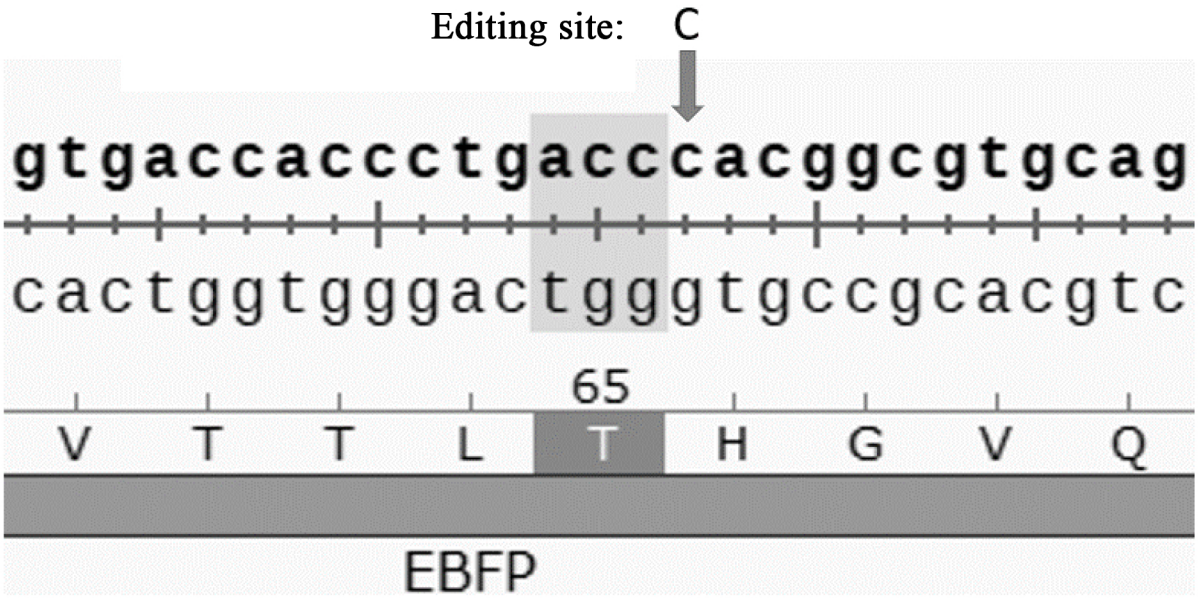

Editing site:
C
gtgaccaccctgacccacggcgtgcag
cactggtgggactgggtgccgcacgtc
65
V T T L T H G V Q
EBFP

Figure 1

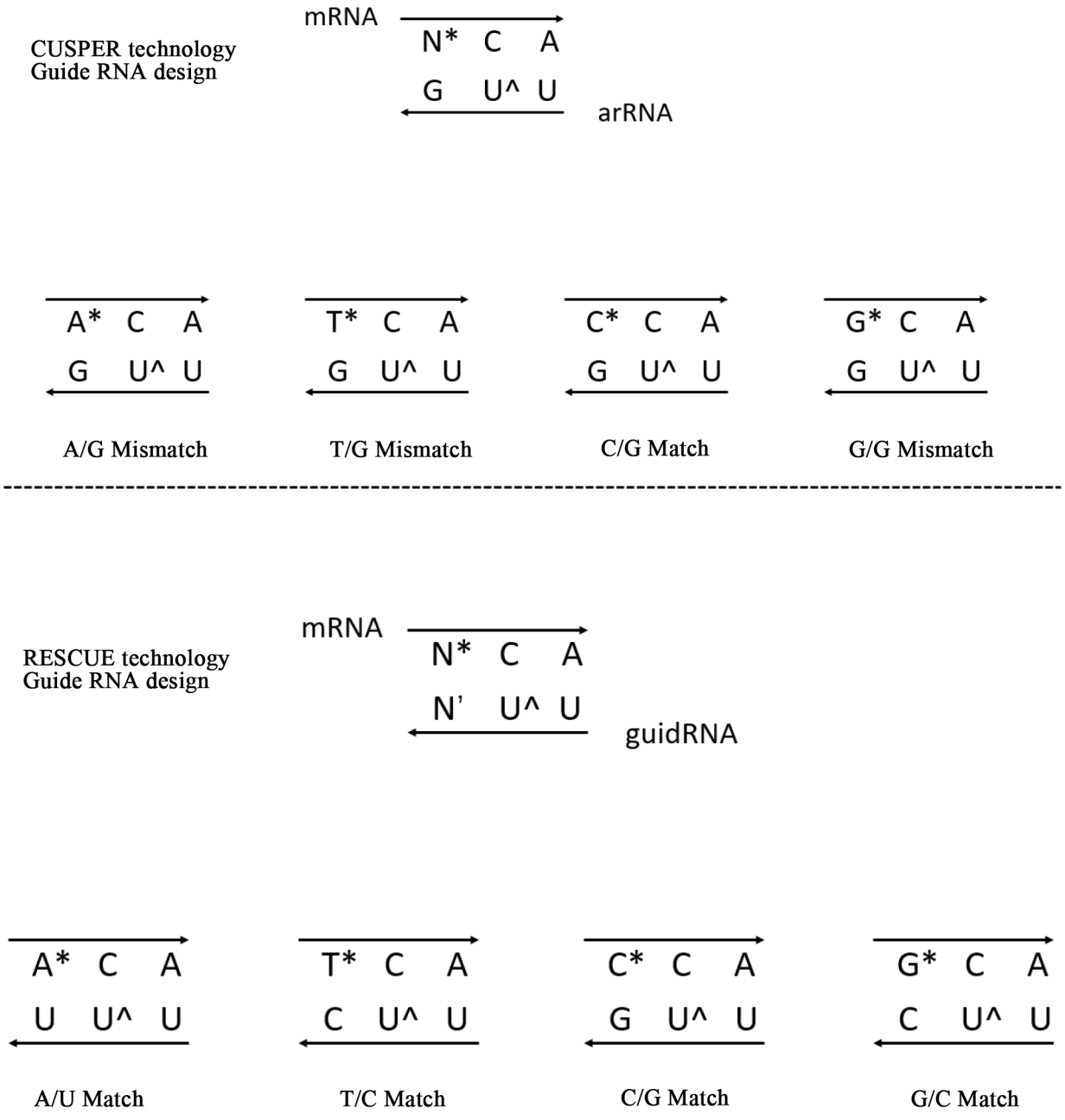

CUSPER technology
Guide RNA design
mRNA
N* C A
G U^ U
arRNA
A* C A
G U^ U
A/G Mismatch
T* C A
G U^ U
T/G Mismatch
C* C A
G U^ U
C/G Match
G* C A
G U^ U
G/G Mismatch
RESCUE technology
Guide RNA design
mRNA
N* C A
N' U^ U
guidRNA
A* C A
U U^ U
A/U Match
T* C A
C U^ U
T/C Match
C* C A
G U^ U
C/G Match
G* C A
C U^ U
G/C Match

Figure 2

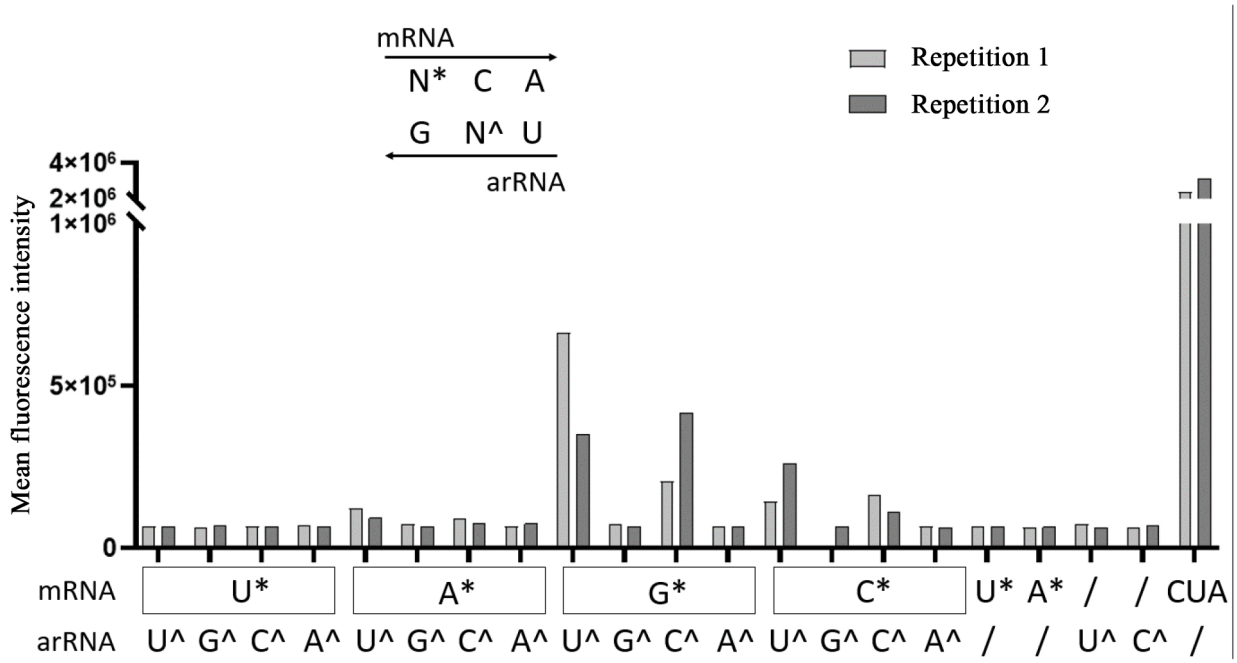

mRNA
N* C A
G N^ U
arRNA
Repetition 1
Repetition 2
Mean fluorescence intensity
4×10⁶
2×10⁶
1×10⁶
5×10⁵
0
mRNA
U*
A*
G*
C*
U* A* / / CUA
arRNA
U^ G^ C^ A^ U^ G^ C^ A^ U^ G^ C^ A^ U^ G^ C^ A^ / / U^ C^ /

Figure 3

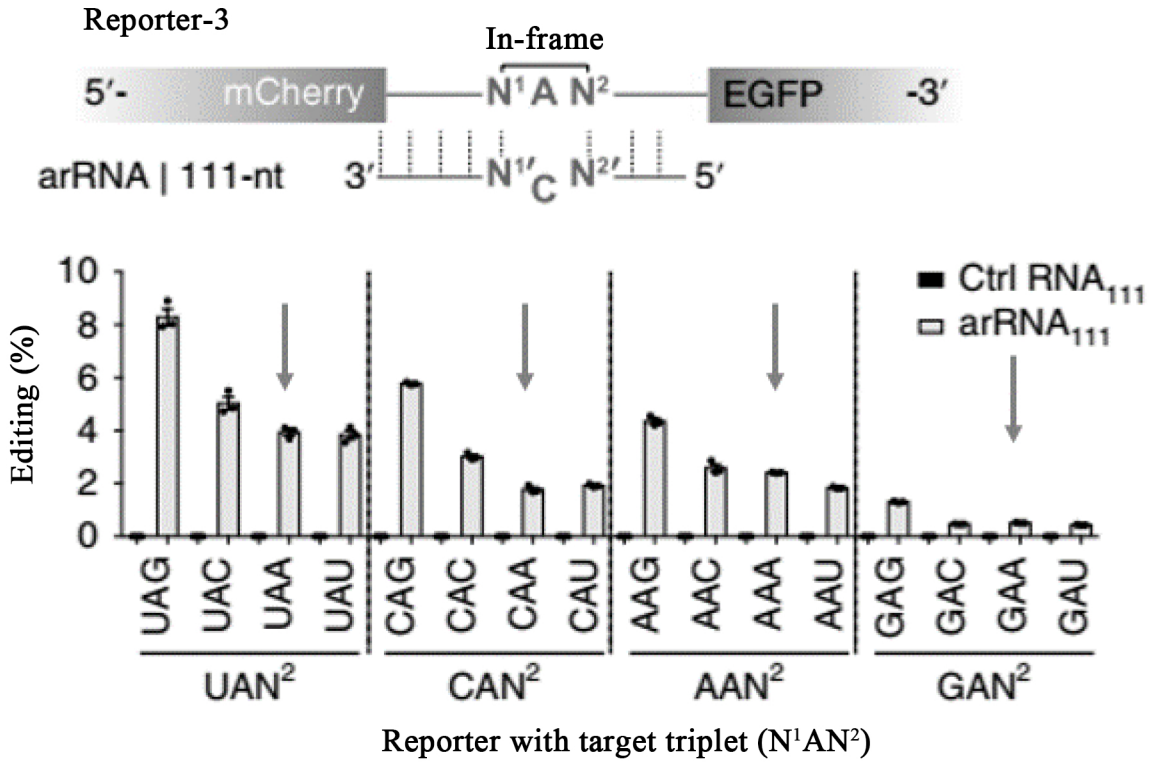

Reporter-3
In-frame
5′-
mCherry
N¹ A N²
EGFP
-3′
arRNA | 111-nt
3′
N¹′C N²′
5′
Editing (%)
10
8
6
4
2
0
Ctrl RNA111
arRNA111
UAG
UAC
UAA
UAU
CAG
CAC
CAA
CAU
AAG
AAC
AAA
AAU
GAG
GAC
GAA
GAU
UAN2
CAN2
AAN2
GAN2
Reporter with target triplet (N¹AN²)

Figure 4

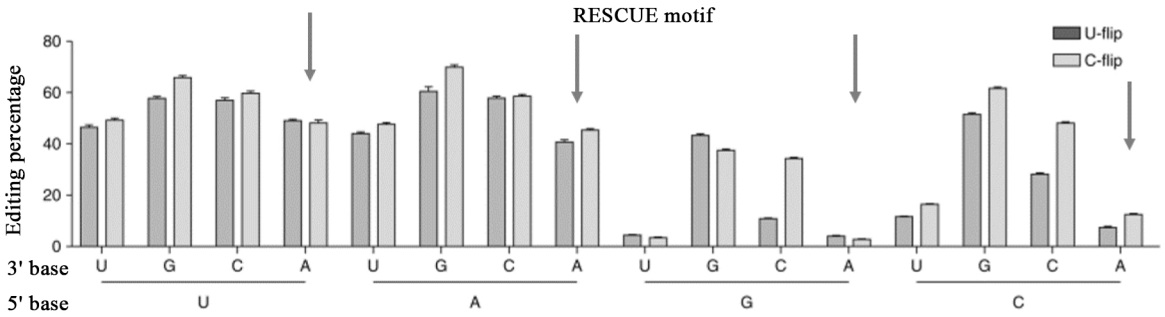

RESCUE motif
U-flip
C-flip
Editing percentage
80
60
40
20
0
3' base
5' base
U G C A U G C A U G C A U G C A
U
A
G
C

Figure 5

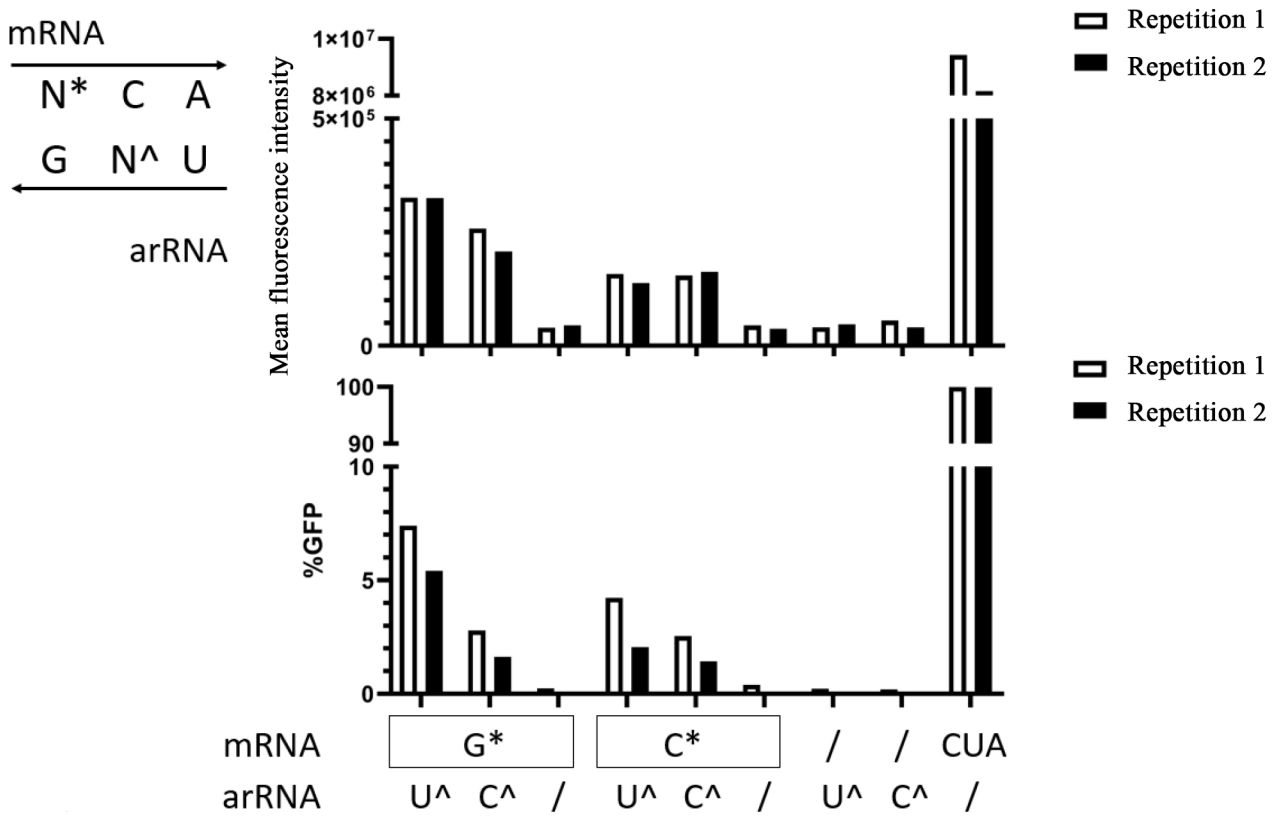

mRNA
N* C A
G N^ U
arRNA
Mean fluorescence intensity
1×10^7
8×10^6
5×10^5
0
Repetition 1
Repetition 2
100
90
10
5
0
%GFP
Repetition 1
Repetition 2
mRNA
G*
C*
/ / CUA
arRNA
U^ C^ / U^ C^ / U^ C^ /

Figure 6

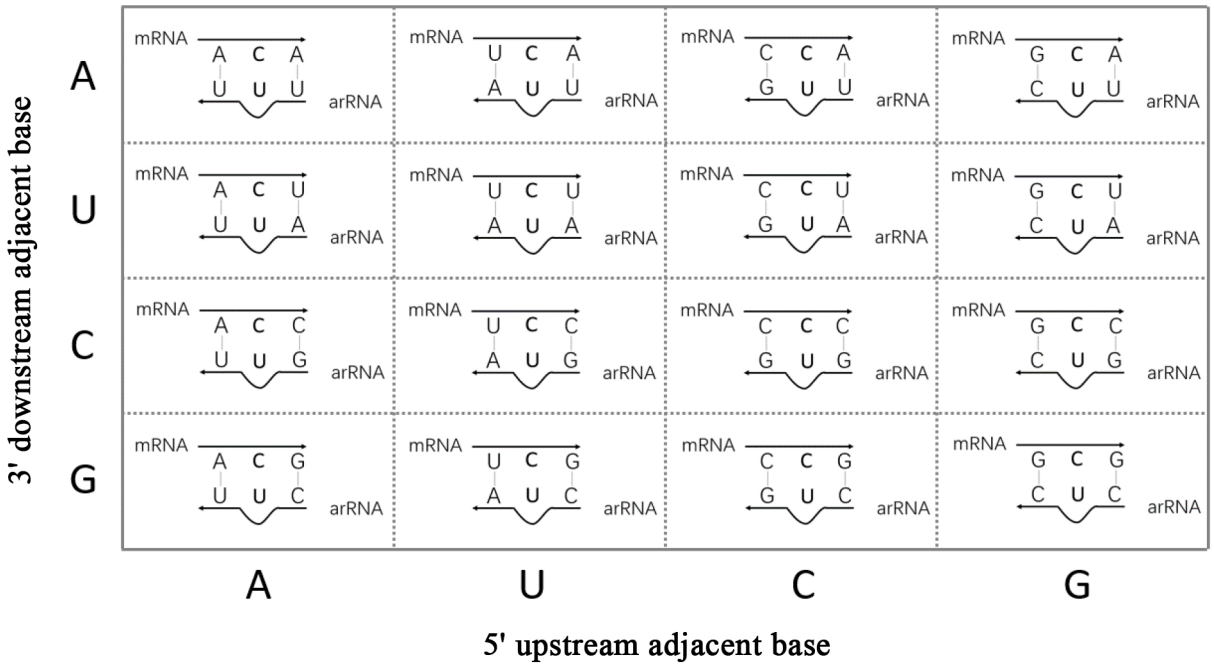

3' downstream adjacent base
A
U
C
G
mRNA
arRNA
A C A
U U U
U C A
A U U
C C A
G U U
G C A
C U U
A C U
U U A
U C U
A U A
C C U
G U A
G C U
C U A
A C C
U U G
U C C
A U G
C C C
G U G
G C C
C U G
A C G
U U C
U C G
A U C
C C G
G U C
G C G
C U C
A
U
C
G
5' upstream adjacent base

Figure 7

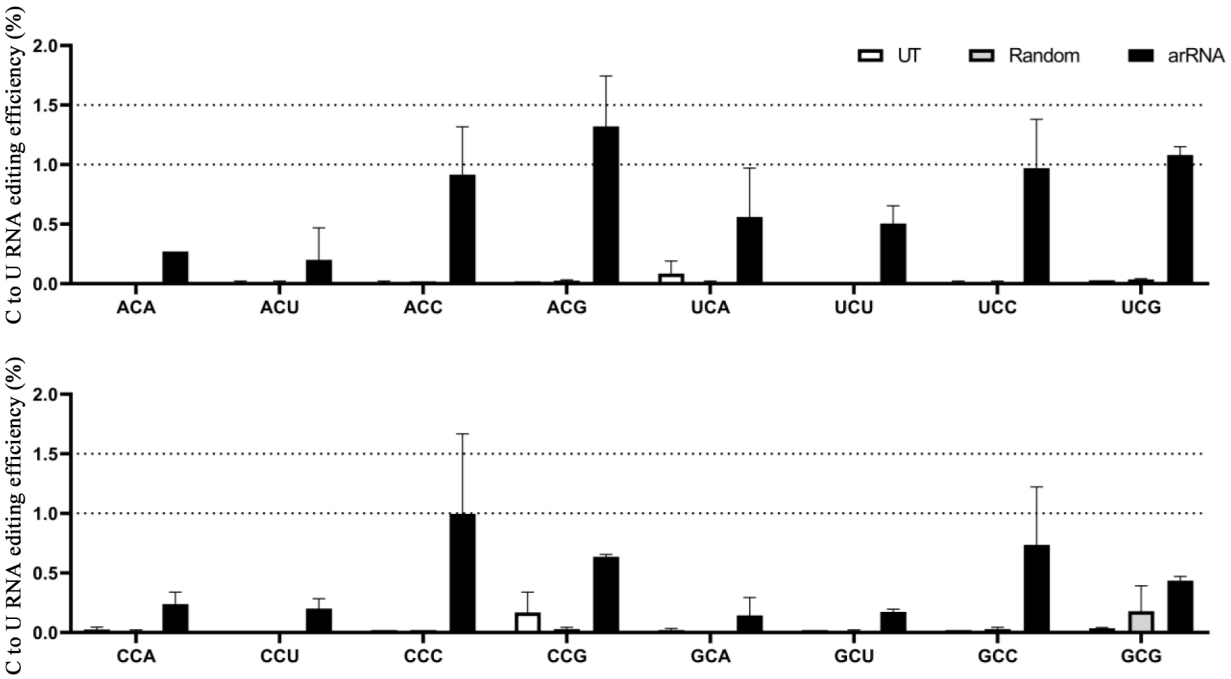

C to U RNA editing efficiency (%)
2.0
1.5
1.0
0.5
0.0
UT
Random
arRNA
ACA
ACU
ACC
ACG
UCA
UCU
UCC
UCG
C to U RNA editing efficiency (%)
2.0
1.5
1.0
0.5
0.0
CCA
CCU
CCC
CCG
GCA
GCU
GCC
GCG

Figure 8