FIG. 1A

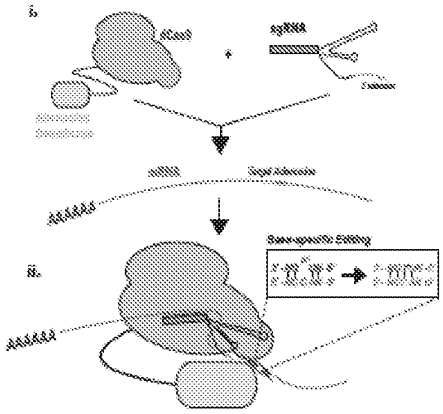


FIG. 1B

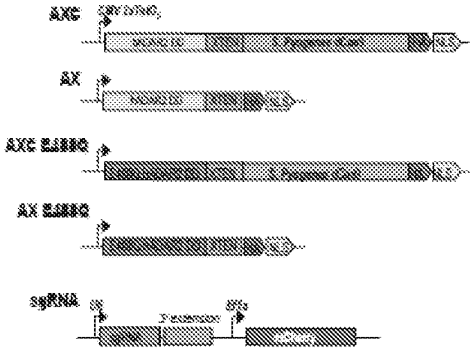


FIG. 1C

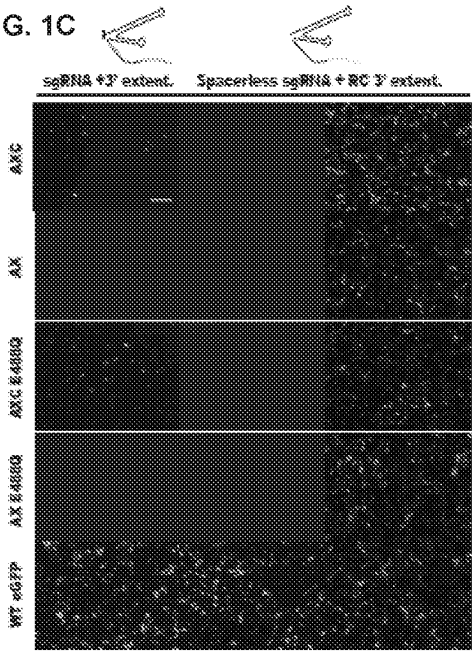
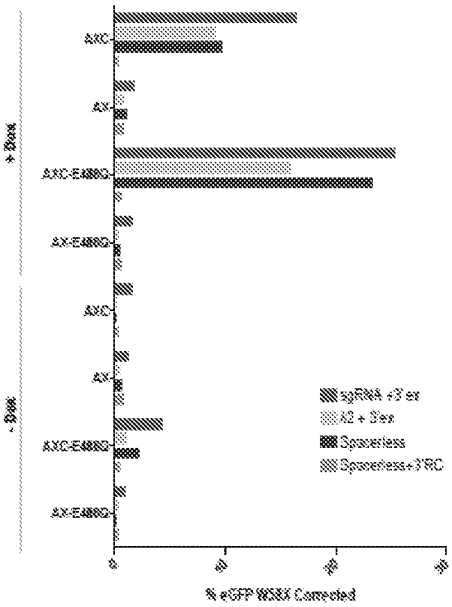


FIG. 1D



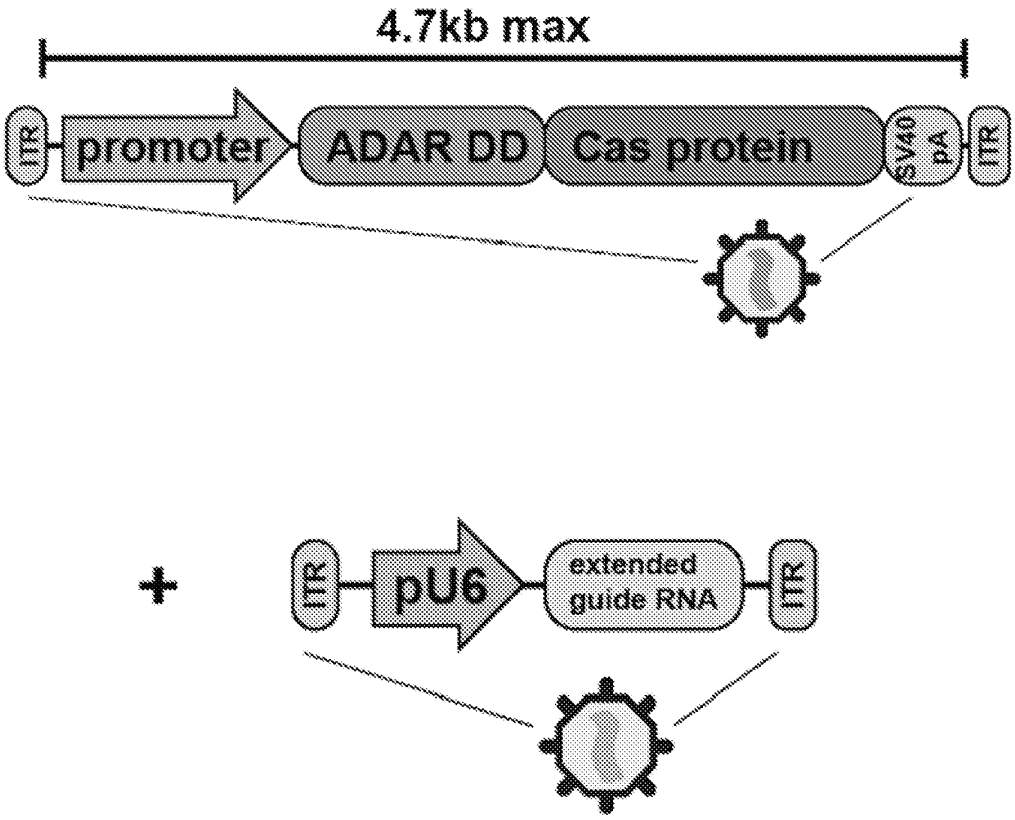

4.7kb max
ITR
promoter
ADAR DD
Cas protein
SV40
pA
ITR
+
ITR
pU6
extended
guide RNA
ITR

FIG. 2

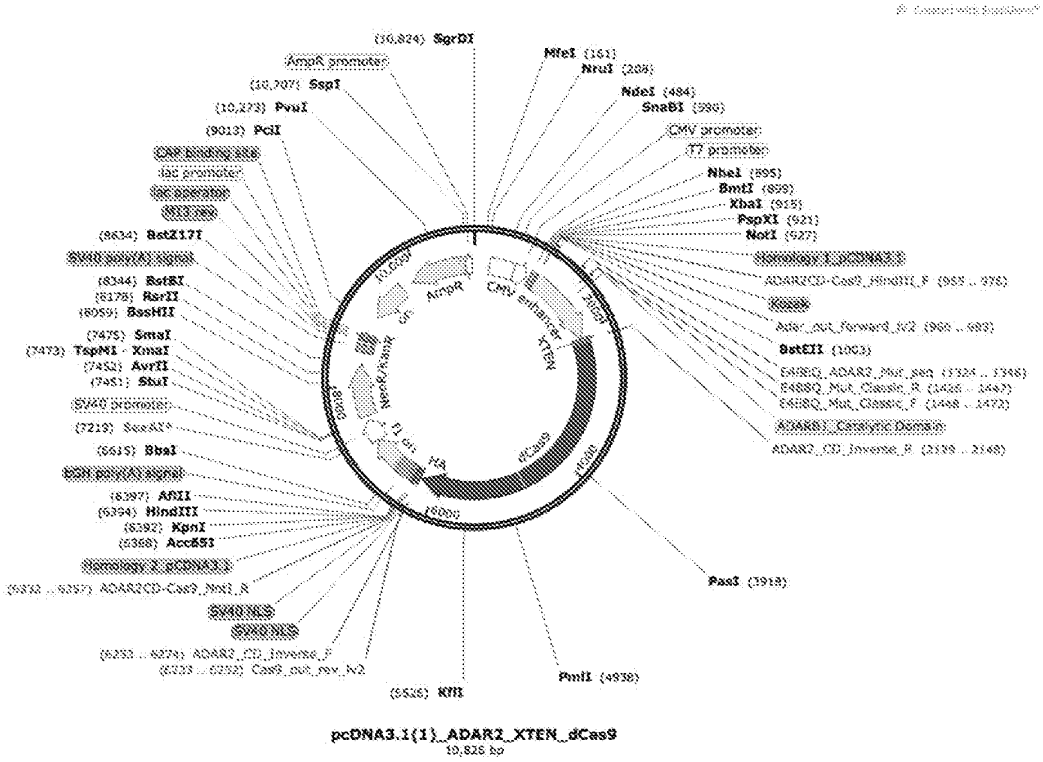

(16,824) SgrDI
AmpR promoter
(10,707) SspI
(10,273) PvuI
(9013) PciI
CAP binding site
lac promoter
lac operator
f1 ori
(9634) BstZ17I
SV40 poly(A) signal
(8344) BstBI
(8178) NsiI
(8059) BssHII
(7475) SmaI
(7473) TspMI - XmaI
(7452) AvrII
(7451) StuI
SV40 promoter
(7219) SacII*
(6615) BbaI
EGH poly(A) signal
(6397) AflII
(6394) HindIII
(6392) KpnI
(6368) Acc65I
Synthetic pCDNA3.1
(6332 .. 6357) ADAR2CD-Cas9_Hind_R
SV40 NLS
SV40 NLS
(6253 .. 6274) ADAR2_CD_Inverse_F
(6233 .. 6252) Cas9_out_rev_N2
(9536) KflI
NheI (161)
NruI (208)
NdeI (484)
SnaBI (590)
CMV promoter
T7 promoter
NheI (895)
BmtI (899)
XbaI (915)
FspXI (921)
NotI (927)
Synthetic pCDNA3.1
ADAR2CD-Cas9_HindIII_F (955 .. 976)
Kozak
Ade1_Out_forward_N2 (980 .. 999)
SstEII (1003)
E488Q_ADAR2_Mut_seq (1326 .. 1346)
E488Q_Mut_Classic_R (1446 .. 1447)
E488Q_Mut_Classic_F (1448 .. 1472)
ADAR2 Catalytic Domain
ADAR2_CD_Inverse_R (2139 .. 2160)
AmpR
CMV enhancer
T7 pro
XTEN
dCas9
pUC ori
f1 ori
PA
NLS
Kozak
(5009)
PasI (3918)
PmlI (4938)
pcDNA3.1(1)_ADAR2_XTEN_dCas9
10,826 bp

FIG. 3

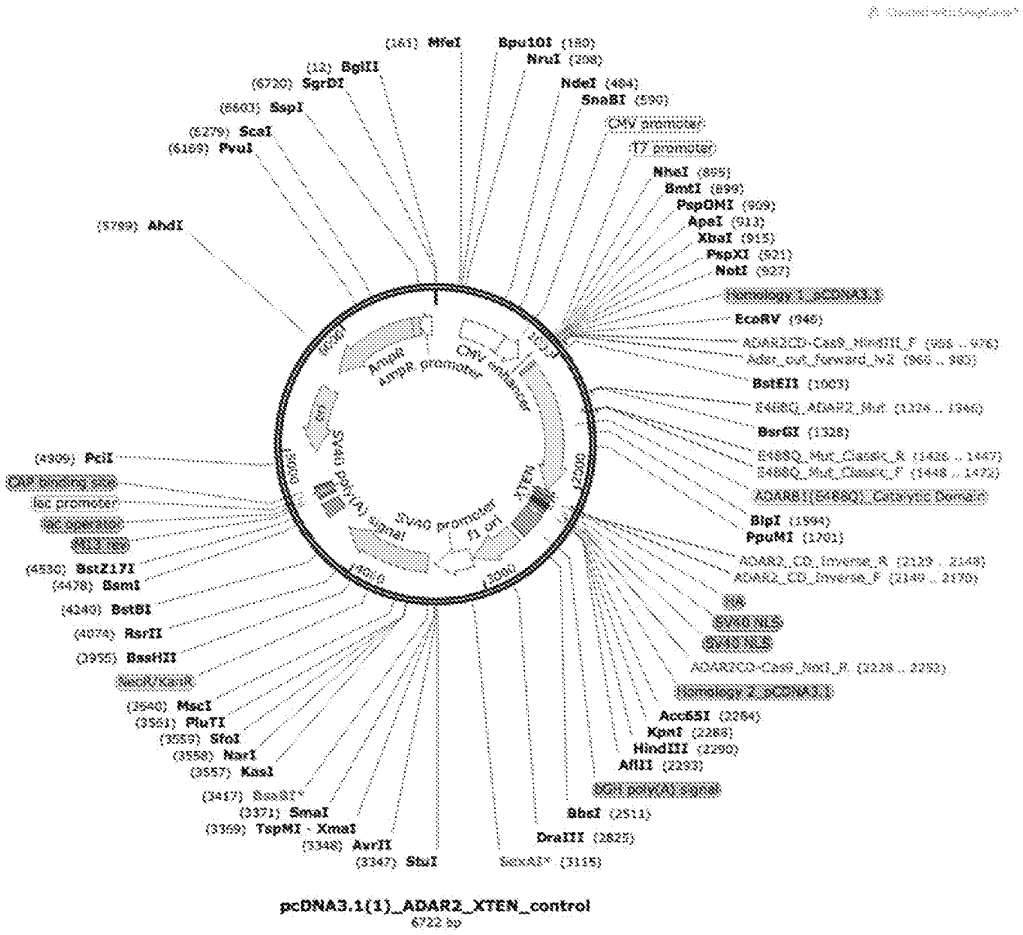

(161) MfeI
Bpu10I (180)
NruI (208)
NdeI (484)
SnaBI (590)
CMV promoter
T7 promoter
NheI (895)
BmtI (899)
PspOMI (909)
ApaI (913)
XbaI (915)
PspXI (921)
NotI (927)
Homology 1 pcDNA3.1
EcoRV (940)
ADAR2CD-Cas9_HindIII_F (955 .. 976)
Adar_out_forward_N2 (965 .. 985)
BstEII (1003)
E488Q_ADAR2_Mut (1326 .. 1346)
BsrGI (1328)
E488Q_Mut_Classic_R (1426 .. 1447)
E488Q_Mut_Classic_F (1448 .. 1472)
ADAR1(E488Q) Catalytic Domain
BlpI (1594)
PpuMI (1701)
ADAR2_CD_Inverse_R (2129 .. 2148)
ADAR2_CD_Inverse_F (2149 .. 2170)
SV40 NLS
SV40 NLS
ADAR2CD-Cas9_NotI_R (2228 .. 2252)
Homology 2 pcDNA3.1
Acc65I (2264)
KpnI (2268)
HindIII (2290)
AflII (2293)
bGH poly(A) signal
BbsI (2511)
DraIII (2825)
SexAI* (3115)
StuI (3347)
AvrII (3348)
TspMI - XmaI (3369)
SmaI (3371)
BssSI* (3417)
NarI (3557)
SfoI (3559)
PluTI (3561)
MscI (3640)
NeoR/KanR
BssHII (3955)
RsrII (4074)
BstBI (4240)
SamI (4478)
BstZ17I (4530)
f1 ori
pUC ori
lac promoter
CAP binding site
PciI (4909)
SV40 poly(A) signal
SV40 promoter
XTEN
2000
3000
4000
5000
6000
Amp promoter
AmpR
CMV enhancer
pcDNA3.1(1)_ADAR2_XTEN_control
6722 bp

FIG. 4

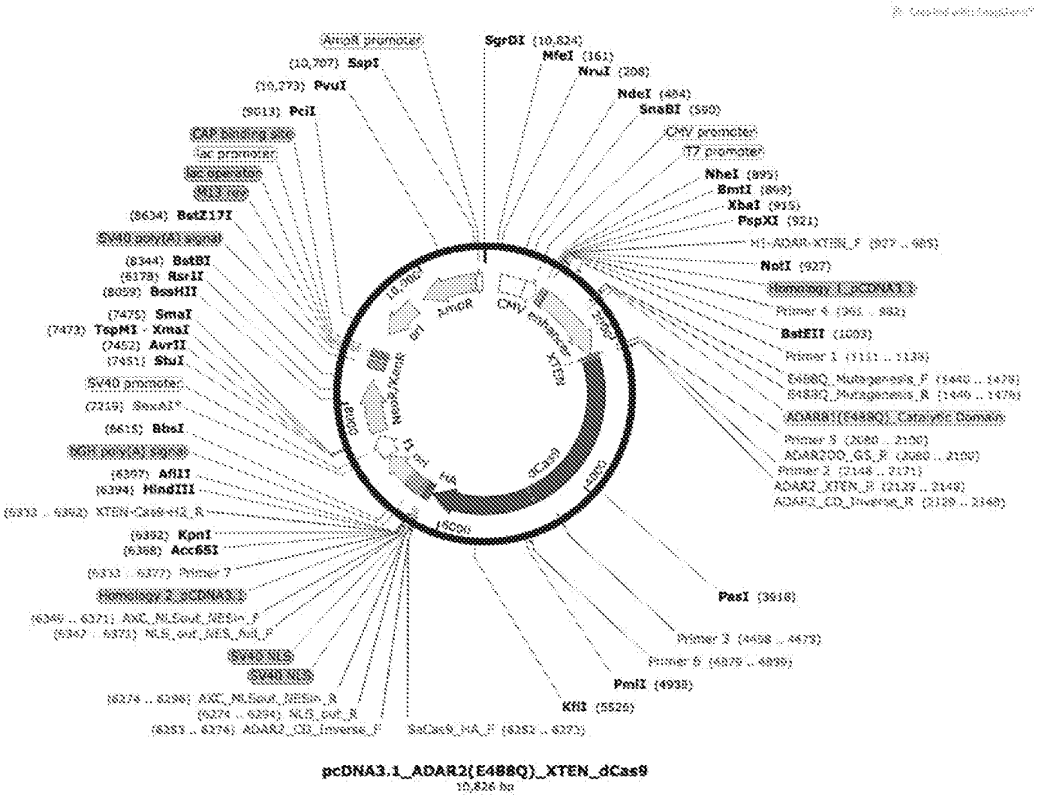

AmpR promoter
SgrDI (10,824)
MfeI (161)
NruI (208)
NdeI (484)
SnaBI (550)
CMV promoter
T7 promoter
NheI (995)
BmtI (869)
XhaI (915)
PspXI (921)
NotI (927)
Primer 4 (961 .. 982)
BstEII (1003)
Primer 1 (1131 .. 1138)
Primer 5 (2080 .. 2100)
Primer 2 (2148 .. 2171)
PasI (3618)
Primer 3 (4458 .. 4478)
Primer 6 (4879 .. 4898)
PmlI (4938)
KflI (5526)
(10,707) SspI
(10,273) PvuI
(9013) PciI
CAP binding site
lac promoter
lac operator
RBS (M)
(8634) BstZ17I
SV40 poly(A) signal
(8344) BstBI
(8178) AsrII
(8029) BssHII
(7475) SmaI
(7473) TspMI - XmaI
(7452) AvrII
(7451) SluI
SV40 promoter
(7219) SexAI*
(6815) BbsI
NOT site (x4) SV40
(6397) AflII
(6394) HindIII
(6382) KpnI
(6368) Acc65I
(6333 .. 6377) Primer 7
(6349 .. 6371) AAC_NLSout_MESin_F
(6362 .. 6371) NLS_out_MES_Kpn_F
SV40 NLS
(6276 .. 6296) AAC_NLSout_MESin_R
(6276 .. 6294) NLS_out_R
(6253 .. 6276) ADAR2_CD_Inverse_F
SaCas9_HA_F (6252 .. 6272)
pcDNA3.1_ADAR2(E488Q)_XTEN_dCas9
10,826 bp

FIG. 5

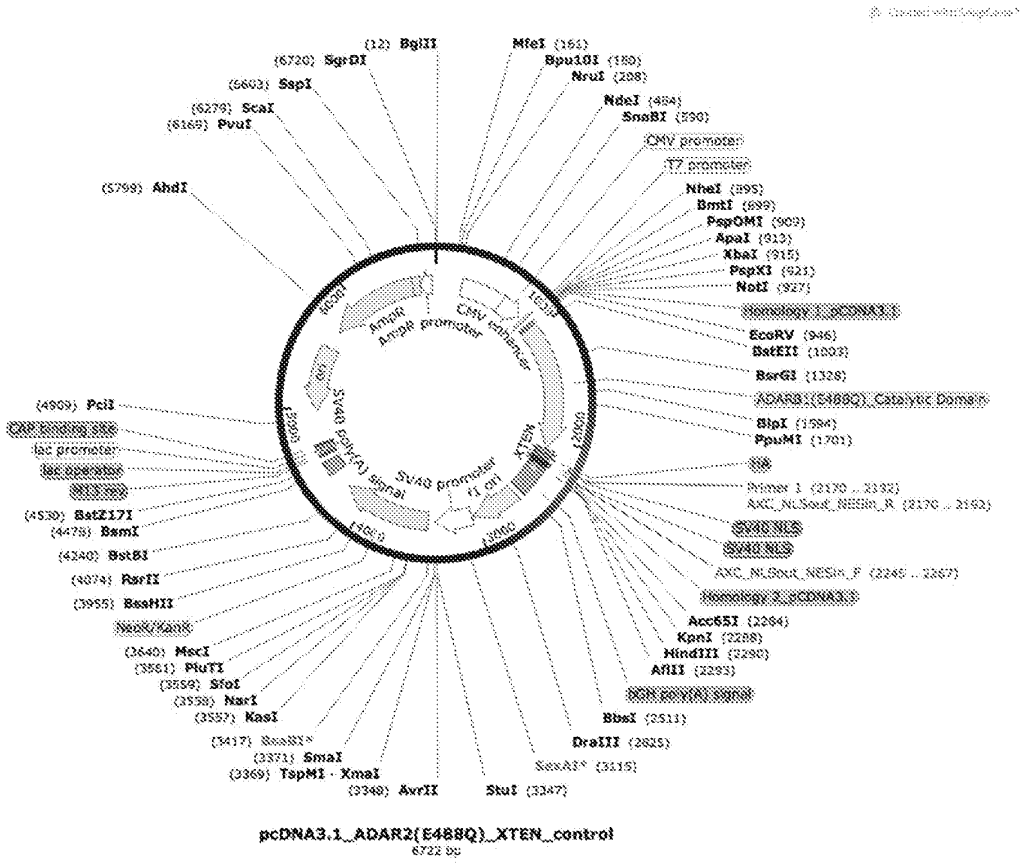

(12) BglII
MfeI (161)
Bpu10I (180)
NruI (208)
NdeI (484)
SnaBI (890)
CMV promoter
T7 promoter
NheI (895)
BmtI (899)
PspOMI (903)
ApaI (913)
XhoI (915)
PspXI (921)
NotI (927)
EcoRV (946)
BstEII (1003)
BsrGI (1328)
BlpI (1594)
PpuMI (1701)
Primer 1 (2170 .. 2192)
AXC_NLSout_NESin_R (2170 .. 2192)
Primer 2 (2246 .. 2267)
AXC_NLSout_NESin_F (2246 .. 2267)
Acc65I (2284)
KpnI (2288)
HindIII (2290)
AflII (2293)
BbsI (2511)
DraIII (2615)
StuI (3347)
AvrII (3348)
TspMI · XmaI (3369)
SmaI (3371)
NsiI (3415)
KasI (3557)
NsrI (3558)
SfoI (3559)
PluTI (3561)
MscI (3640)
BssHII (3955)
BsaBI (4240)
RsrII (4374)
BsmI (4478)
BstZ17I (4538)
PciI (4909)
Amp promoter
CMV enhancer
SV40 promoter
f1 ori
XTEN
SV40 poly(A) signal
pcDNA3.1_ADAR2(E488Q)_XTEN_control
6722 bp

FIG. 6

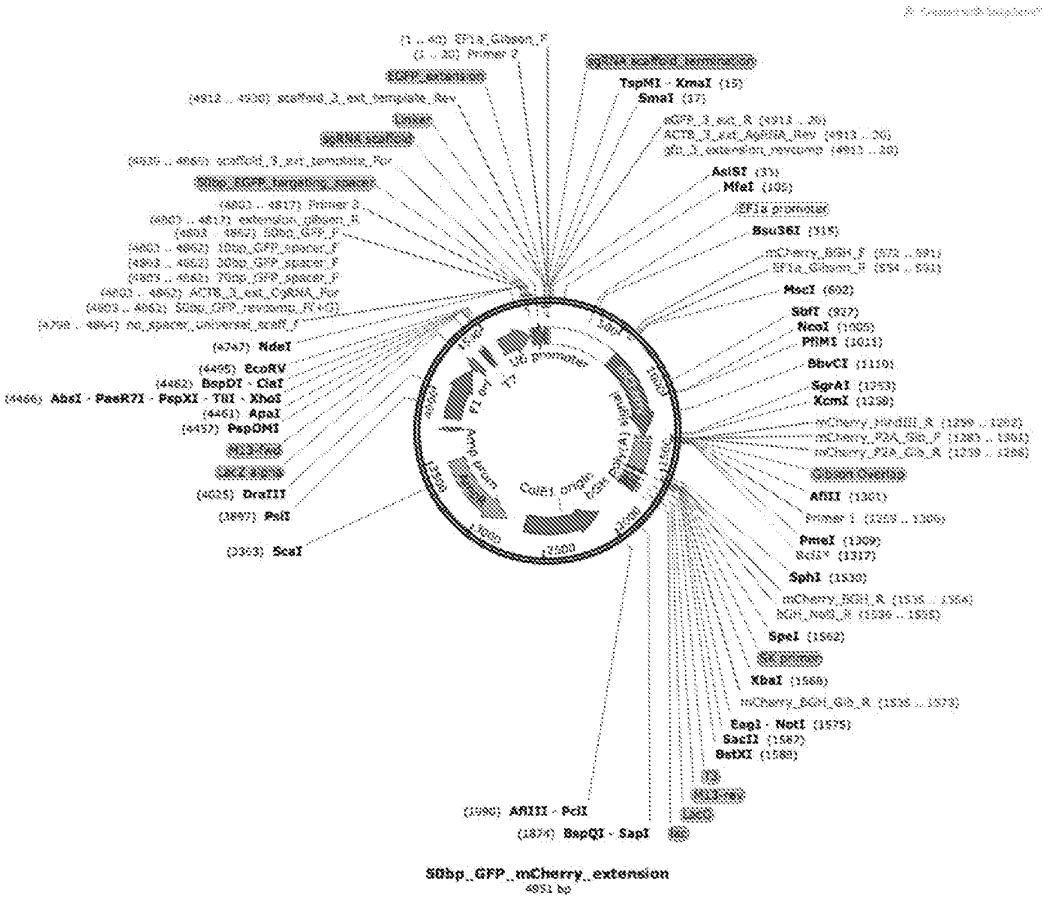

(1 .. 40) EF1a_Gibson_F
(1 .. 20) Primer 2
sgRNA scaffold terminator
TspMI - XmaI (15)
SmaI (17)
mCherry_3_ext_R (4913 .. 20)
ACTB_3_ext_AgeI/SA_Rev (4913 .. 20)
gfp_3_extension_revcomp (4913 .. 20)
AscSI (35)
MfeI (102)
EF1a promoter
BsuS6I (515)
mCherry_BGH_F (572 .. 591)
EF1a_Gibson_R (594 .. 613)
MscI (602)
SbfI (937)
NcoI (1005)
PflMI (1011)
SbvCI (1110)
SgrAI (1153)
XcmI (1158)
mCherry_HindIII_R (1250 .. 1232)
mCherry_P2A_Gib_F (1233 .. 1251)
mCherry_P2A_Gib_R (1250 .. 1268)
Gibson Overlap
AflII (1301)
Primer 1 (1319 .. 1306)
PmeI (1309)
SciI* (1317)
SphI (1330)
mCherry_BGH_R (1535 .. 1554)
BGH_NotI_R (1536 .. 1515)
SpeI (1562)
XbaI (1568)
mCherry_BGH_Gib_R (1536 .. 1573)
EagI - NotI (1575)
SacII (1587)
BstXI (1588)
(1590) AflIII - PciI
(1874) BspQI - SapI
(4813) NdeI
(4466) EcoRV
(4462) BspDI - ClaI
(4456) AhdI - PaeR7I - PspXI - TBI - XhoI
(4461) ApaI
(4457) PspOMI
(4025) DraIII
(3897) PsiI
(3363) ScaI
Col E1 origin
Amp prom
f1 ori
SV40 promoter
Kana/Neo (+)
pUC ori
5000
4000
3000
2000
1000
0
SObp_GFP_mCherry_extension
4951 bp

FIG. 7

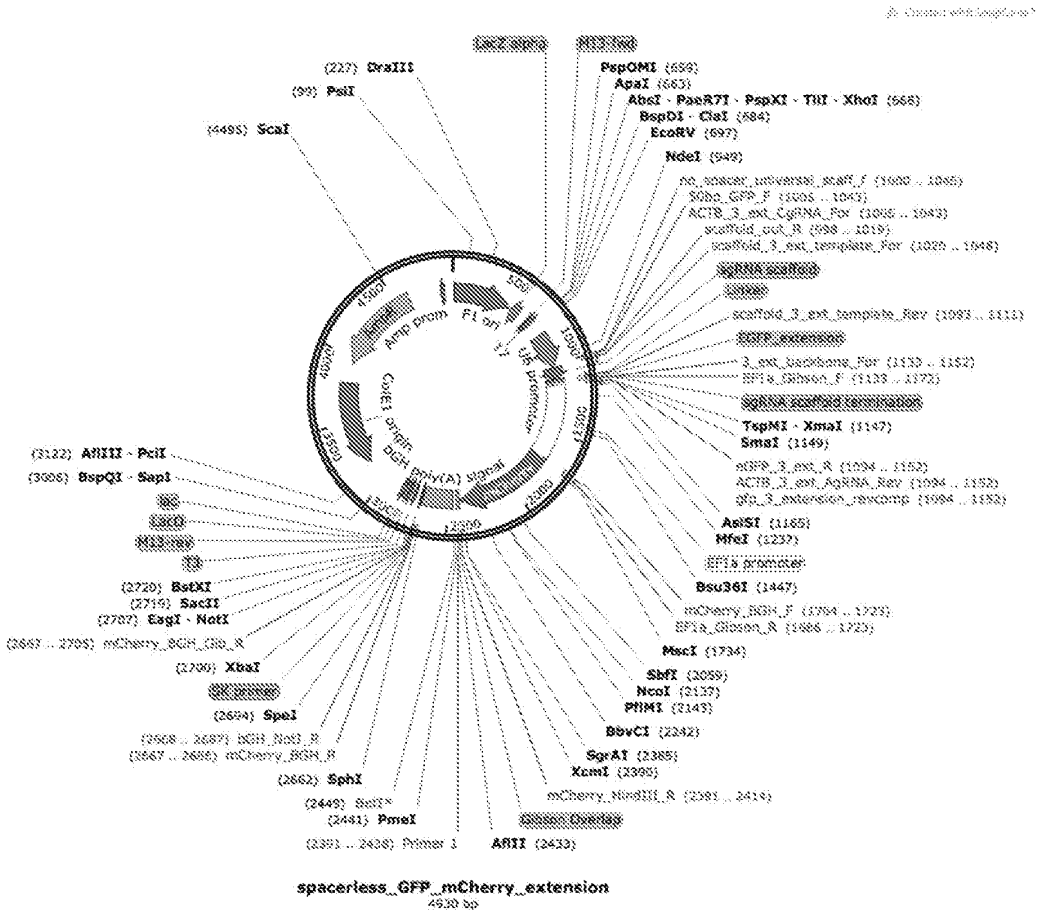

LacZ alpha
M13 fwd
(227) DraIII
(99) PsiI
(4495) ScaI
PspOMI (656)
ApaI (663)
AbsI - PaeR7I - PspXI - TNI - XhoI (668)
BspDI - ClaI (684)
EcoRV (697)
NdeI (948)
no_spacer_universal_scaff_F (1000 .. 1065)
SOno_GFP_F (1005 .. 1043)
ACTB_3_ext_CgRNA_For (1005 .. 1043)
scaffold_oct_R (998 .. 1019)
scaffold_3_ext_template_For (1025 .. 1048)
sgRNA scaffold
CMVie
scaffold_3_ext_template_Rev (1093 .. 1111)
EGFP extension
3_ext_backbone_For (1133 .. 1152)
EF1a_Gibson_F (1139 .. 1172)
sgRNA scaffold termination
TspMI - XmaI (1147)
SmaI (1149)
mGFP_3_ext_R (1094 .. 1152)
ACTB_3_ext_AgRNA_Rev (1094 .. 1152)
gfp_3_extension_revcomp (1094 .. 1152)
AsiSI (1165)
MfeI (1232)
EF1a promoter
Bsu36I (1447)
mCherry_BGH_F (1704 .. 1723)
EF1a_Gibson_R (1686 .. 1725)
MscI (1734)
SbfI (2059)
NcoI (2137)
PflMI (2143)
BbvCI (2242)
SgrAI (2385)
XcmI (2395)
mCherry_HindIII_R (2391 .. 2414)
Gibson Overlap
AflII (2433)
(3122) AflIII - PciI
(3006) BspQI - SapI
(2720) BstXI
(2719) SacII
(2707) EagI - NotI
(3647 .. 2708) mCherry_BGH_Gib_R
(2700) XbaI
(2694) SpeI
(3668 .. 2687) bGH_NotI_R
(3647 .. 2686) mCherry_BGH_R
(2662) SphI
(2449) BstEII
(2481) PmeI
(2391 .. 2408) Primer 3
pUC ori
Amp prom
f1 ori
LTR promoter
Gag
Psi
Rev
RRE
cPPT
CMV enh
Cre1 origin
bGH
polyA signal
WPRE
5'LTR
3'LTR
spacerless_GFP_mCherry_extension
4630 bp

FIG. 8

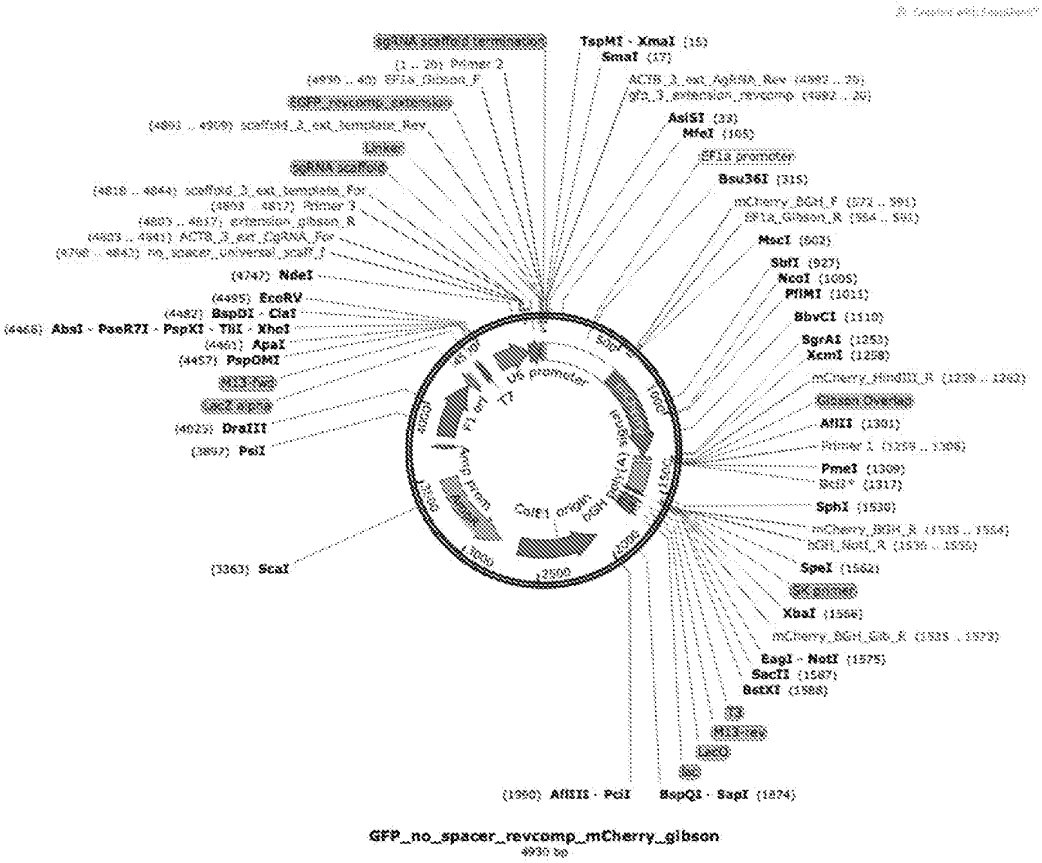

TspMI - XmaI (15)
SmaI (17)
AsiSI (33)
MfeI (165)
EF1a promoter
Bsu36I (315)
MscI (502)
SbfI (927)
NcoI (1005)
PflMI (1011)
BbvCI (1110)
SgrAI (1253)
XcmI (1258)
AflII (1301)
PmeI (1309)
SphI (1530)
SpeI (1562)
XbaI (1568)
EagI - NotI (1575)
SacII (1587)
BstXI (1588)
AflIII - PciI
BspQI - SapI (1874)
ScaI (3363)
DraIII (4023)
PciI (3892)
ApaI (4457)
BspDI - ClaI
EcoRV (4485)
NdeI (4734)
ori
Amp promoter
ColE1 origin
pGH
f1 ori
T7
U6 promoter
2500
GFP_no_spacer_revcomp_mCherry_gibson
4930 bp

FIG. 9

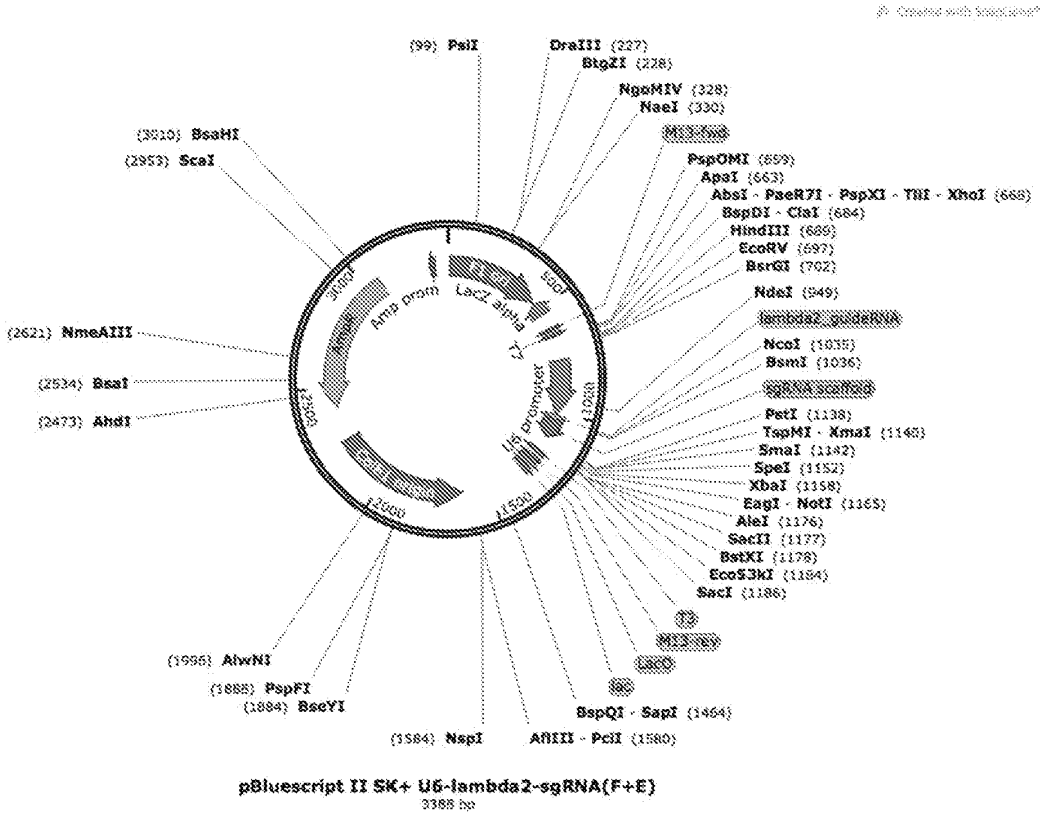

(99) PstI
DraIII (227)
BtgZI (228)
NgoMIV (328)
NaeI (330)
(3810) BsaHI
(2953) ScaI
PspOMI (659)
ApaI (663)
AbsI - PaeR7I - PspXI - TliI - XhoI (668)
BspDI - ClaI (684)
HindIII (689)
EcoRV (697)
BsrGI (702)
NdeI (949)
lambda2 guideRNA
NcoI (1035)
BsmI (1036)
sgRNA scaffold
PstI (1138)
TspMI - XmaI (1140)
SmaI (1142)
SpeI (1152)
XbaI (1158)
EagI - NotI (1165)
AleI (1176)
SacII (1177)
BstXI (1178)
Eco53kI (1184)
SacI (1186)
(2621) NmeAIII
(2534) BsaI
(2473) AhdI
(1996) AlwNI
(1888) PspFI
(1884) BseYI
(1584) NspI
AflIII - PciI (1580)
BspQI - SapI (1464)
pBluescript II SK+ U6-lambda2-sgRNA(F+E)
3388 bp

FIG. 10

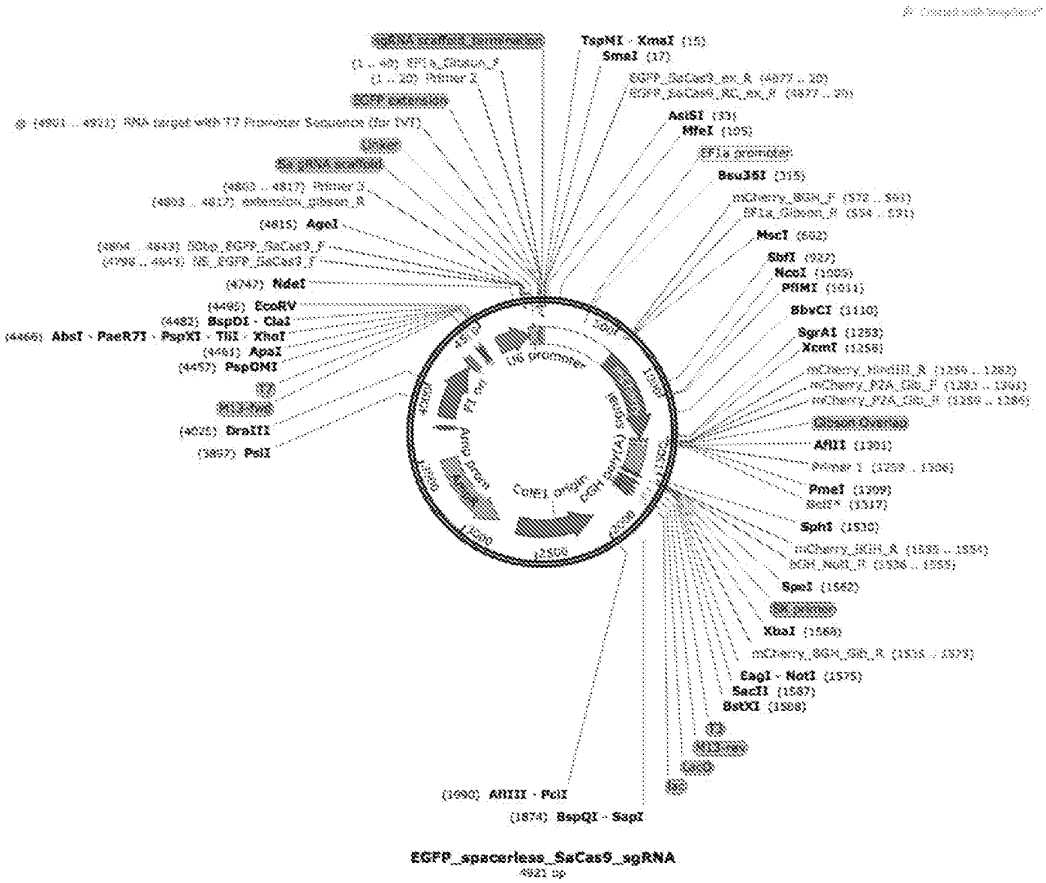

TspMI - XmaI (15)
SmaI (17)
AstSI (33)
MfeI (105)
Bsu36I (315)
MscI (602)
SbfI (937)
NcoI (1005)
PflMI (1031)
BbvCI (1110)
SgrAI (1253)
XcmI (1256)
AflII (1301)
PmeI (1309)
SphI (1510)
SpeI (1562)
XbaI (1569)
EagI - NotI (1575)
SacII (1587)
BstXI (1598)
(1690) AflIII - PciI
(1874) BspQI - SapI
EGFP_spacerless_SaCas9_sgRNA
4921 bp

FIG. 11

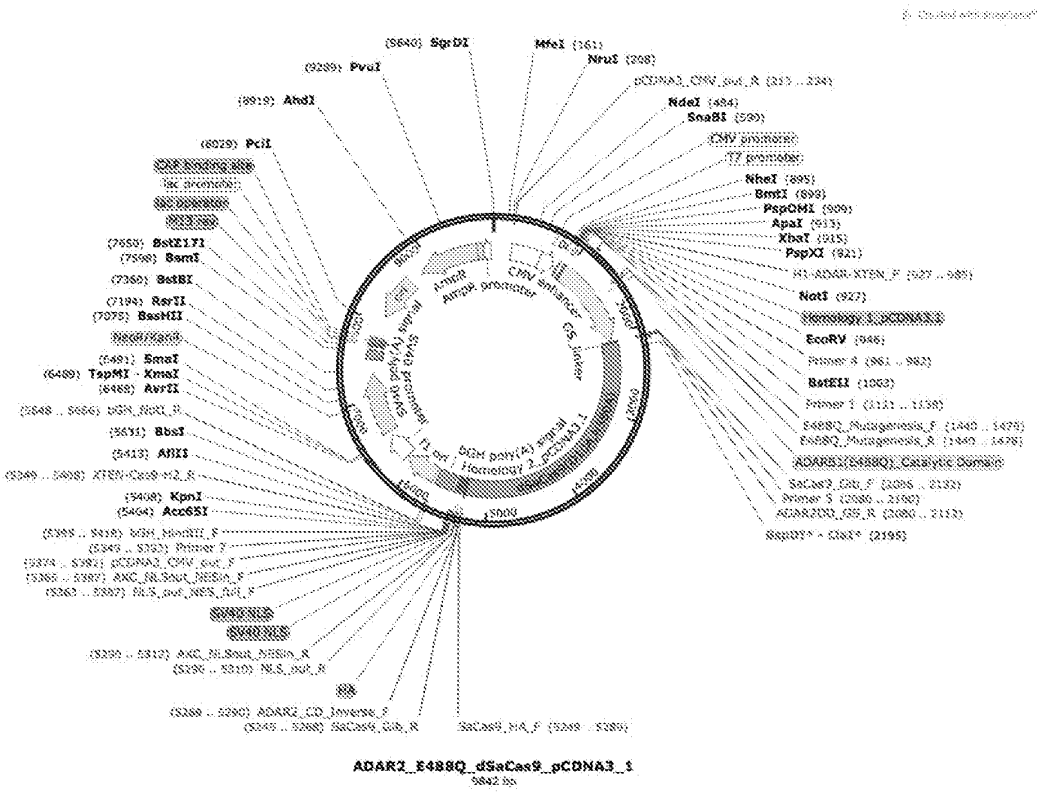

(9640) SgrDI
MfeI (161)
NruI (208)
(9289) PvuI
(8919) AhdI
NdeI (484)
SnaBI (539)
(8029) PciI
CMV promoter
T7 promoter
NheI (895)
BmtI (899)
PspOMI (909)
ApaI (915)
XbaI (915)
PspXI (921)
NotI (927)
EcoRV (946)
BstEII (1052)
(7650) BstE1YI
(7598) BsmI
(7360) BstBI
(7194) RsrII
(7075) BssHII
(6491) SmaI
(6489) TspMI - XmaI
(6488) AvrII
(5631) BbsI
(5613) AflII
(5408) KpnI
(5404) Acc65I
(5382) Primer 7
(5365 .. 5387) NLS_out_NES_for_F
(5310) NLS_out_R
(5288 .. 5290) ADAR2_CD_inverse_F
(5245 .. 5268) SaCas9_Cob_R
SaCas9_HA_F (5209 .. 5289)
ADAR2_E488Q_dSaCas9_pCDNA3_1
5842 bs

FIG. 12

Sp-CREDITv1



Sa-CREDITv1

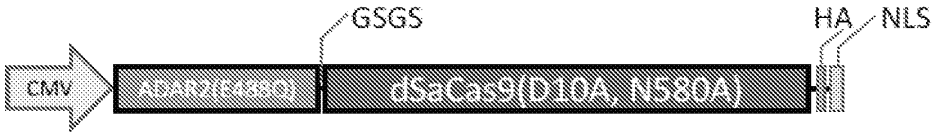
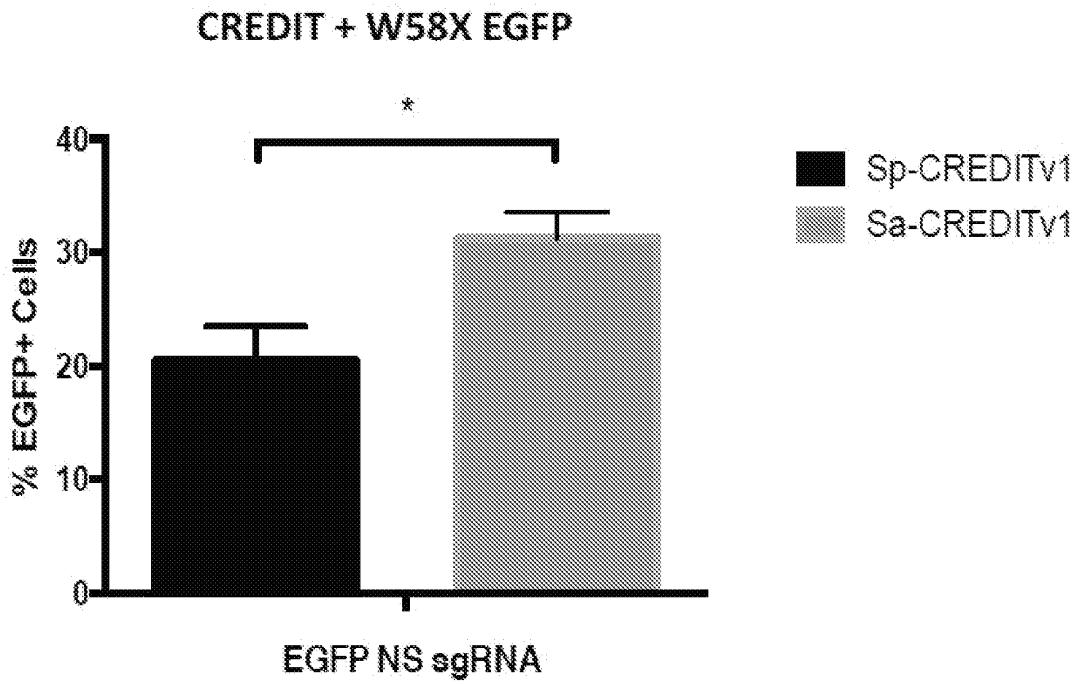


FIG. 13A



* < 0.05 p-value one-way ANOVA

FIG. 13B