UAAUACGACUCACUAUAAUAAGCCCGCAGGUUUUUGUUUUGUCGGUUAGGGGUUCCG
UGACUCUAAGGCCACCAUGGAGGACGCCAAGAACAUCAAGAAGGGCCCCGCCCCCUUC
UACCCCCUGGAGGACGGCACCGCCGGCGAGCAGCUGCACAAGGCCAUGAAGCGGUACG
CCCUGGUGCCCGGCACCAUCGCCUUCACCGACGCCCACAUCGAGGUGGACAUCACCUA
CGCCGAGUACUUCGAGAUGAGCGUGCGGCUGGCCGAGGCCAUGAAGCGGUACGGCCU
GAACACCAACCACCGGAUCGUGGUGUGCAGCGAGAACAGCCUGCAGUUCUUCAUGCCC
GUGCUGGGCGCCCUGUUCAUCGGCGUGGCCGUGGCCCCCGCCAACGACAUCUACAACG
AGCGGGAGCUGCUGAACAGCAUGGGCAUCAGCCAGCCCACCGUGGUGUUCGUGAGCAA
GAAGGGCCUGCAGAAGAUCCUGAACGUGCAGAAGAAGCUGCCCAUCAUCCAGAAGAUC
AUCAUCAUGGACAGCAAGACCGACUACCAGGGCUUCCAGAGCAUGUACACCUUCGUGA
CCAGCCACCUGCCCCCCGGCUUCAACGAGUACGACUUCGUGCCCGAGAGCUUCGACCG
GGACAAGACCAUCGCCCUGAUCAUGAACAGCAGCGGCAGCACCGGCCUGCCCAAGGGC
GUGGCCCUGCCCCACCGGACCGCCUGCGUGCGGUUCAGCCACGCCCGGGACCCCAUCU
UCGGCAACCAGAUCAUCCCCGACACCGCCAUCCUGAGCGUGGUGCCCUUCCACCACGG
CUUCGGCAUGUUCACCACCCUGGGCUACCUGAUCUGCGGCUUCCGGGUGGUGCUGAU
GUACCGGUUCGAGGAGGAGCUGUUCCUGCGGAGCCUGCAGGACUACAAGAUCCAGAG
CGCCCUGCUGGUGCCCACCCUGUUCAGCUUCUUCGCCAAGAGCACCCUGAUCGACAAG
UACGACCUGAGCAACCUGCACGAGAUCGCCAGCGGCGGCGCCCCCCUGAGCAAGGAGG
UGGGCGAGGCCGUGGCCAAGCGGUUCCACCUGCCCGGCAUCCGGCAGGGCUACGGCCU
GACCGAGACCACCAGCGCCAUCCUGAUCACCCCCGAGGGCGACGACAAGCCCGGCGCC
GUGGGCAAGGUGGUGCCCUUCUUCGAGGCCAAGGUGGUGGACCUGGACACCGGCAAG
ACCCUGGGCGUGAACCAGCGGGGCGAGCUGUGCGUGCGGGGCCCCAUGAUCAUGAGC
GGCUACGUGAACAACCCCGAGGCCACCAACGCCCUGAUCGACAAGGACGGCUGGCUGC
ACAGCGGCGACAUCGCCUACUGGGACGAGGACGAGCACUUCUUCAUCGUGGACCGGCU
GAAGAGCCUGAUCAAGUACAAGGGCUACCAGGUGGCCCCCGCCGAGCUGGAGAGCAUC
CUGCUGCAGCACCCCAACAUCUUCGACGCCGGCGUGGCCGGCCUGCCCGACGACGACG
CCGGCGAGCUGCCCGCCGCCGUGGUGGUGCUGGAGCACGGCAAGACCAUGACCGAGAA
GGAGAUCGUGGACUACGUGGCCAGCCAGGUGACCACCGCCAAGAAGCUGCGGGGCGGC
GUGGUGUUCGUGGACGAGGUGCCCAAGGGCCUGACCGGCAAGCUGGACGCCCGGAAG
AUCCGGGAGAUCCUGAUCAAGGCCAAGAAGGGCGGCAAGAUCGCCGUGUGAUAAUAG
GCUGGAGCCUCGGUGGCCAUGCUUCUUGCCCCUUGGGCCUCCCCCCAGCCCCUCCUCC
CCUUCCUGCACCCGUACCCCCGUGGUCUUUGAAUAAAGUCUGAGUGGGCGGCAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

FIG. 1A

UAAUACGACUCACUAUAGGGAAAUAAGAGAGAAAAGAAGAGUAAGAAGAAAUAUAAGA
GCCACCAUGGAGGACGCCAAGAACAUCAAGAAGGGCCCCGCCCCCUUCUACCCCCUGG
AGGACGGCACCGCCGGCGAGCAGCUGCACAAGGCCAUGAAGCGGUACGCCCUGGUGCC
CGGCACCAUCGCCUUCACCGACGCCCACAUCGAGGUGGACAUCACCUACGCCGAGUAC
UUCGAGAUGAGCGUGCGGCUGGCCGAGGCCAUGAAGCGGUACGGCCUGAACACCAACC
ACCGGAUCGUGGUGUGCAGCGAGAACAGCCUGCAGUUCUUCAUGCCCGUGCUGGGCG
CCCUGUUCAUCGGCGUGGCCGUGGCCCCCGCCAACGACAUCUACAACGAGCGGGAGCU
GCUGAACAGCAUGGGCAUCAGCCAGCCCACCGUGGUGUUCGUGAGCAAGAAGGGCCUG
CAGAAGAUCCUGAACGUGCAGAAGAAGCUGCCCAUCAUCCAGAAGAUCAUCAUCAUGG
ACAGCAAGACCGACUACCAGGGCUUCCAGAGCAUGUACACCUUCGUGACCAGCCACCU
GCCCCCCGGCUUCAACGAGUACGACUUCGUGCCCGAGAGCUUCGACCGGGACAAGACC
AUCGCCCUGAUCAUGAACAGCAGCGGCAGCACCGGCCUGCCCAAGGGCGUGGCCCUGC
CCCACCGGACCGCCUGCGUGCGGUUCAGCCACGCCCGGGACCCCAUCUUCGGCAACCA
GAUCAUCCCCGACACCGCCAUCCUGAGCGUGGUGCCCUUCCACCACGGCUUCGGCAUG
UUCACCACCCUGGGCUACCUGAUCUGCGGCUUCCGGGUGGUGCUGAUGUACCGGUUC
GAGGAGGAGCUGUUCCUGCGGAGCCUGCAGGACUACAAGAUCCAGAGCGCCCUGCUG
GUGCCCACCCUGUUCAGCUUCUUCGCCAAGAGCACCCUGAUCGACAAGUACGACCUGA
GCAACCUGCACGAGAUCGCCAGCGGCGGCGCCCCCCUGAGCAAGGAGGUGGGCGAGGC
CGUGGCCAAGCGGUUCCACCUGCCCGGCAUCCGGCAGGGCUACGGCCUGACCGAGACC
ACCAGCGCCAUCCUGAUCACCCCCGAGGGCGACGACAAGCCCGGCGCCGUGGGCAAGG
UGGUGCCCUUCUUCGAGGCCAAGGUGGUGGACCUGGACACCGGCAAGACCCUGGGCG
UGAACCAGCGGGGCGAGCUGUGCGUGCGGGGCCCCAUGAUCAUGAGCGGCUACGUGA
ACAACCCCGAGGCCACCAACGCCCUGAUCGACAAGGACGGCUGGCUGCACAGCGGCGA
CAUCGCCUACUGGGACGAGGACGAGCACUUCUUCAUCGUGGACCGGCUGAAGAGCCUG
AUCAAGUACAAGGGCUACCAGGUGGCCCCCGCCGAGCUGGAGAGCAUCCUGCUGCAGC
ACCCCAACAUCUUCGACGCCGGCGUGGCCGGCCUGCCCGACGACGACGCCGGCGAGCU
GCCCGCCGCCGUGGUGGUGCUGGAGCACGGCAAGACCAUGACCGAGAAGGAGAUCGU
GGACUACGUGGCCAGCCAGGUGACCACCGCCAAGAAGCUGCGGGGCGGCGUGGUGUU
CGUGGACGAGGUGCCCAAGGGCCUGACCGGCAAGCUGGACGCCCGGAAGAUCCGGGA
GAUCCUGAUCAAGGCCAAGAAGGGCGGCAAGAUCGCCGUGUUAGAGUAAAGAUAGCA
UGUUUACUUCCAUCUACCGUACGGGAAAGCCUAACUUAUGCUGACAUUUGGAAUGUA
UGUAAAUAAAGUGGAGGAAGAUAGAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAA

FIG. 1B

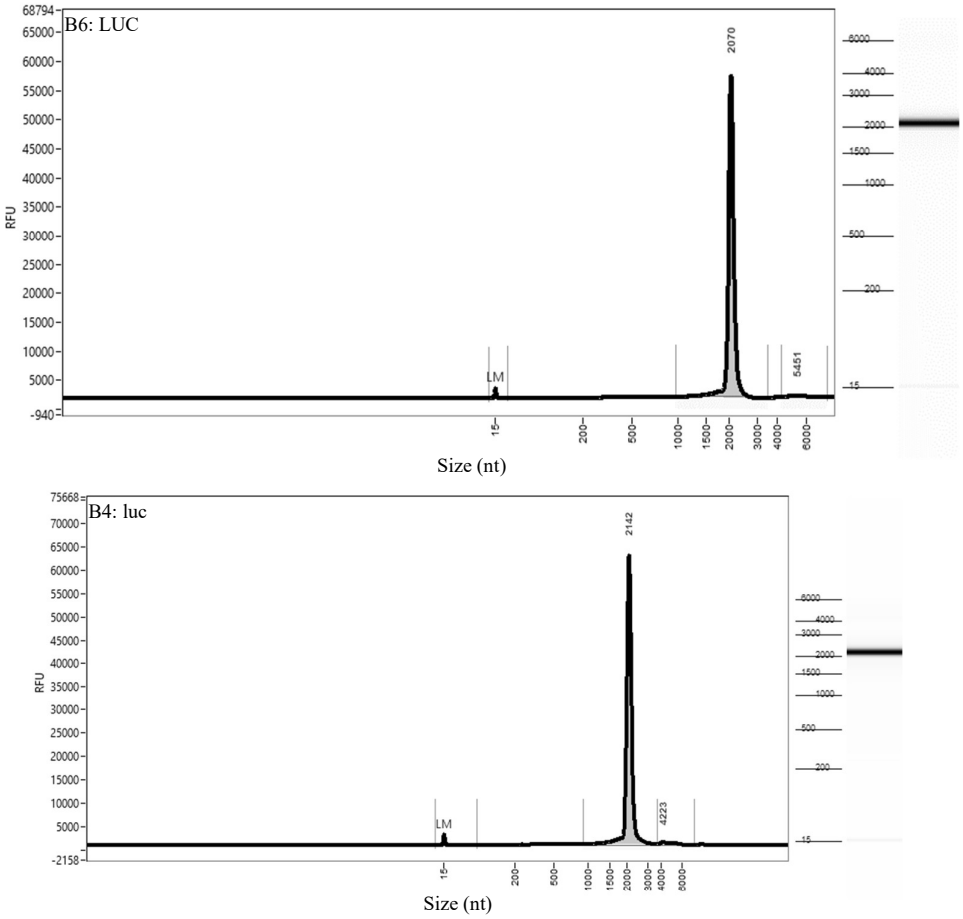


FIG. 2

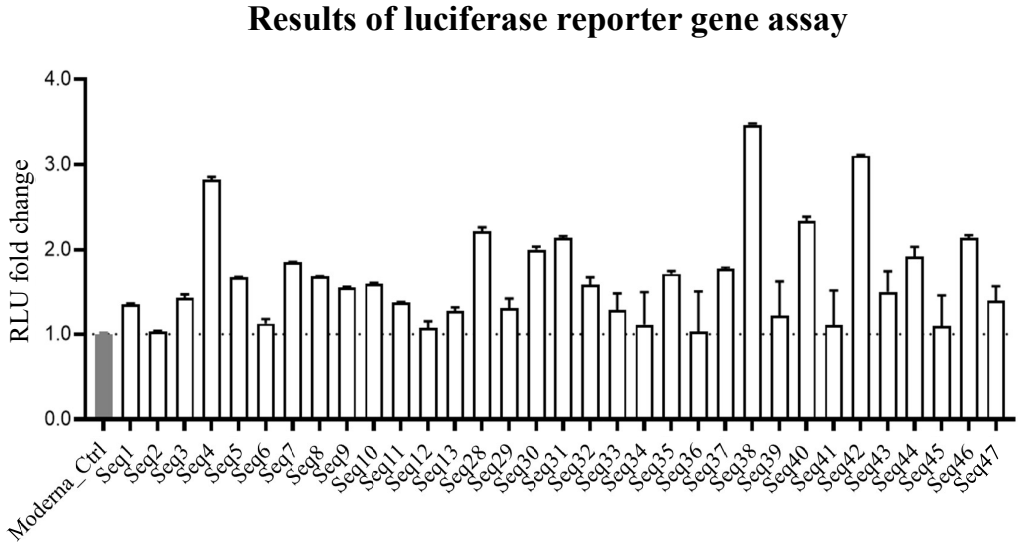

Results of luciferase reporter gene assay
RLU fold change
4.0
3.0
2.0
1.0
0.0
Moderna_Ctrl
Seq1
Seq2
Seq3
Seq4
Seq5
Seq6
Seq7
Seq8
Seq9
Seq10
Seq11
Seq12
Seq13
Seq28
Seq29
Seq30
Seq31
Seq32
Seq33
Seq34
Seq35
Seq36
Seq37
Seq38
Seq39
Seq40
Seq41
Seq42
Seq43
Seq44
Seq45
Seq46
Seq47

FIG. 3

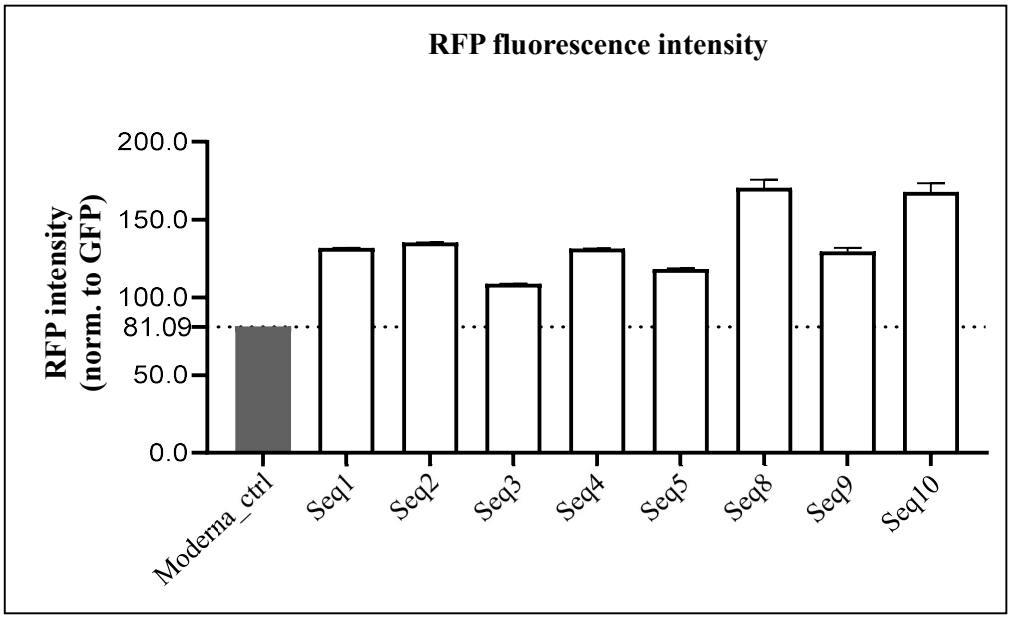

RFP fluorescence intensity
RFP intensity
(norm. to GFP)
200.0
150.0
100.0
81.09
50.0
0.0
Moderna_ctrl
Seq1
Seq2
Seq3
Seq4
Seq5
Seq8
Seq9
Seq10

FIG. 4

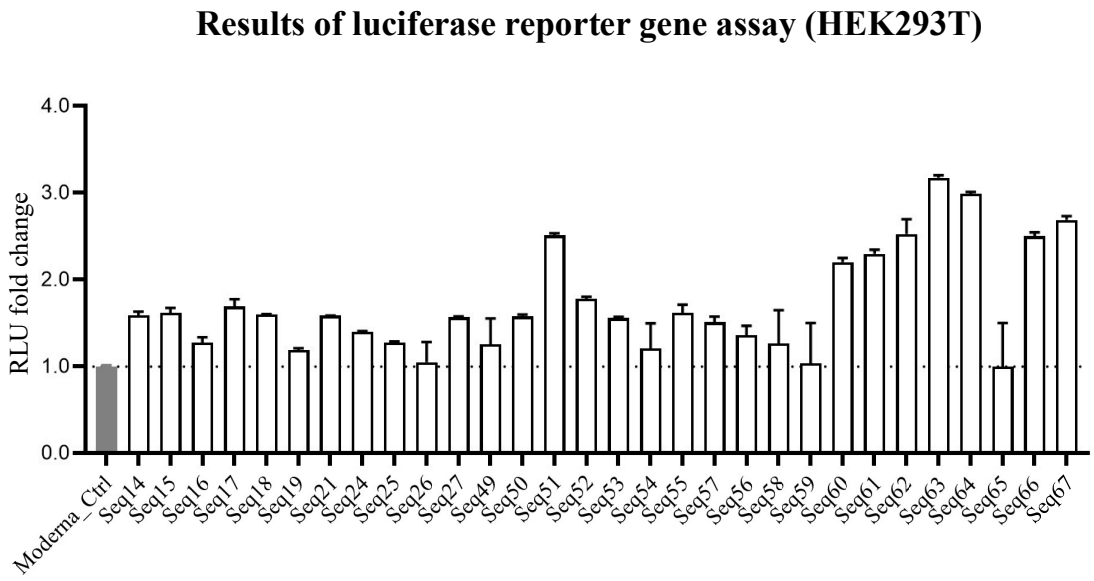

Results of luciferase reporter gene assay (HEK293T)
RLU fold change
4.0
3.0
2.0
1.0
0.0
Moderna_Ctrl
Seq14
Seq15
Seq16
Seq17
Seq18
Seq19
Seq21
Seq24
Seq25
Seq26
Seq27
Seq49
Seq50
Seq51
Seq52
Seq53
Seq54
Seq55
Seq57
Seq56
Seq58
Seq59
Seq60
Seq61
Seq62
Seq63
Seq64
Seq65
Seq66
Seq67

FIG. 5A

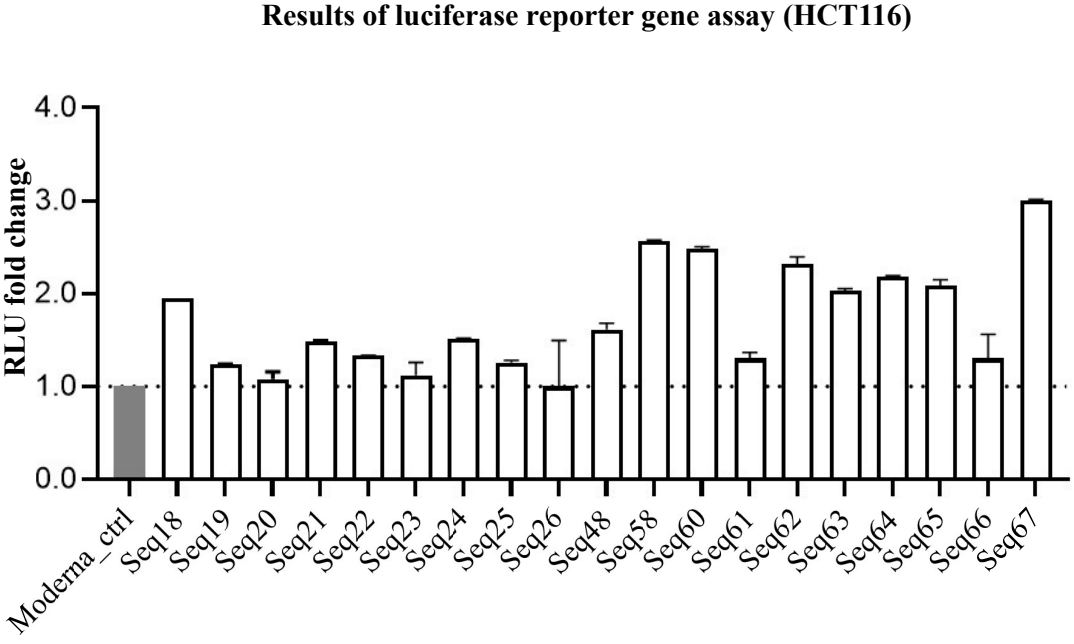

Results of luciferase reporter gene assay (HCT116)
RLU fold change
4.0
3.0
2.0
1.0
0.0
Moderna_ctrl
Seq18
Seq19
Seq20
Seq21
Seq22
Seq23
Seq24
Seq25
Seq26
Seq48
Seq58
Seq60
Seq61
Seq62
Seq63
Seq64
Seq65
Seq66
Seq67

FIG. 5B

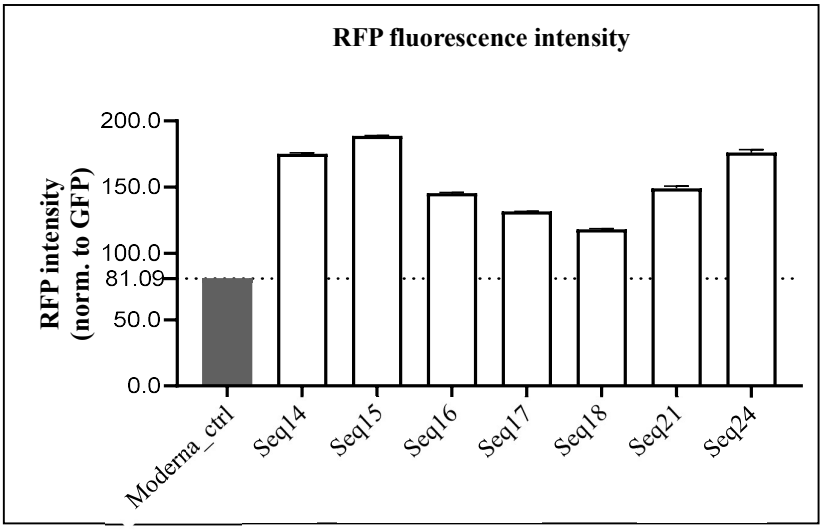


FIG. 6

293T cell line

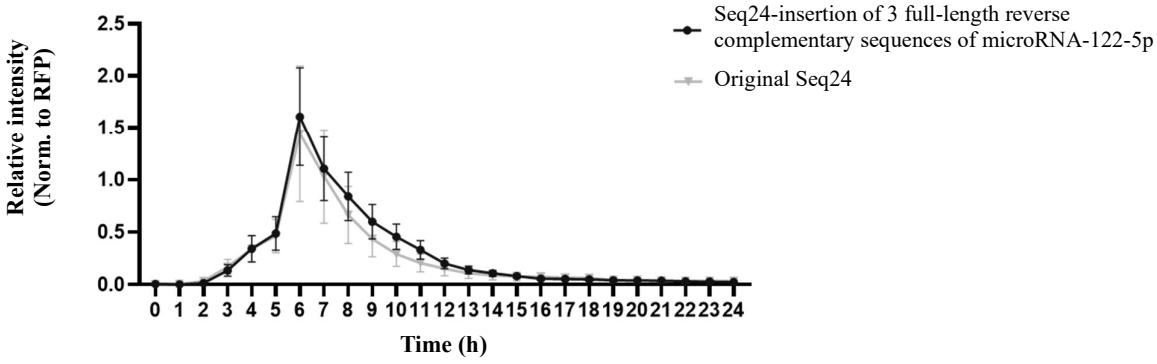


FIG. 7

Hela cell line

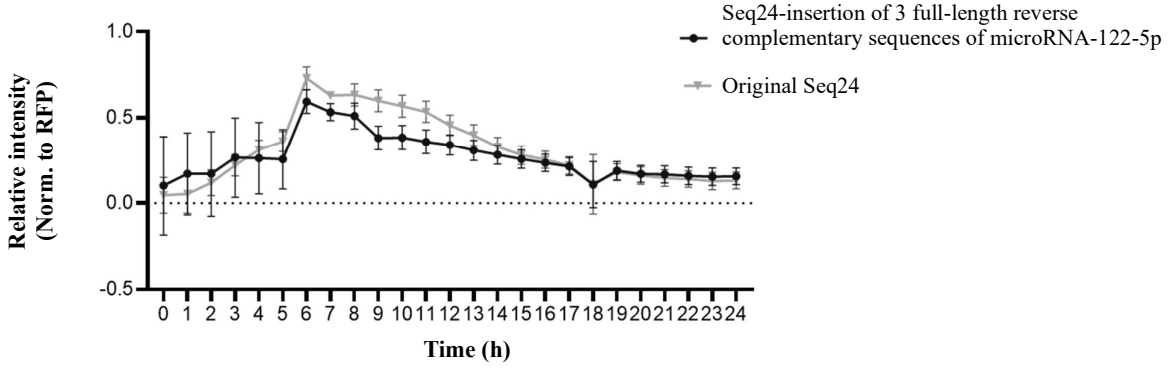


FIG. 8