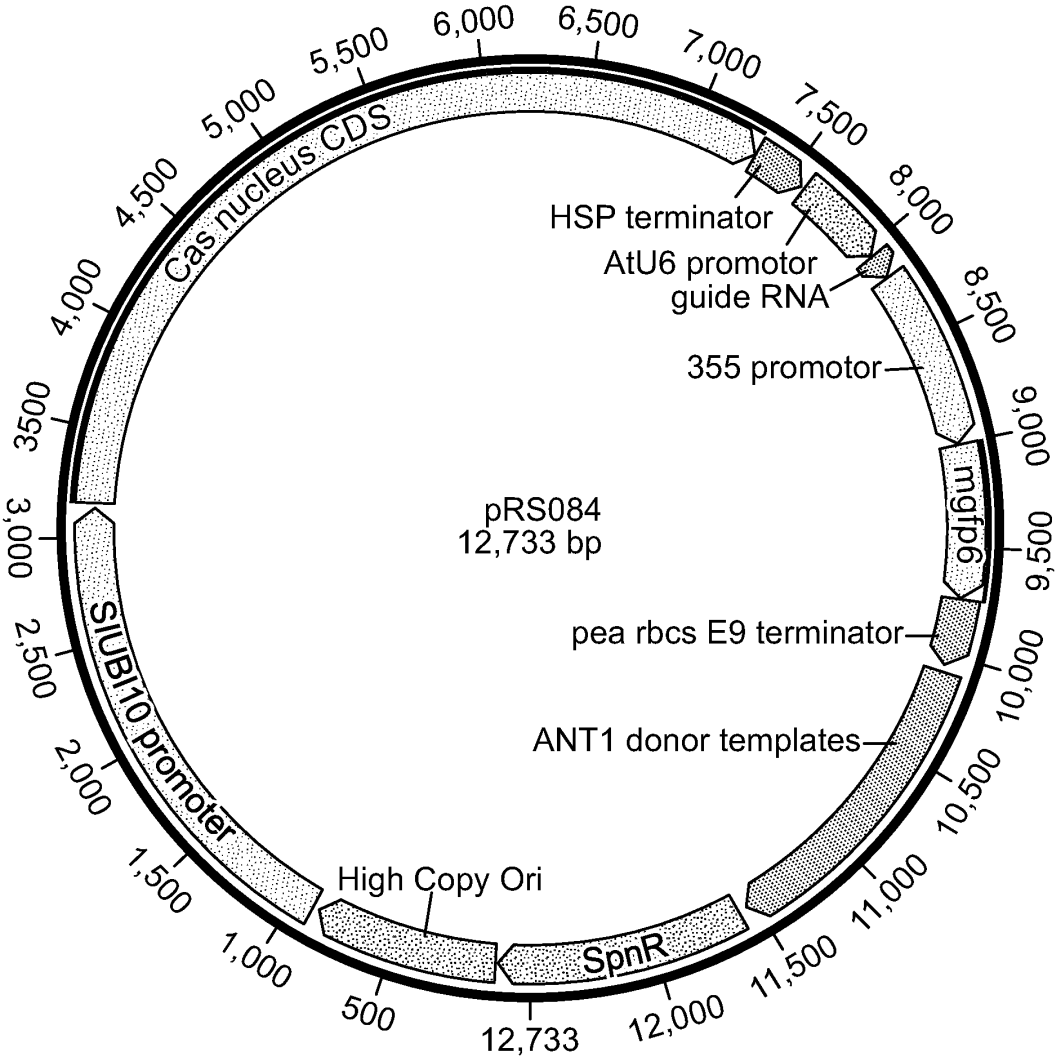

6,000
6,500
7,000
7,500
8,000
8,500
9,000
9,500
10,000
10,500
11,000
11,500
12,000
12,733
500
1,000
1,500
2,000
2,500
3,000
3500
4,000
4,500
5,000
5,500
Cas nucleus CDS
HSP terminator
AtU6 promotor
guide RNA
355 promotor
mgfp6
pea rbcs E9 terminator
ANT1 donor templates
SpnR
High Copy Ori
SlUBI10 promoter
pRS084
12,733 bp

FIG. 1

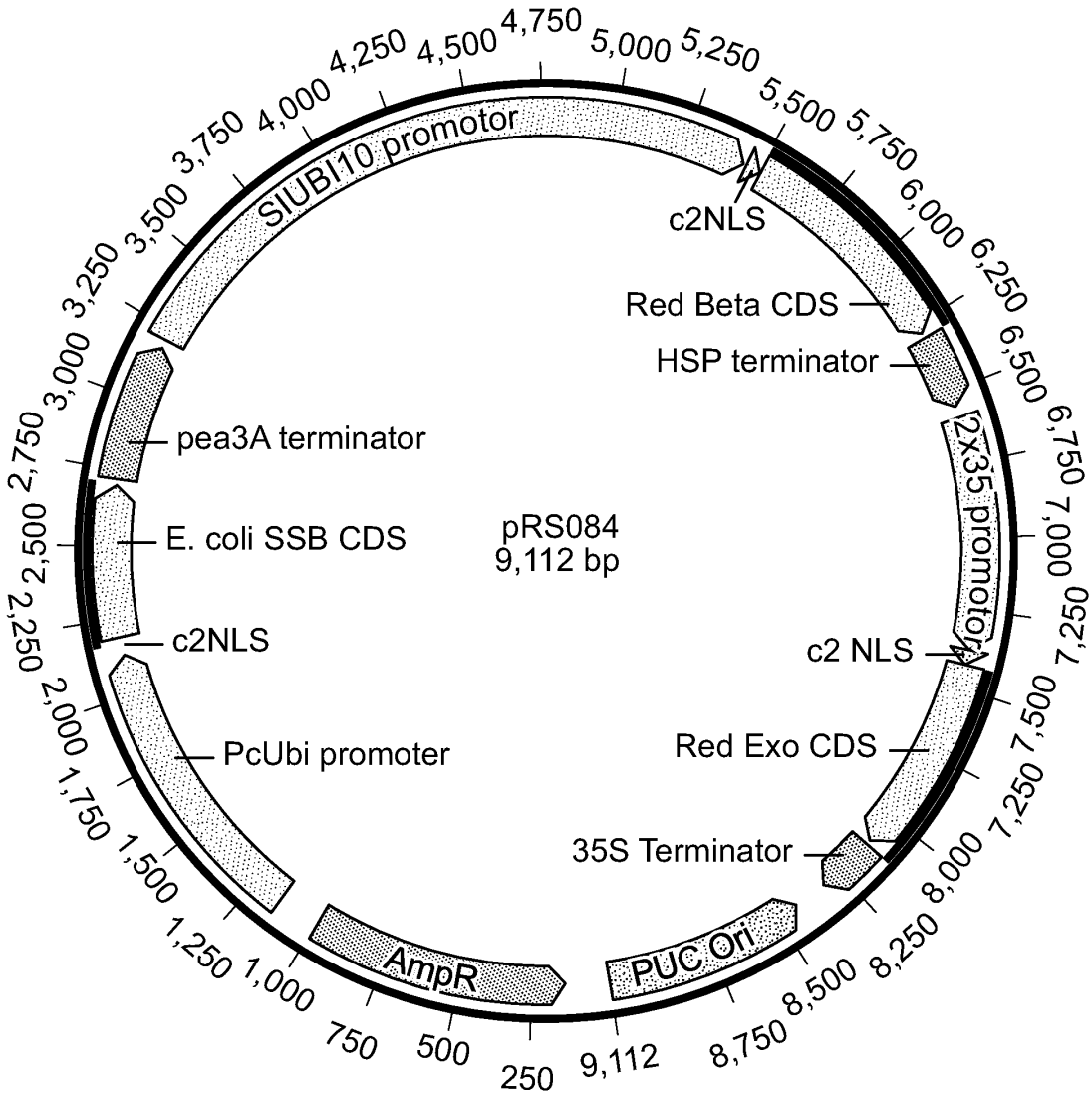

pRS084
9,112 bp
SlUBI10 promotor
c2NLS
Red Beta CDS
HSP terminator
2x35 promotorA
c2 NLS
Red Exo CDS
35S Terminator
PUC Ori
AmpR
PcUbi promoter
c2NLS
E. coli SSB CDS
pea3A terminator
250
500
750
1,000
1,250
1,500
1,750
2,000
2,250
2,500
2,750
3,000
3,250
3,500
3,750
4,000
4,250
4,500
4,750
5,000
5,250
5,500
5,750
6,000
6,250
6,500
6,750
7,000
7,250
7,500
7,250
8,000
8,250
8,500
8,750
9,112

FIG. 2

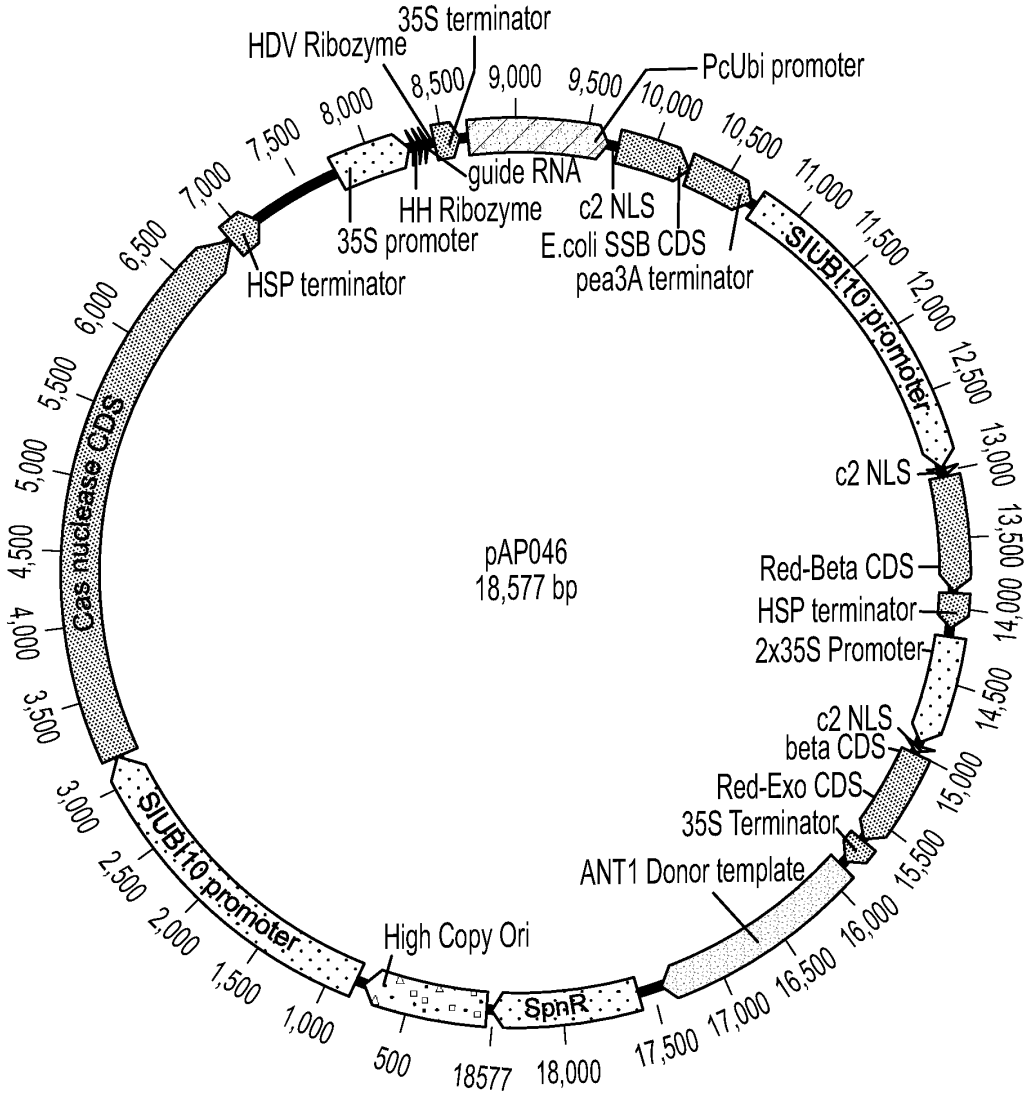

35S terminator
HDV Ribozyme
PcUbi promoter
guide RNA
HH Ribozyme
c2 NLS
35S promoter
E.coli SSB CDS
HSP terminator
pea3A terminator
SlUBI10 promoter
c2 NLS
pAP046
18,577 bp
Red-Beta CDS
HSP terminator
2x35S Promoter
c2 NLS
beta CDS
Red-Exo CDS
35S Terminator
ANT1 Donor template
Cas nuclease CDS
SlUBI10 promoter
High Copy Ori
SpnR
500
18577
18,000
17,500
17,000
16,500
16,000
15,500
15,000
14,500
14,000
13,500
13,000
12,500
12,000
11,500
11,000
10,500
10,000
9,500
9,000
8,500
8,000
7,500
7,000
6,500
6,000
5,500
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000

FIG. 3

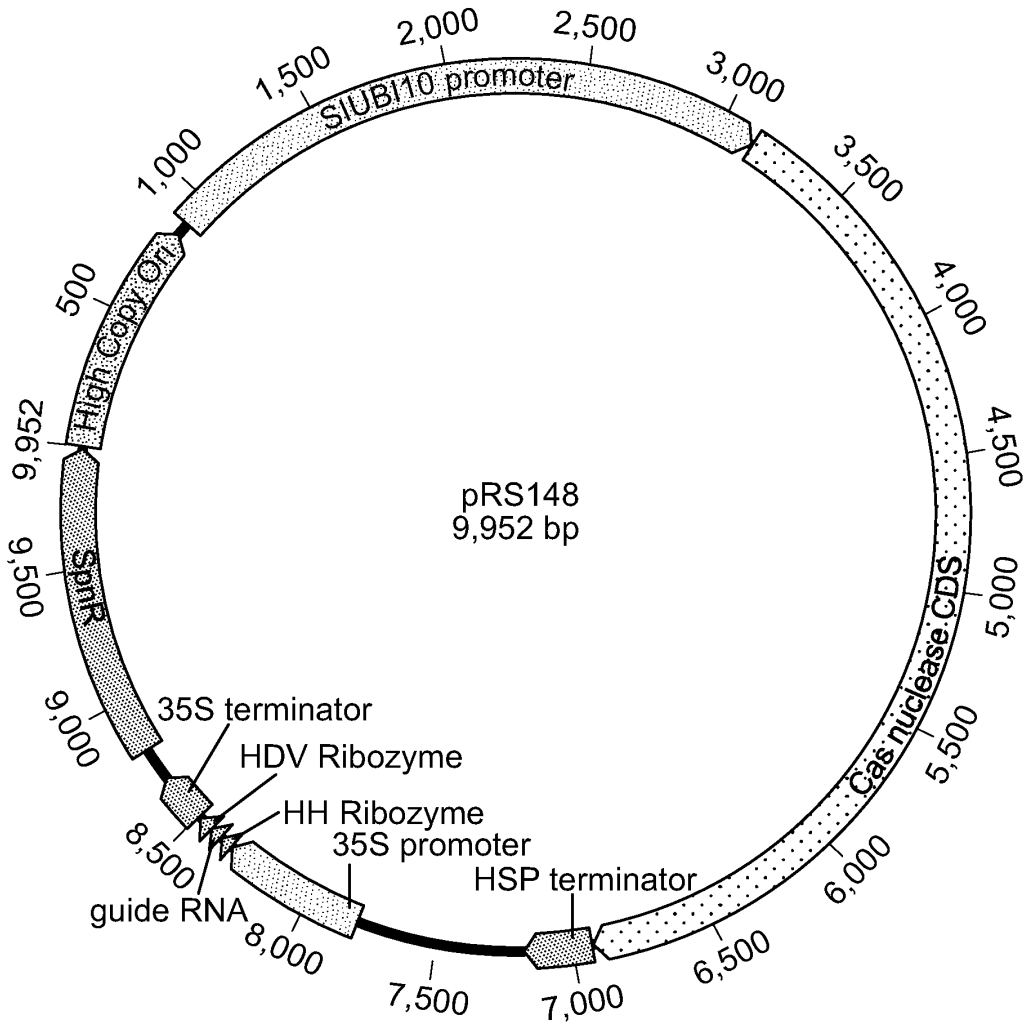

pRS148
9,952 bp
SlUBI10 promoter
Cas nuclease CDS
HSP terminator
35S promoter
HH Ribozyme
HDV Ribozyme
35S terminator
guide RNA
SpcR
High Copy Ori
1,000
1,500
2,000
2,500
3,000
3,500
4,000
4,500
5,000
5,500
6,000
6,500
7,000
7,500
8,000
8,500
9,000
9,500
9,952
500

FIG. 4

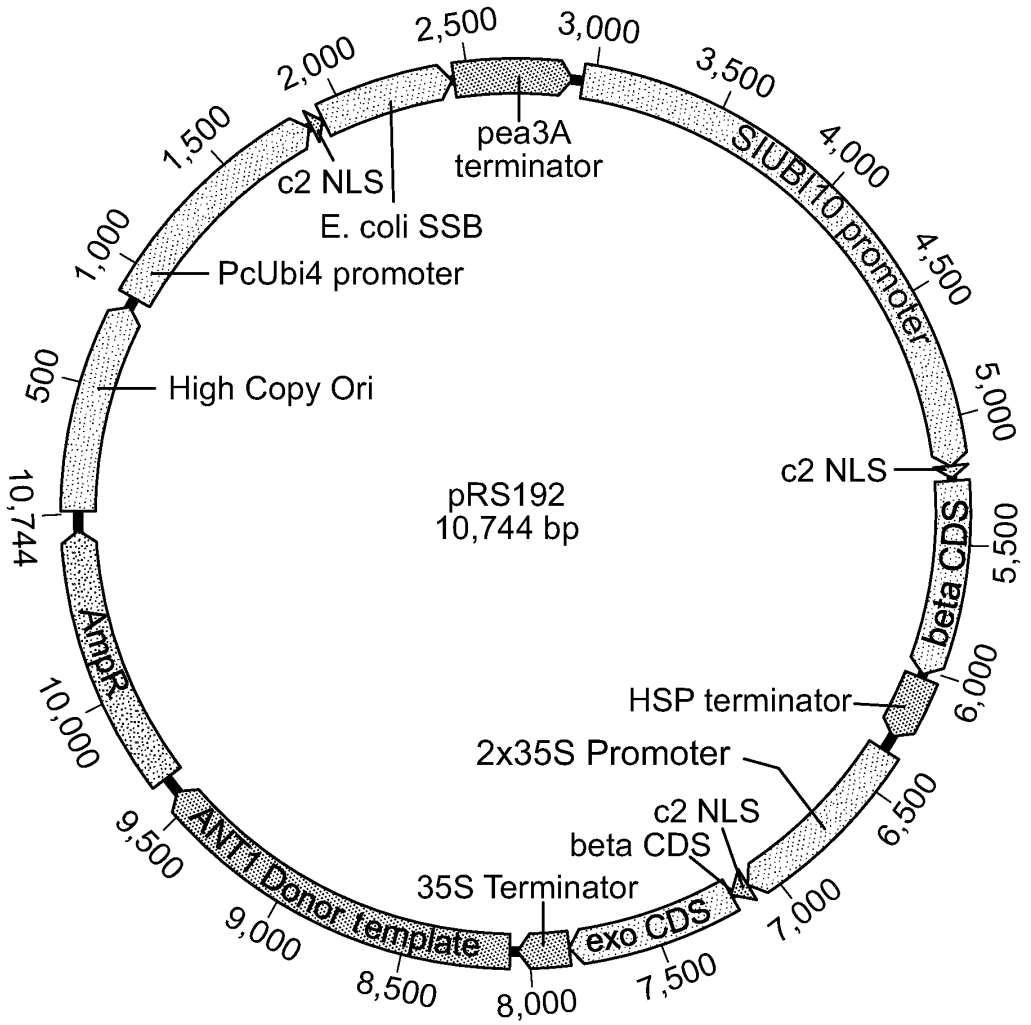

pRS192
10,744 bp
pea3A terminator
SlUBI10 promoter
c2 NLS
E. coli SSB
PcUbi4 promoter
High Copy Ori
c2 NLS
beta CDS
HSP terminator
2x35S Promoter
c2 NLS
beta CDS
35S Terminator
exo CDS
ANT1 Donor template
AmpR
2,500
3,000
3,500
4,000
4,500
5,000
5,500
6,000
6,500
7,000
7,500
8,000
8,500
9,000
9,500
10,000
10,744
500
1,000
1,500
2,000

FIG. 5

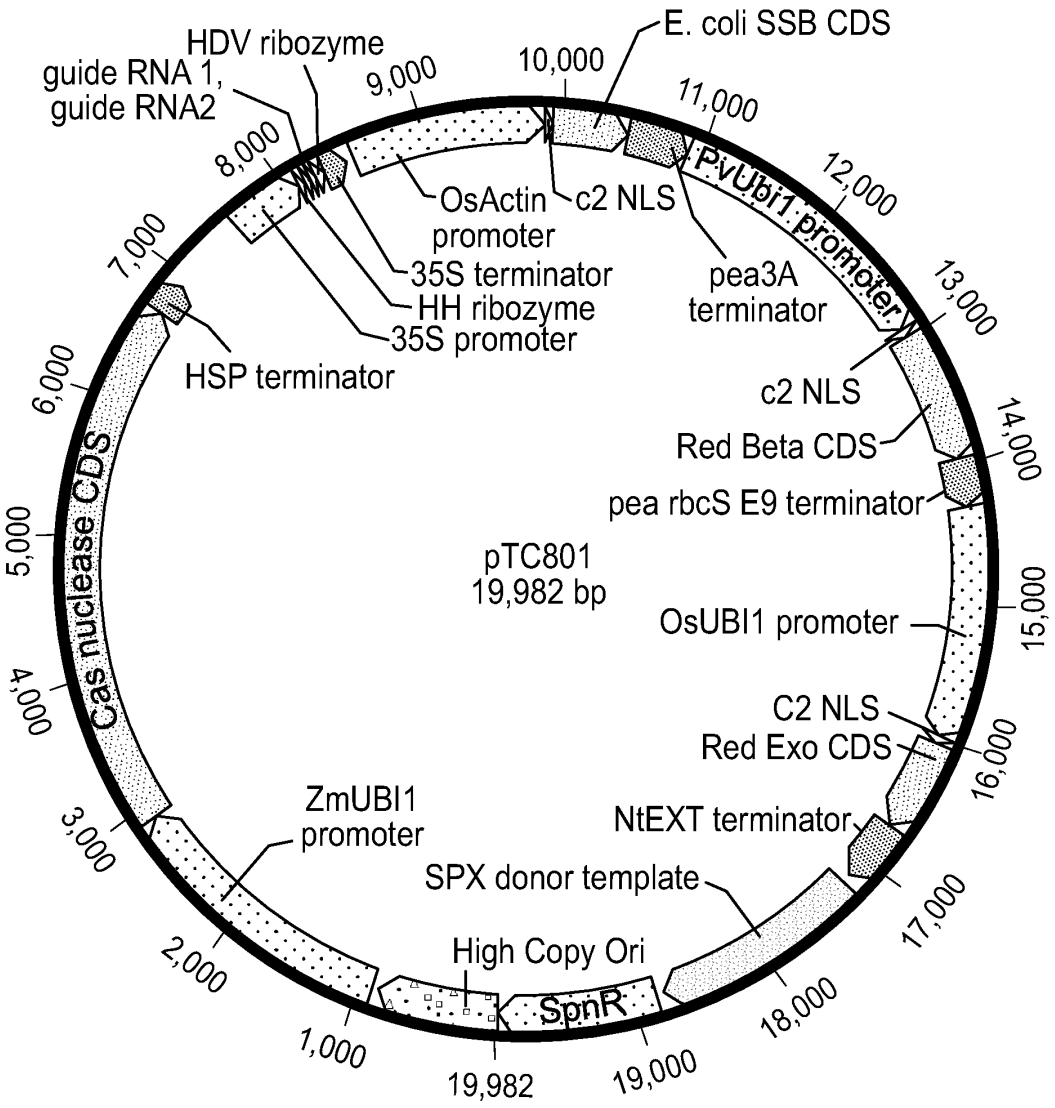

HDV ribozyme
guide RNA 1,
guide RNA2
E. coli SSB CDS
10,000
9,000
11,000
8,000
12,000
OsActin
promoter
c2 NLS
PvUbi1 promoter
7,000
13,000
35S terminator
HH ribozyme
35S promoter
pea3A
terminator
HSP terminator
c2 NLS
6,000
14,000
Red Beta CDS
pea rbcS E9 terminator
5,000
pTC801
19,982 bp
15,000
OsUBI1 promoter
Cas nuclease CDS
4,000
C2 NLS
Red Exo CDS
16,000
ZmUBI1
promoter
3,000
NtEXT terminator
SPX donor template
17,000
2,000
High Copy Ori
SpnR
18,000
1,000
19,982
19,000

FIG. 6

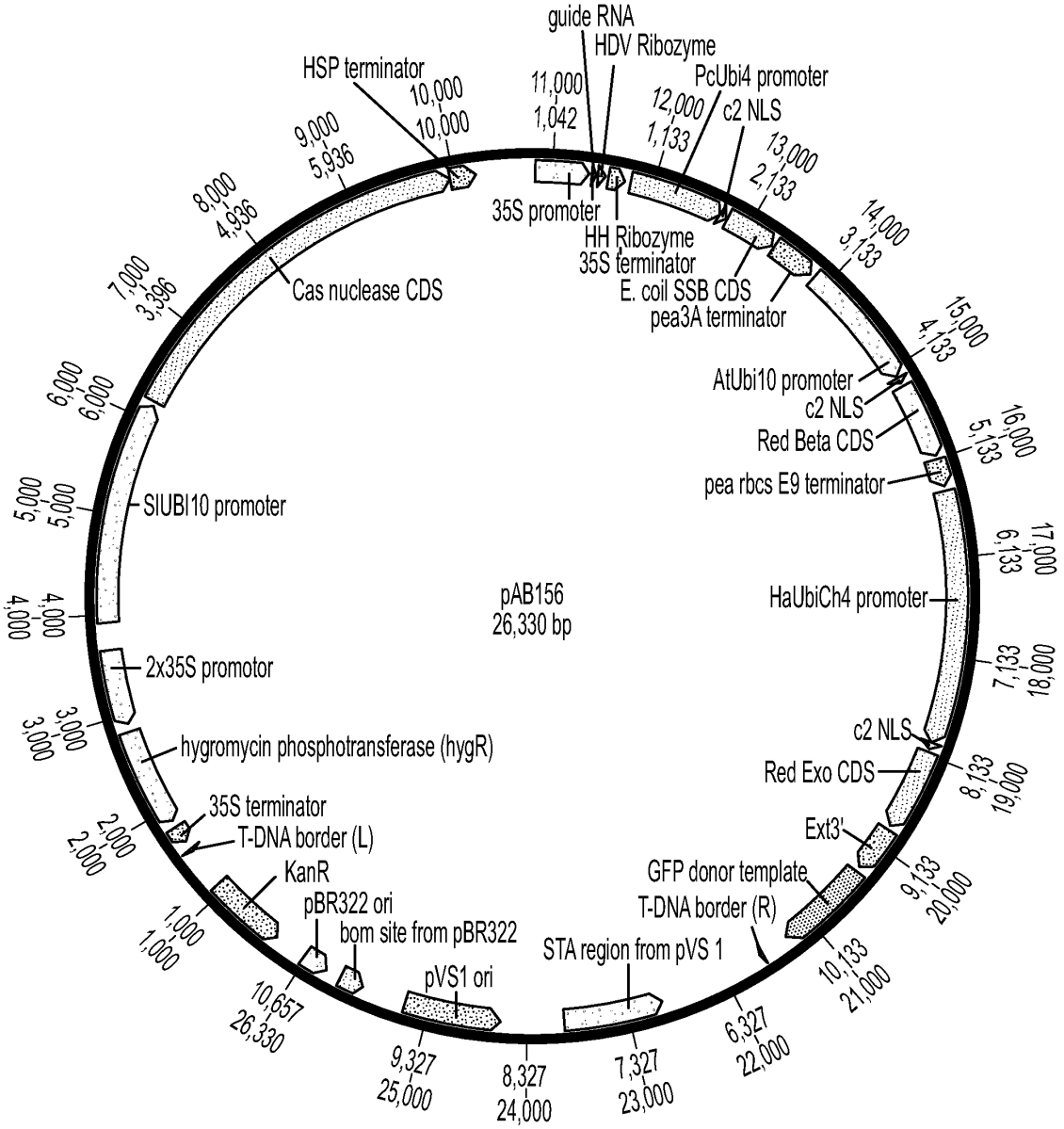

guide RNA
HDV Ribozyme
PcUbi4 promoter
c2 NLS
HSP terminator
35S promoter
HH Ribozyme
35S terminator
E. coil SSB CDS
pea3A terminator
AtUbi10 promoter
c2 NLS
Red Beta CDS
pea rbcs E9 terminator
HaUbiCh4 promoter
c2 NLS
Red Exo CDS
Ext3'
GFP donor template
T-DNA border (R)
STA region from pVS 1
pVS1 ori
bom site from pBR322
pBR322 ori
KanR
35S terminator
T-DNA border (L)
hygromycin phosphotransferase (hygR)
2x35S promotor
SIUBI10 promoter
Cas nuclease CDS
pAB156
26,330 bp
1,042
11,000
1,133
12,000
2,133
13,000
3,133
14,000
4,133
15,000
5,133
16,000
6,133
17,000
7,133
18,000
8,133
19,000
9,133
20,000
10,133
21,000
6,327
22,000
7,327
23,000
8,327
24,000
9,327
25,000
10,657
26,330
1,000
1,000
2,000
2,000
3,000
3,000
4,000
4,000
5,000
5,000
6,000
6,000
7,000
3,396
8,000
4,936
9,000
5,936
10,000
10,000

FIG. 7

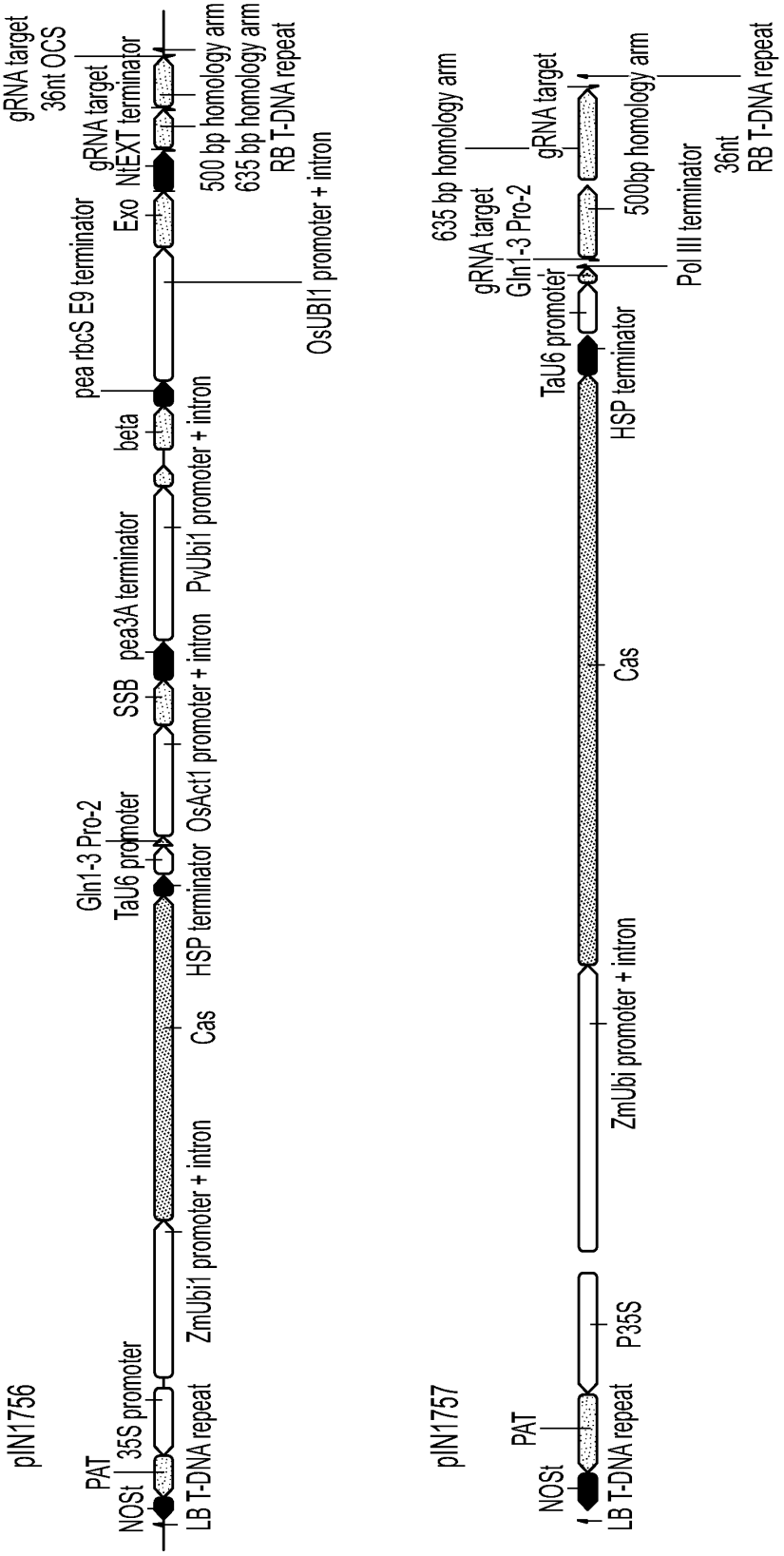

pIN1756
LB T-DNA repeat
NOSt
PAT
35S promoter
ZmUbi1 promoter + intron
Cas
HSP terminator
TaU6 promoter
Gln1-3 Pro-2
OsAct1 promoter + intron
SSB
pea3A terminator
PvUbi1 promoter + intron
beta
pea rbcS E9 terminator
Exo
NtEXT terminator
gRNA target
36nt OCS
gRNA target
500 bp homology arm
635 bp homology arm
RB T-DNA repeat
OsUBI1 promoter + intron
pIN1757
LB T-DNA repeat
NOSt
PAT
P35S
ZmUbi promoter + intron
Cas
HSP terminator
TaU6 promoter
Gln1-3 Pro-2
gRNA target
635 bp homology arm
Pol III terminator
500bp homology arm
gRNA target
36nt
RB T-DNA repeat

FIG. 8

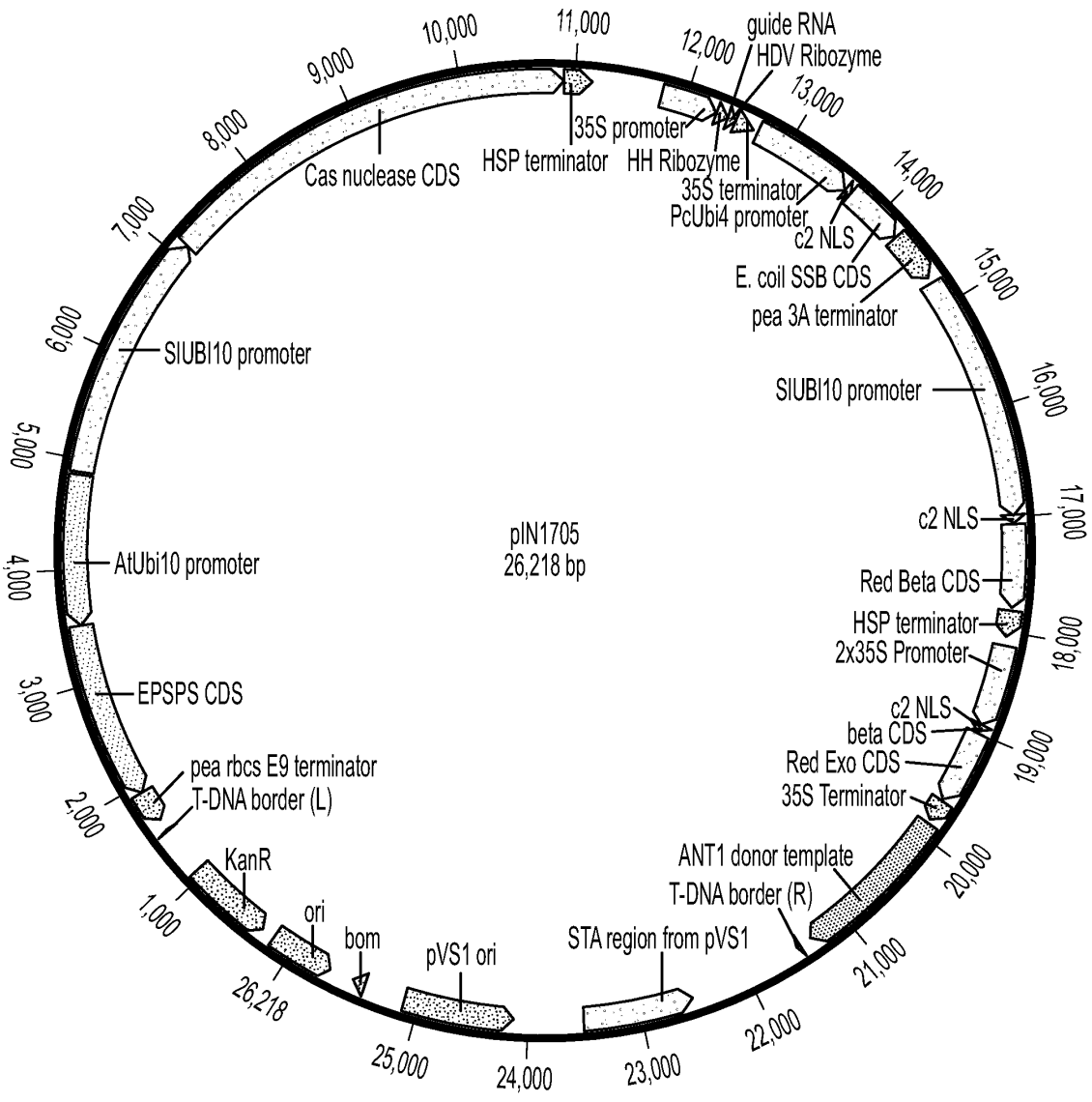

pIN1705
26,218 bp
1,000
2,000
3,000
4,000
5,000
6,000
7,000
8,000
9,000
10,000
11,000
12,000
13,000
14,000
15,000
16,000
17,000
18,000
19,000
20,000
21,000
22,000
23,000
24,000
25,000
26,218
guide RNA
HDV Ribozyme
35S promoter
HH Ribozyme
35S terminator
PcUbi4 promoter
c2 NLS
E. coil SSB CDS
pea 3A terminator
SlUBI10 promoter
c2 NLS
Red Beta CDS
HSP terminator
2x35S Promoter
c2 NLS
beta CDS
Red Exo CDS
35S Terminator
ANT1 donor template
T-DNA border (R)
STA region from pVS1
pVS1 ori
bom
ori
KanR
pea rbcs E9 terminator
T-DNA border (L)
EPSPS CDS
AtUbi10 promoter
SlUBI10 promoter
Cas nuclease CDS
HSP terminator

FIG. 9A

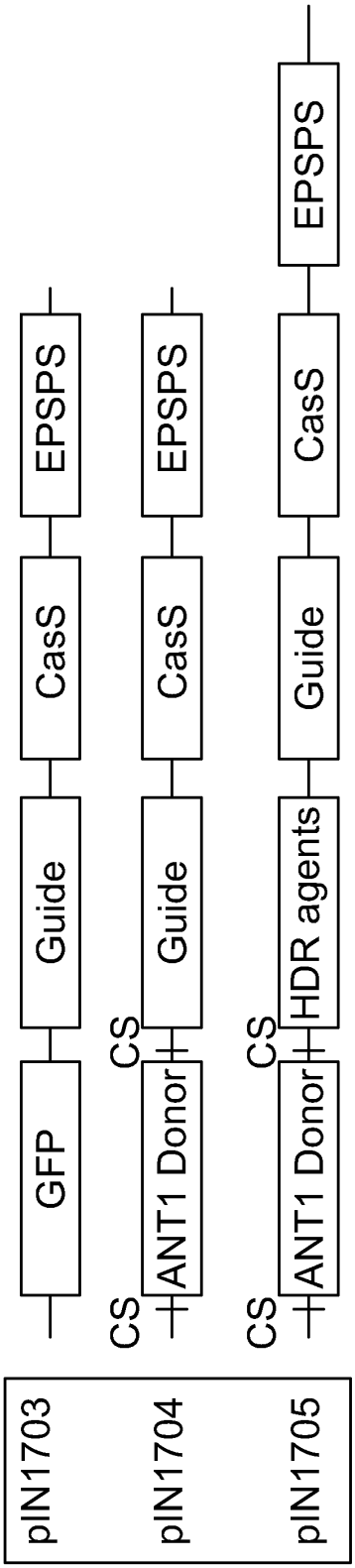

pIN1703
pIN1704
pIN1705
CS
CS
CS
GFP
ANT1 Donor
ANT1 Donor
Guide
Guide
HDR agents
CasS
CasS
Guide
EPSPS
EPSPS
CasS
EPSPS

FIG. 9B

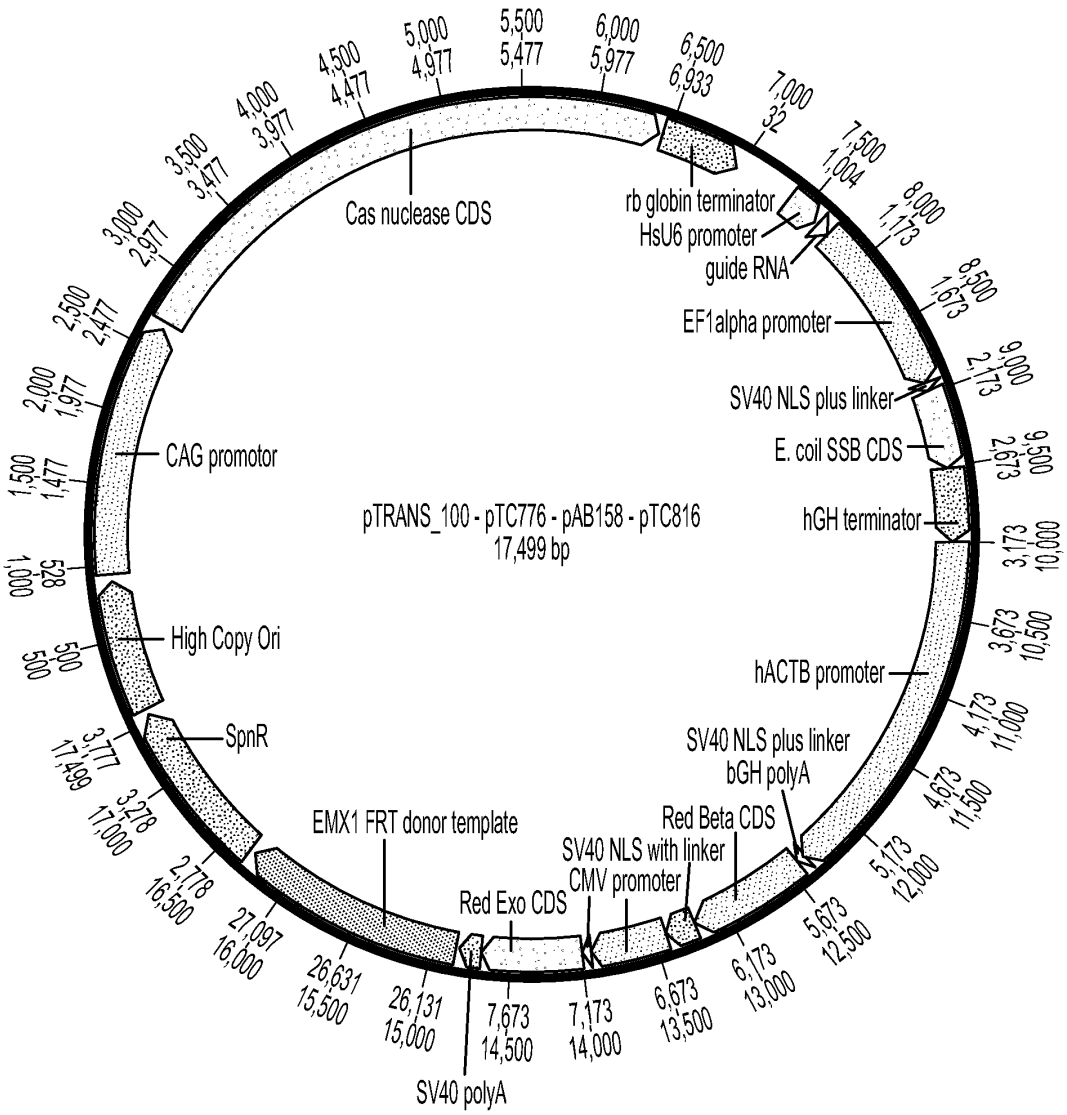

pTRANS_100 - pTC776 - pAB158 - pTC816
17,499 bp
Cas nuclease CDS
rb globin terminator
HsU6 promoter
guide RNA
EF1alpha promoter
SV40 NLS plus linker
E. coil SSB CDS
hGH terminator
hACTB promoter
SV40 NLS plus linker
bGH polyA
Red Beta CDS
SV40 NLS with linker
CMV promoter
Red Exo CDS
EMX1 FRT donor template
SV40 polyA
SpnR
High Copy Ori
CAG promotor
5,500
5,477
6,000
5,977
6,500
6,933
7,000
32
7,500
1,004
8,000
1,173
8,500
1,673
9,000
2,173
9,500
2,673
10,000
3,173
10,500
3,673
11,000
4,173
11,500
4,673
12,000
5,173
12,500
5,673
13,000
6,173
13,500
6,673
14,000
7,173
14,500
7,673
15,000
26,131
15,500
26,631
16,000
27,097
16,500
2,778
17,000
3,278
17,499
3,777
500
500
1,000
528
1,477
1,500
1,977
2,000
2,477
2,500
2,977
3,000
3,477
3,500
3,977
4,000
4,477
4,500
4,977
5,000

FIG. 10