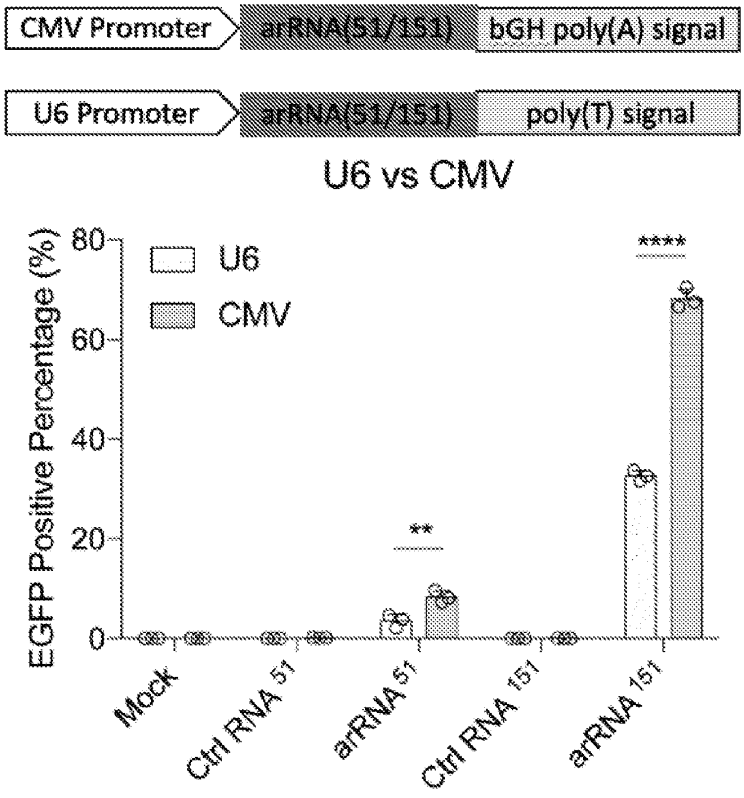

CMV Promoter
arRNA(51/151)
bGH poly(A) signal
U6 Promoter
arRNA(51/151)
poly(T) signal
U6 vs CMV
EGFP Positive Percentage (%)
80
60
40
20
0
U6
CMV
**
****
Mock
Ctrl RNA 51
arRNA 51
Ctrl RNA 151
arRNA 151

FIG. 1


5'
hU6
sno
arRNA
sno
polyT
CMV
BFP
polyA
3'

FIG. 2A

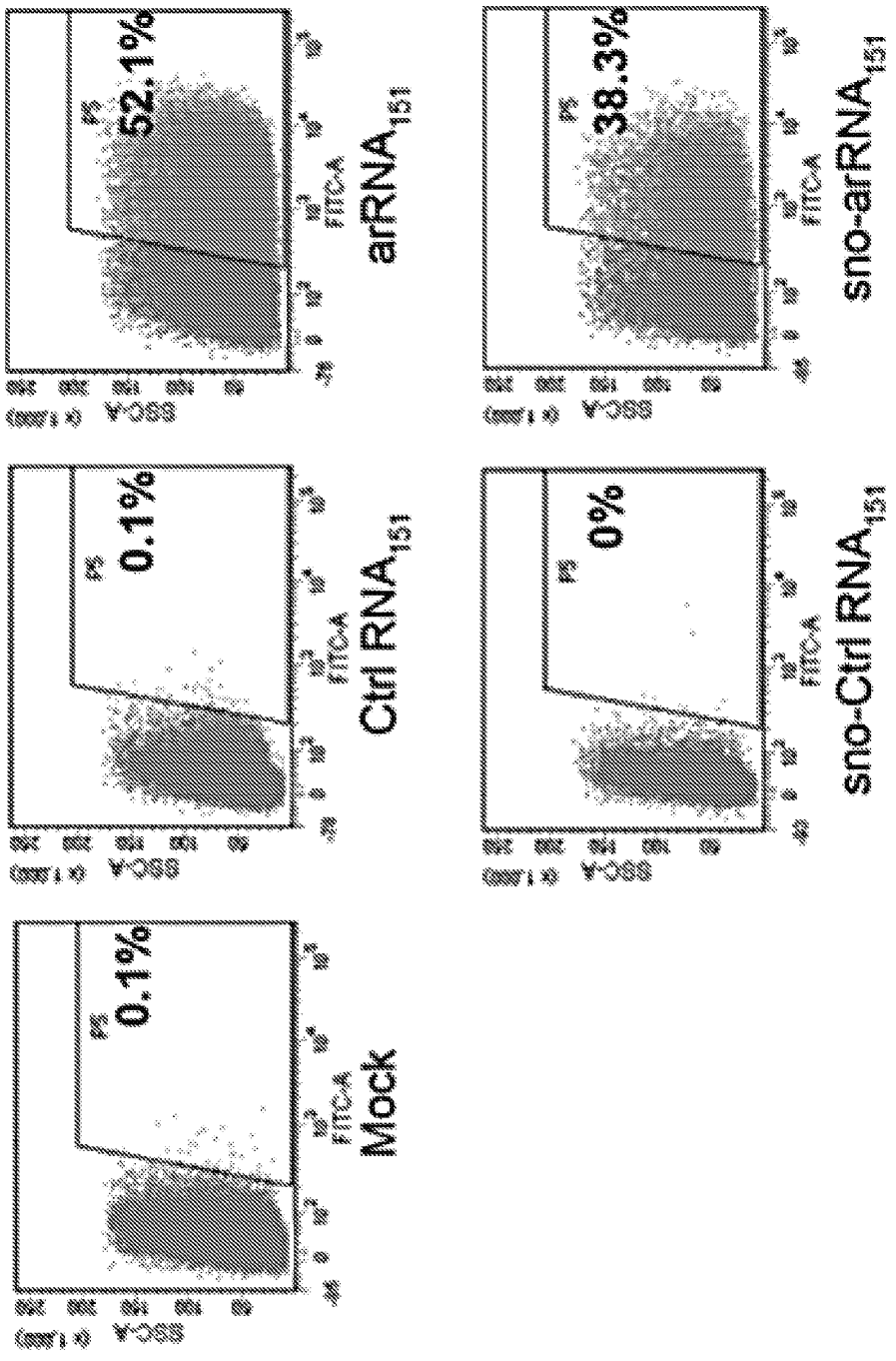

52.1%
arRNA151
38.3%
sno-arRNA151
0.1%
Ctrl RNA151
0%
sno-Ctrl RNA151
0.1%
Mock
FITC-A
SSC-A

FIG. 2B

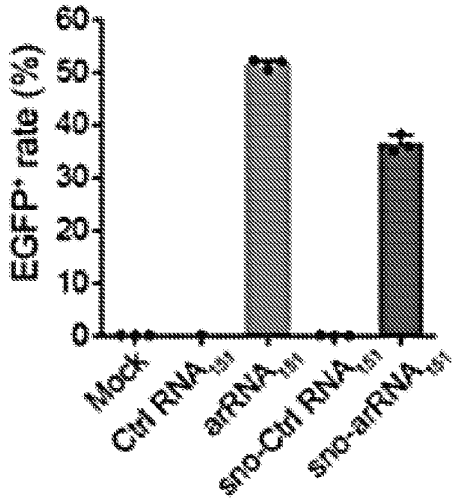

EGFP+ rate (%)
60
50
40
30
20
10
0
Mock
Ctrl RNA151
arRNA151
sno-Ctrl RNA151
sno-arRNA151

FIG. 2C

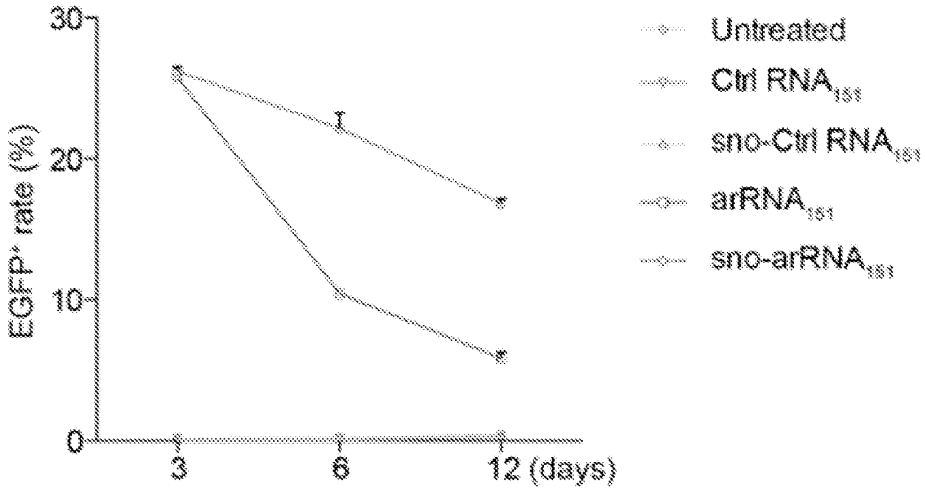

EGFP+ rate (%)
30
20
10
0
3
6
12 (days)
Untreated
Ctrl RNA151
sno-Ctrl RNA151
arRNA151
sno-arRNA151

FIG. 3A

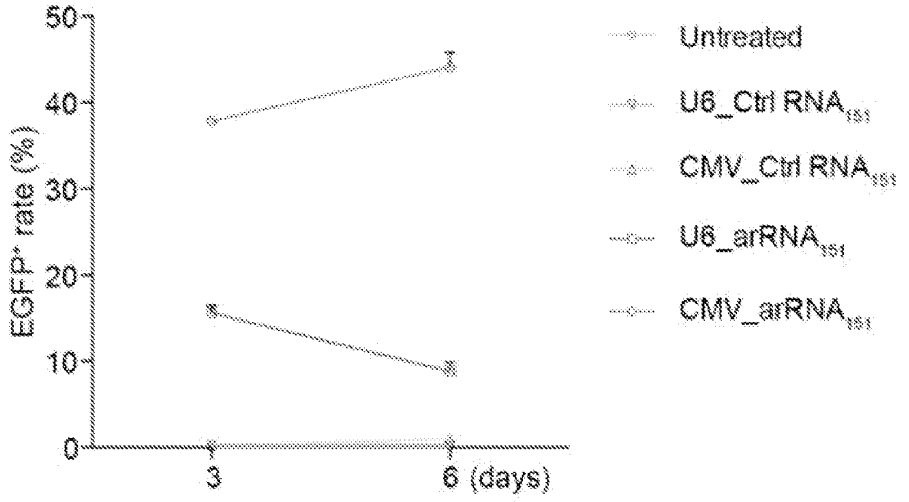

50
40
30
20
10
0
EGFP+ rate (%)
3
6 (days)
Untreated
U6_Ctrl RNA151
CMV_Ctrl RNA151
U6_arRNA151
CMV_arRNA151

FIG. 3B

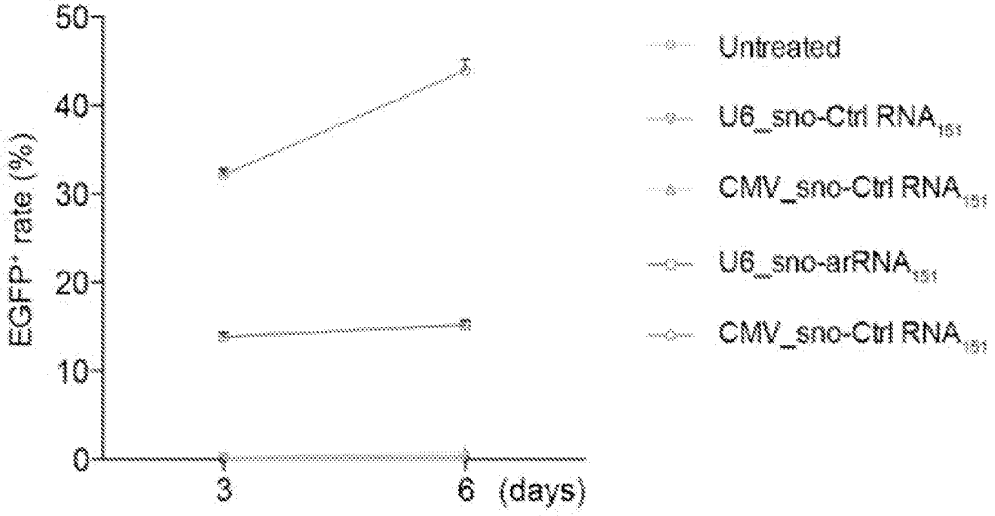

50
40
30
20
10
0
EGFP+ rate (%)
3
6 (days)
Untreated
U6_sno-Ctrl RNA151
CMV_sno-Ctrl RNA151
U6_sno-arRNA151
CMV_sno-Ctrl RNA151

FIG. 3C

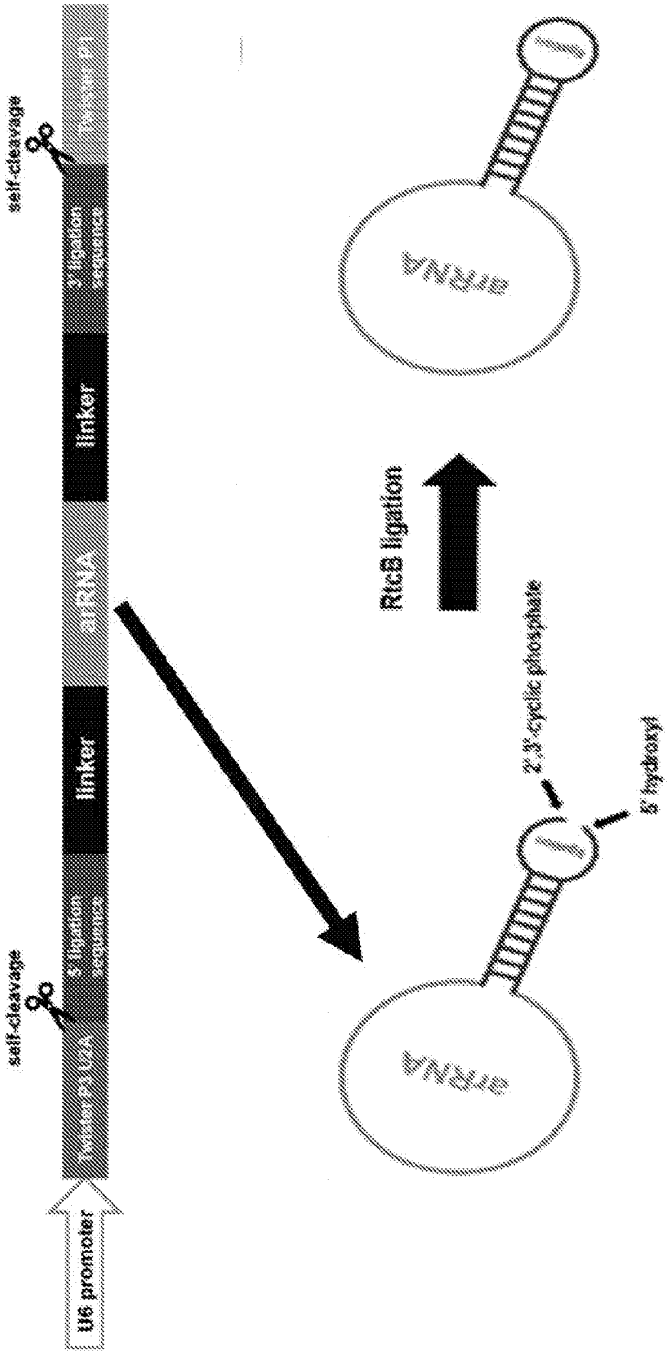

U6 promoter
self-cleavage
linker
linker
self-cleavage
RtcB ligation
2',3'-cyclic phosphate
5' hydroxyl
tRNA
tRNA

FIG. 4A

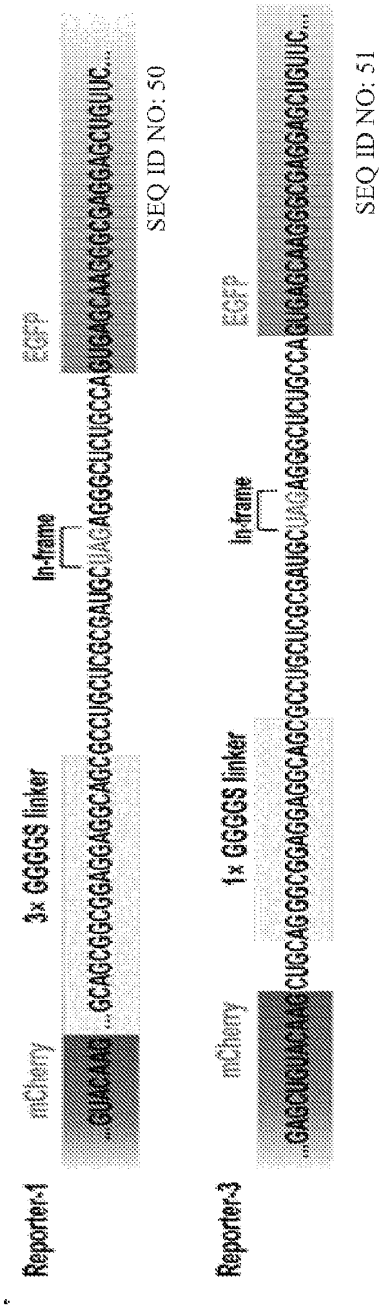

Reporter-1
mCherry
3x GGGGS linker
In-frame
EGFP
...GUACAAG...GCAGCGGCGGGAGGAGGCAGCGCCUGCUGCGCGAUGCGUACAGGGCUCUGCCAGUGAGCAAGGGCGAGGAGCUGUUC...
SEQ ID NO: 50
Reporter-3
mCherry
1x GGGGS linker
In-frame
EGFP
...GAGCUGUACAAGCUGCAGGGCGGAGGAGGCAGCGGCCUGCUGCGCGAUGCGUACAGGGCUCUGCCAGUGAGCAAGGGCGAGGAGCUGUUC...
SEQ ID NO: 51

FIG. 4B

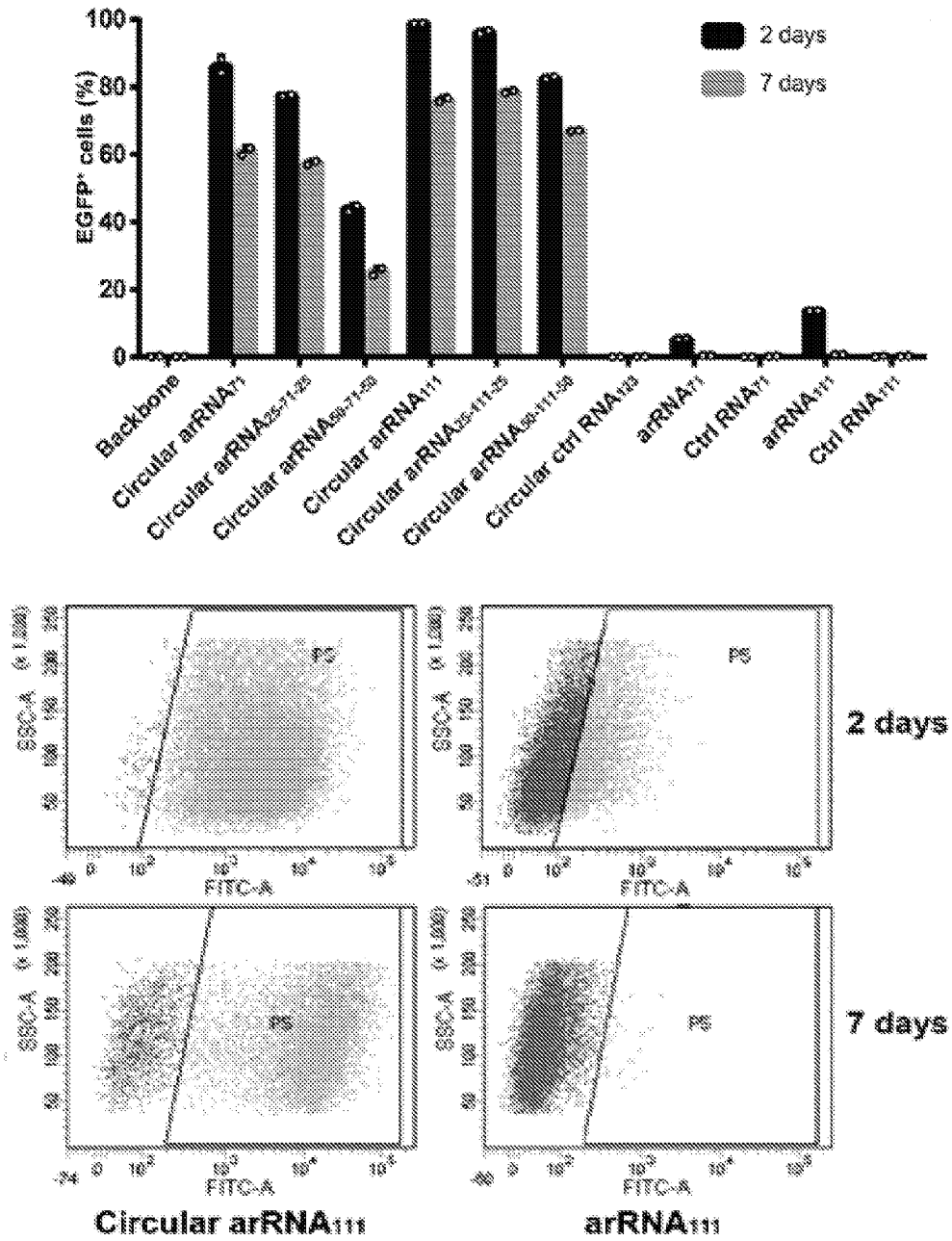

EGFP+ cells (%)
100
80
60
40
20
0
2 days
7 days
Backbone
Circular arRNA71
Circular arRNA25-71-25
Circular arRNA59-71-59
Circular arRNA111
Circular arRNA25-111-25
Circular arRNA59-111-59
Circular ctrl RNA129
arRNA71
Ctrl RNA71
arRNA111
Ctrl RNA111
SSC-A
FITC-A
P5
2 days
7 days
Circular arRNA111
arRNA111

FIG. 4C

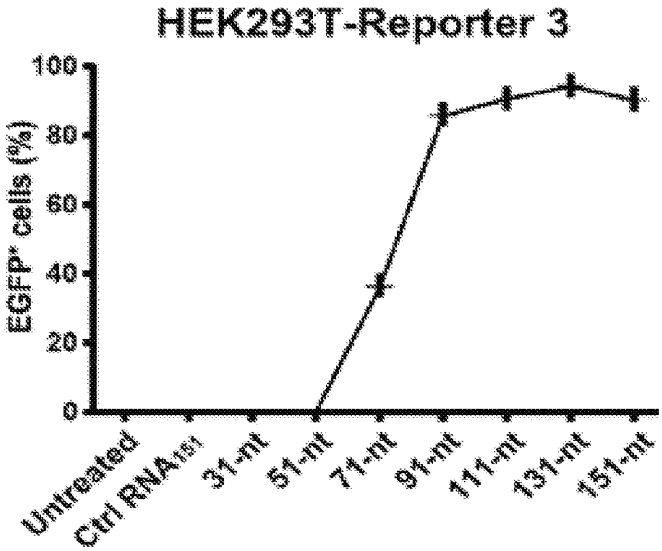

HEK293T-Reporter 3
EGFP+ cells (%)
100
80
60
40
20
0
Untreated
Ctrl RNA151
31-nt
51-nt
71-nt
91-nt
111-nt
131-nt
151-nt

FIG. 4D

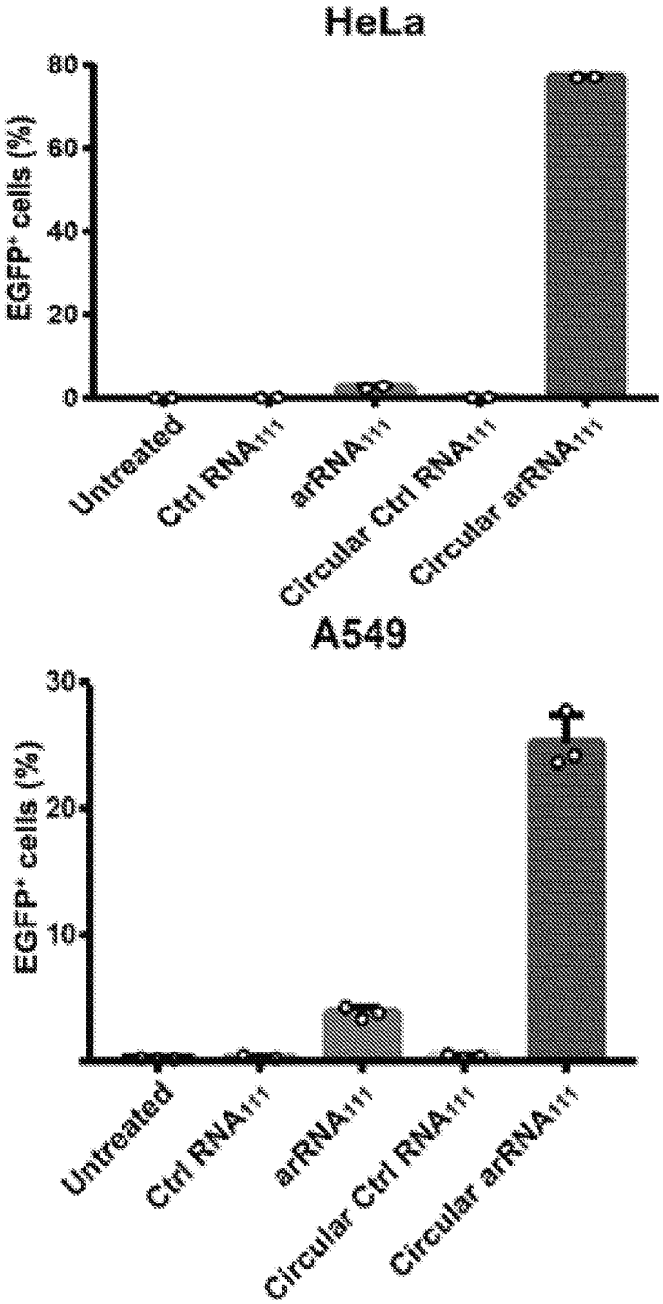

HeLa
EGFP+ cells (%)
80
60
40
20
0
Untreated
Ctrl RNA111
arRNA111
Circular Ctrl RNA111
Circular arRNA111
A549
EGFP+ cells (%)
30
20
10
Untreated
Ctrl RNA111
arRNA111
Circular Ctrl RNA111
Circular arRNA111

FIG. 4E

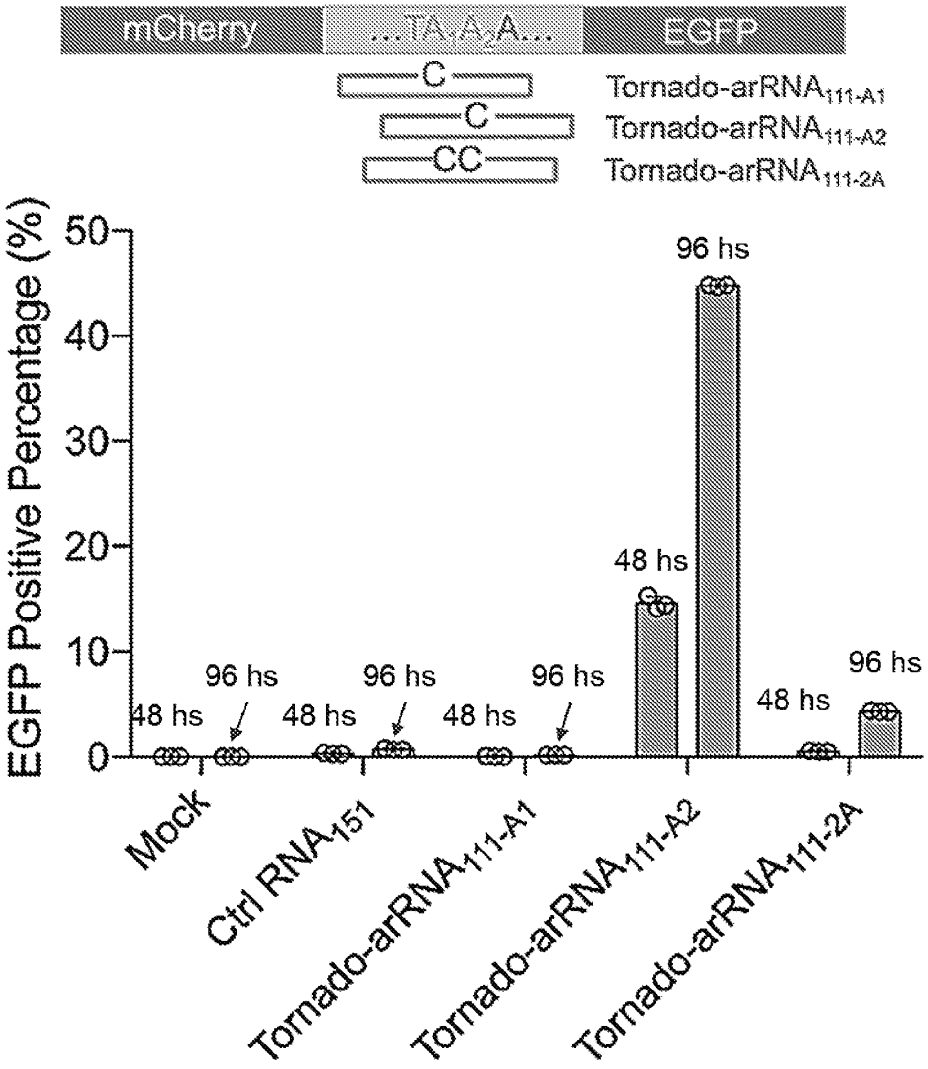

mCherry
...TA-A2A...
EGFP
C
C
CC
Tornado-arRNA111-A1
Tornado-arRNA111-A2
Tornado-arRNA111-2A
EGFP Positive Percentage (%)
50
40
30
20
10
0
48 hs
96 hs
48 hs
96 hs
48 hs
96 hs
48 hs
96 hs
48 hs
96 hs
Mock
Ctrl RNA151
Tornado-arRNA111-A1
Tornado-arRNA111-A2
Tornado-arRNA111-2A

FIG. 5

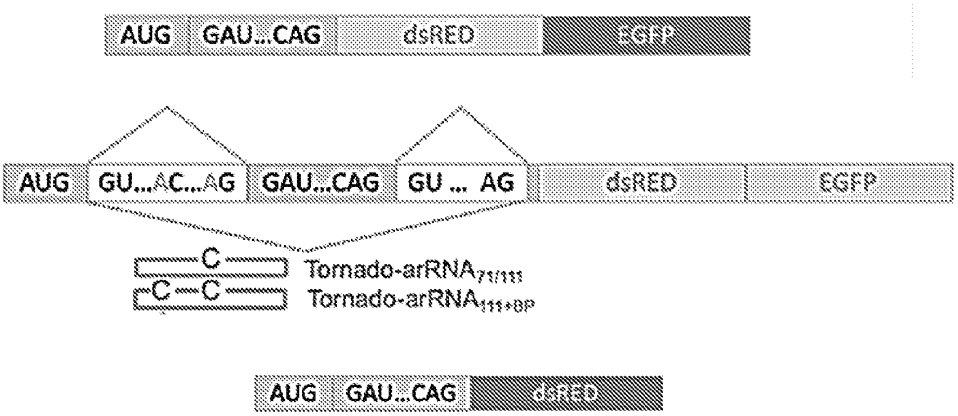

AUG
GAU...CAG
dsRED
EGFP
AUG
GU...AC...AG
GAU...CAG
GU ... AG
dsRED
EGFP
Tornado-arRNA71/111
Tornado-arRNA111+BP
AUG
GAU...CAG
dsRED

FIG. 6A

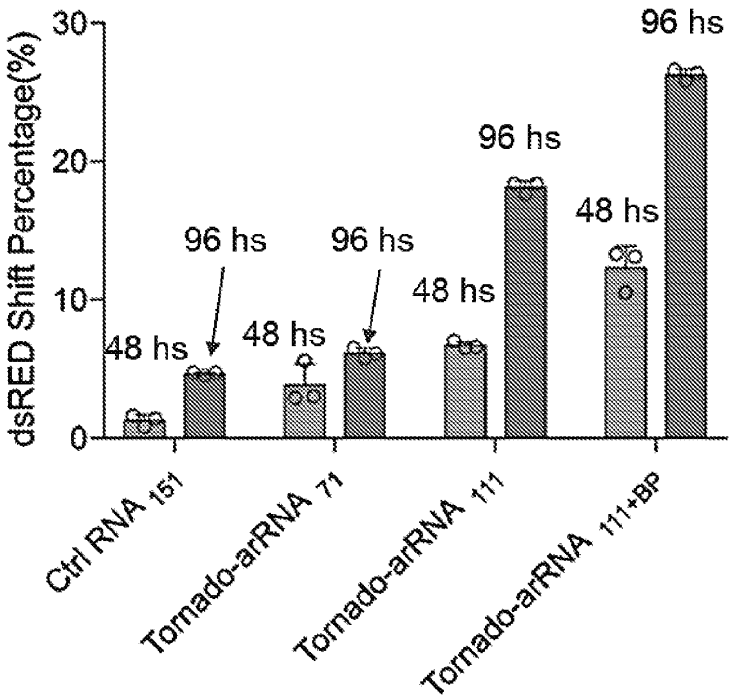

dsRED Shift Percentage(%)
30
20
10
0
48 hs
96 hs
48 hs
96 hs
48 hs
96 hs
48 hs
96 hs
Ctrl RNA 151
Tornado-arRNA 71
Tornado-arRNA 111
Tornado-arRNA 111+BP

FIG. 6B

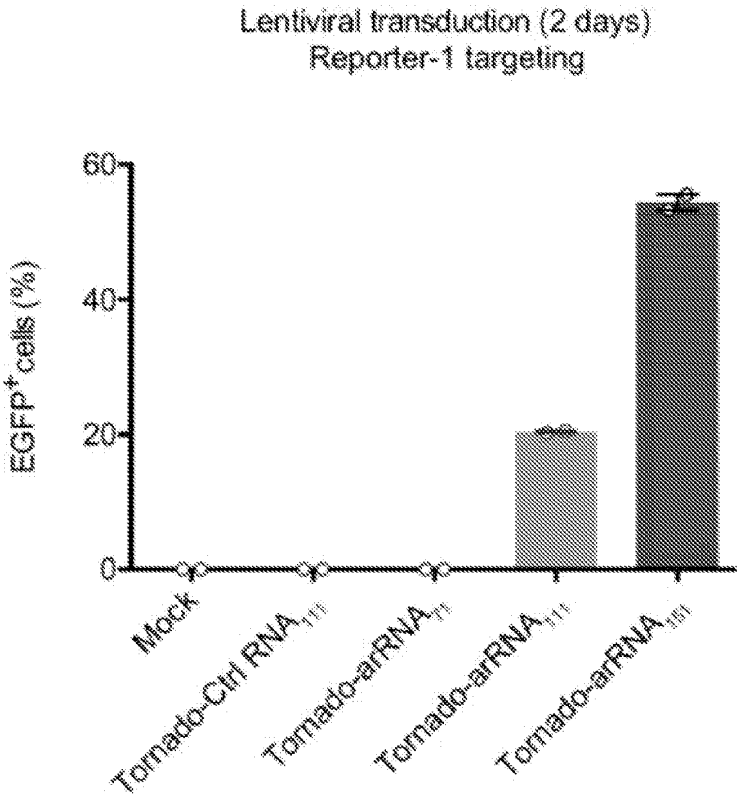

Lentiviral transduction (2 days)
Reporter-1 targeting
EGFP+ cells (%)
60
40
20
0
Mock
Tornado-Ctrl RNA(+1)
Tornado-arRNA(+1)
Tornado-arRNA(+1.1)
Tornado-arRNA(-10)

FIG. 7