FIG. 1A

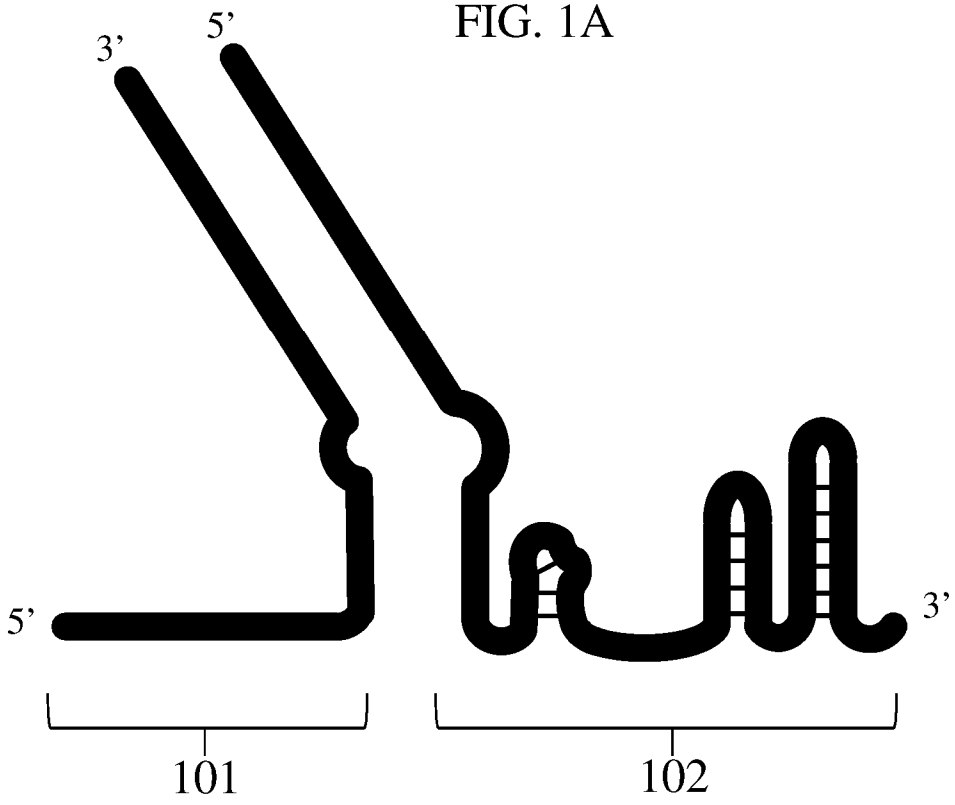
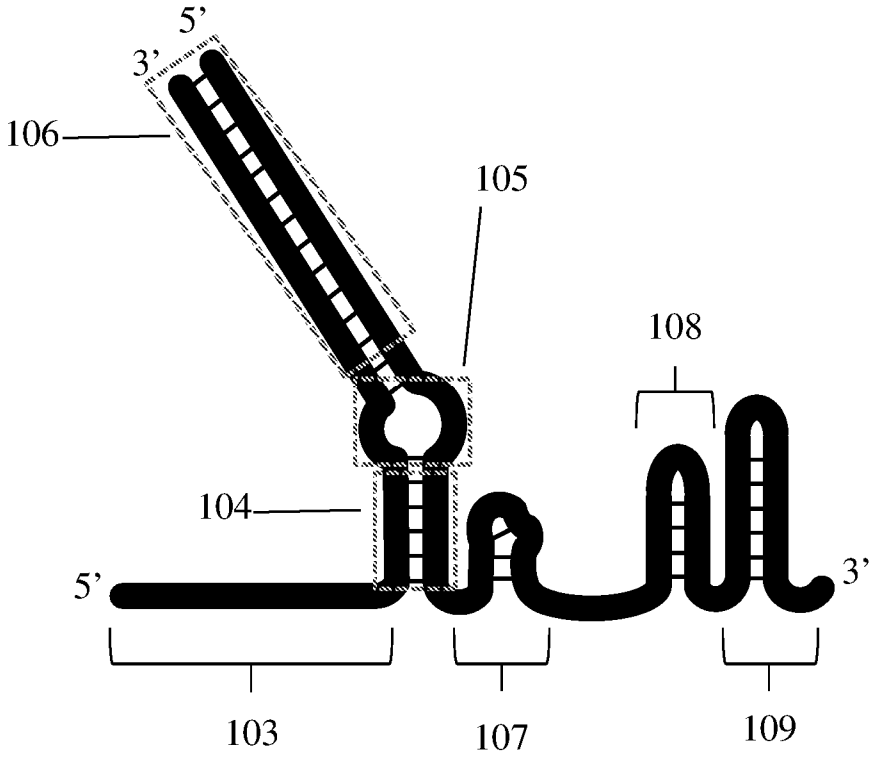


FIG. 1B



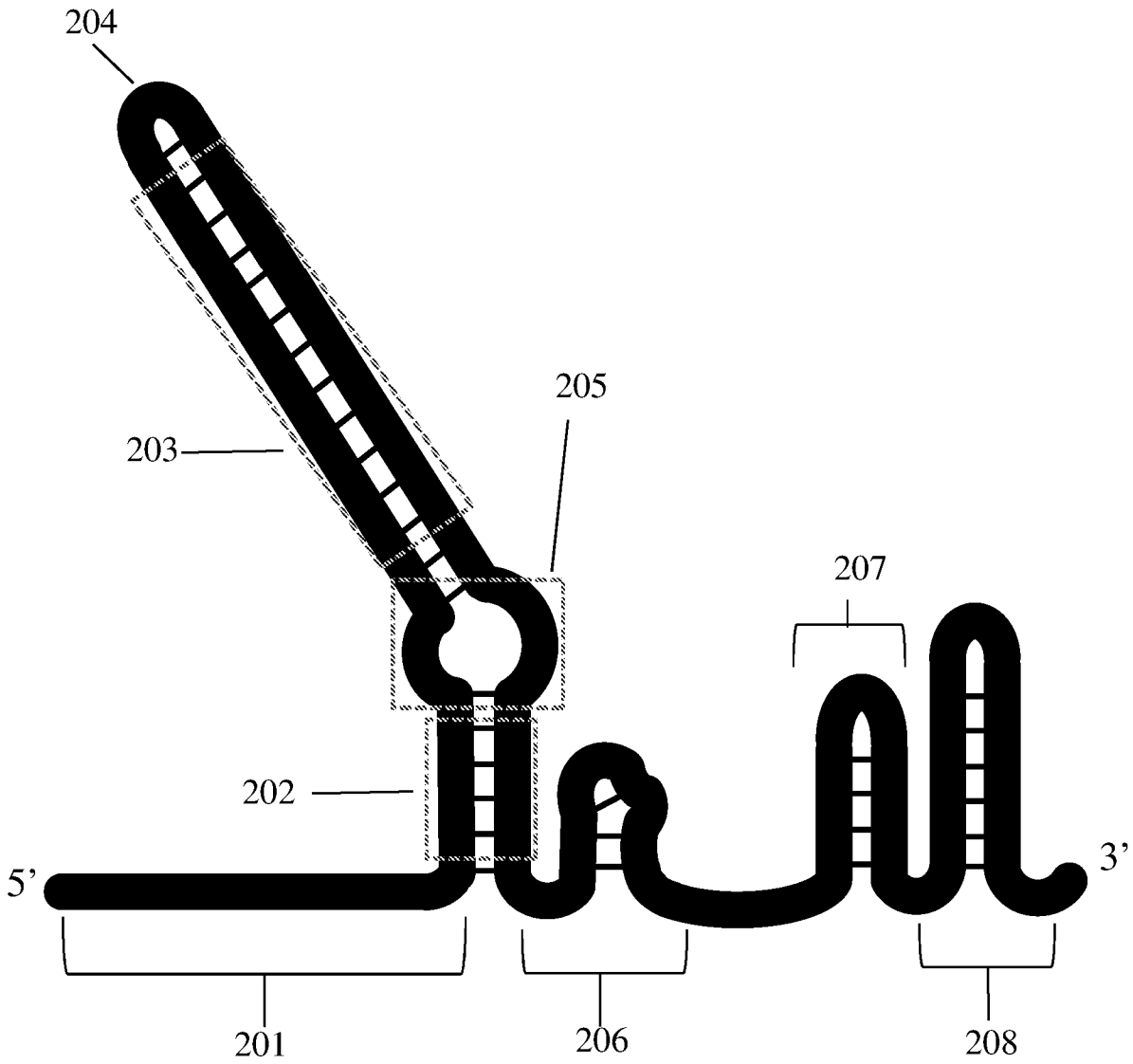
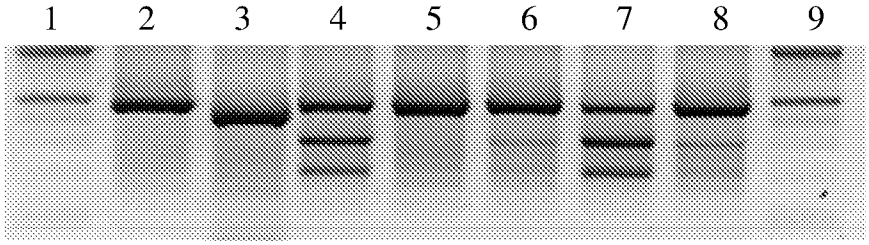
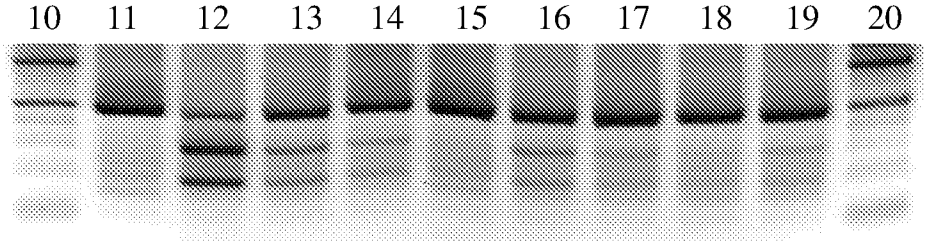


FIG. 2


1 2 3 4 5 6 7 8 9
n/d n/d 56% n/d 17% 66% 23%


10 11 12 13 14 15 16 17 18 19 20
n/d 70% 47% 41% n/d 44% 30% 15% 33%

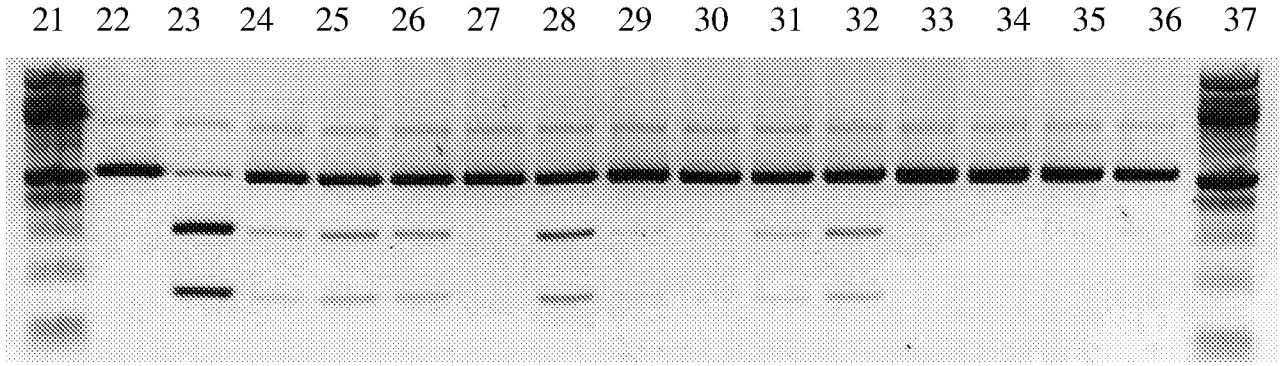
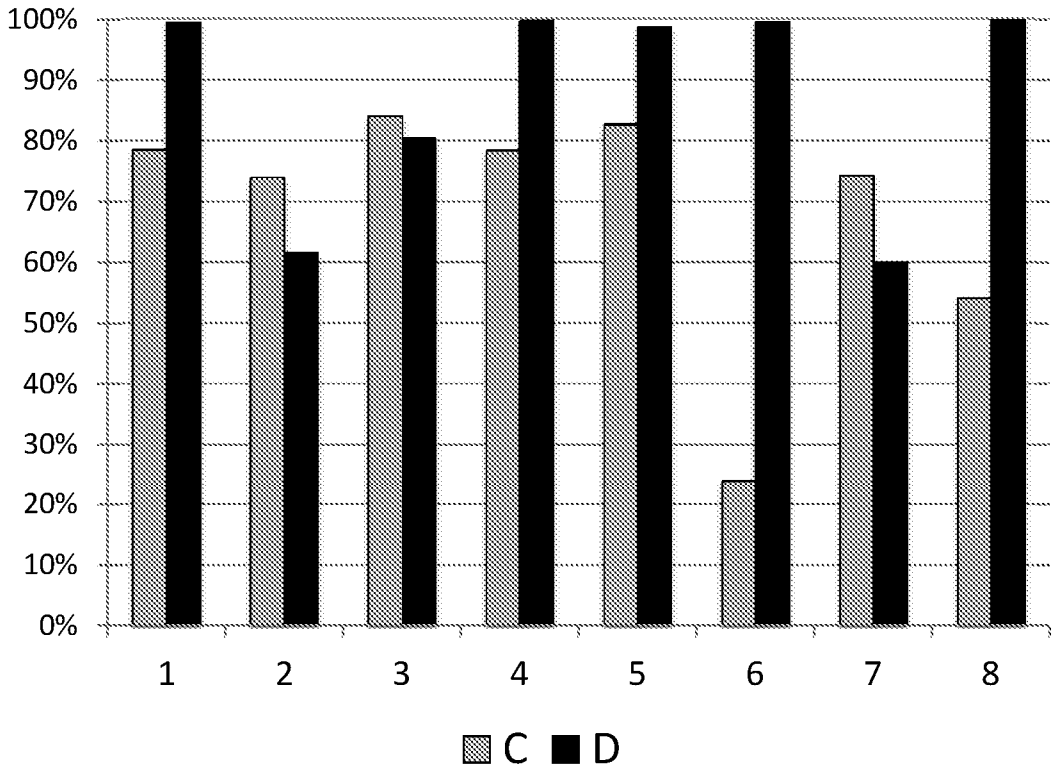

21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37
n/d 87% 22% 34% 28% 1% 46% 10% 4% 17% 34% n/d n/d n/d 4%

FIG. 3

FIG. 4A

	A	B	C	D
1	n/d	n/d	79%	100%
2	n/d	n/d	74%	62%
3	n/d	n/d	84%	80%
4	n/d	n/d	78%	100%
5	n/d	n/d	83%	99%
6	n/d	n/d	24%	100%
7	n/d	n/d	74%	60%
8	n/d	n/d	54%	100%

FIG. 4B



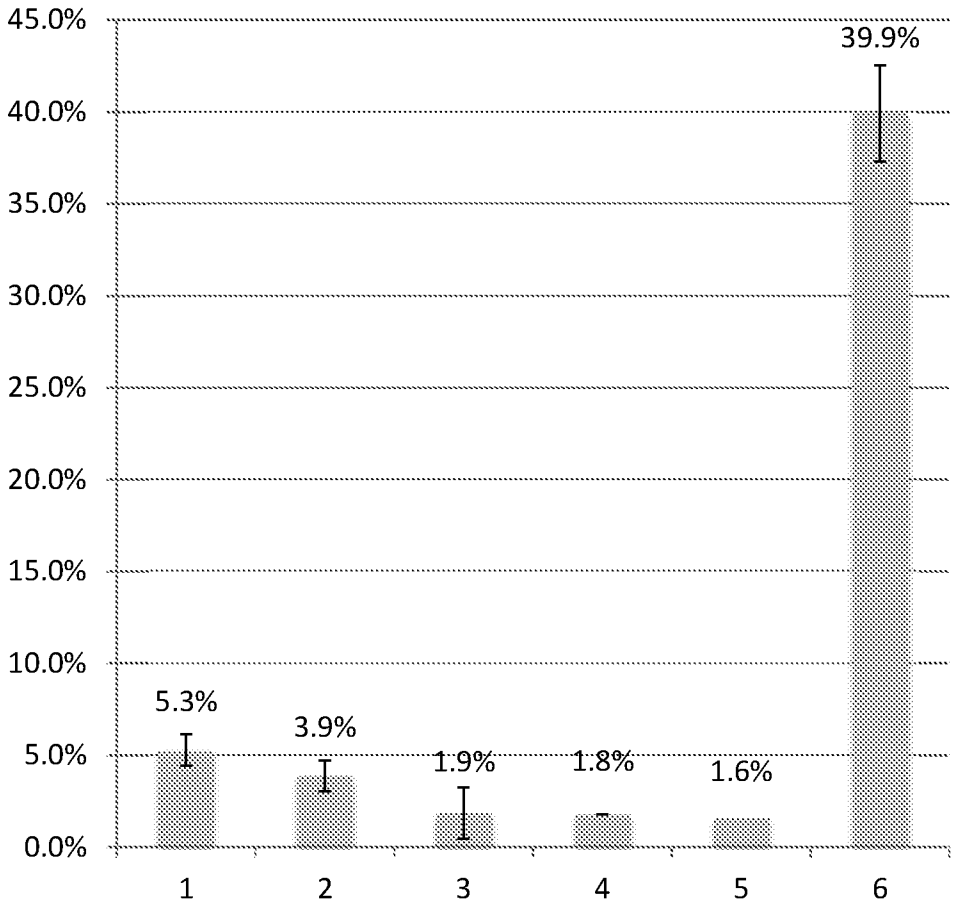


FIG. 5

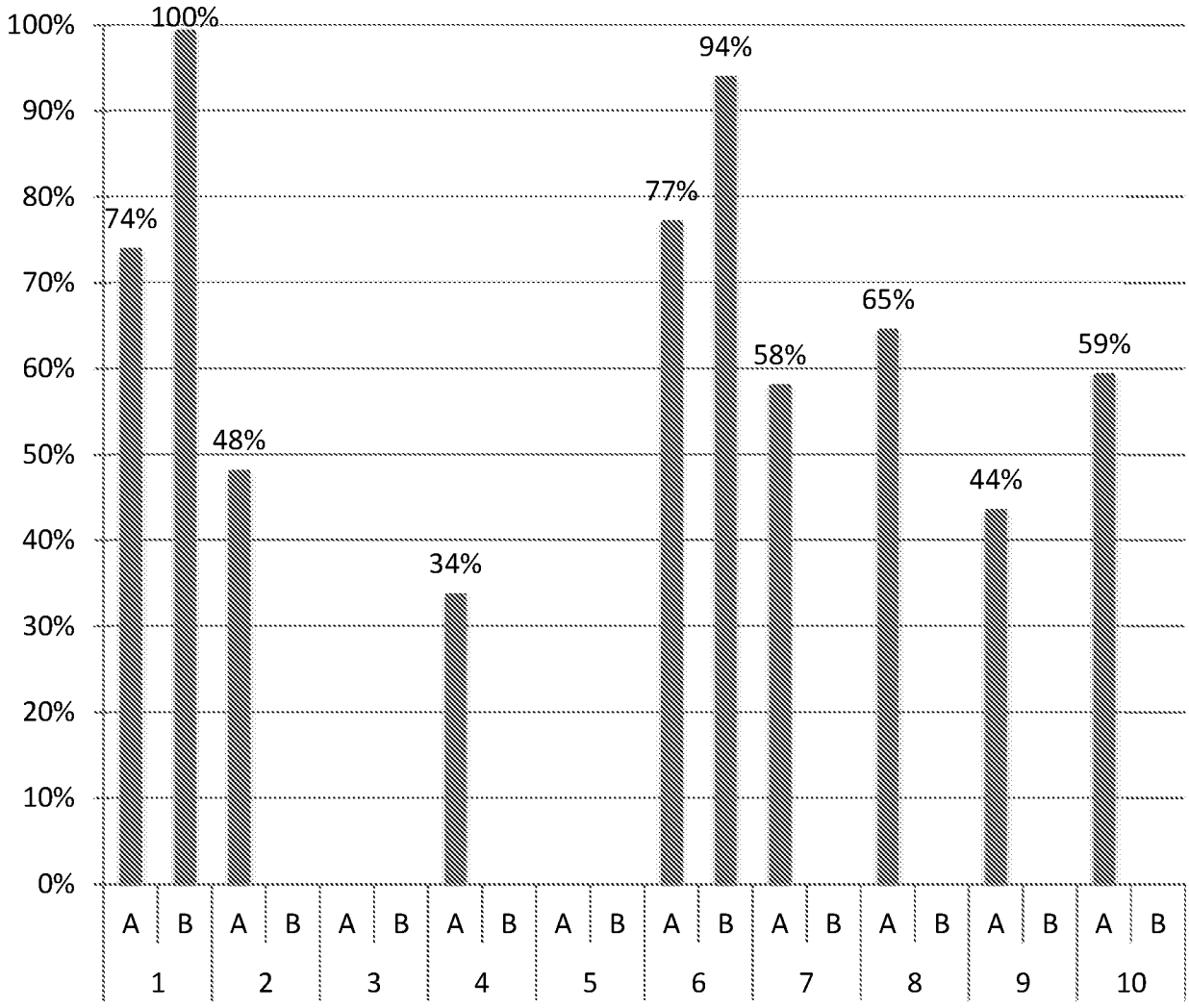

100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
74%
100%
48%
34%
77%
94%
58%
65%
44%
59%
A
B
1
2
3
4
5
6
7
8
9
10

FIG. 6

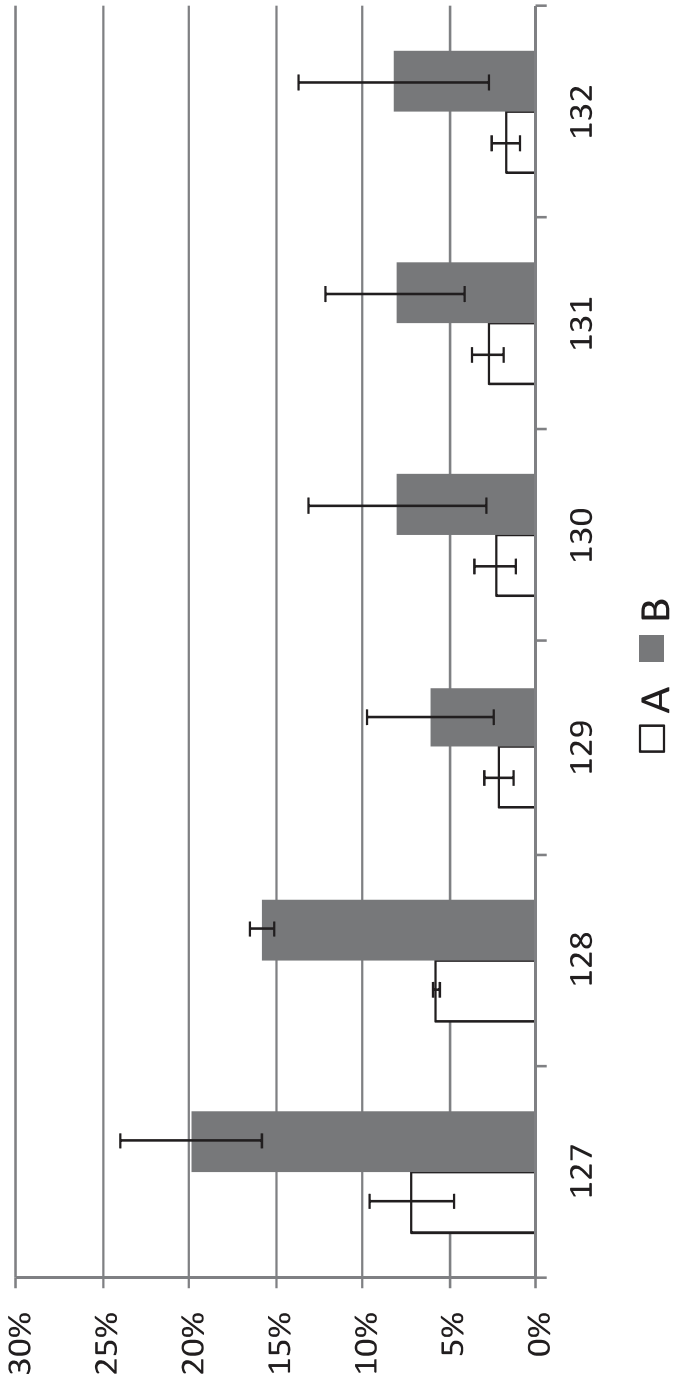


FIG. 7

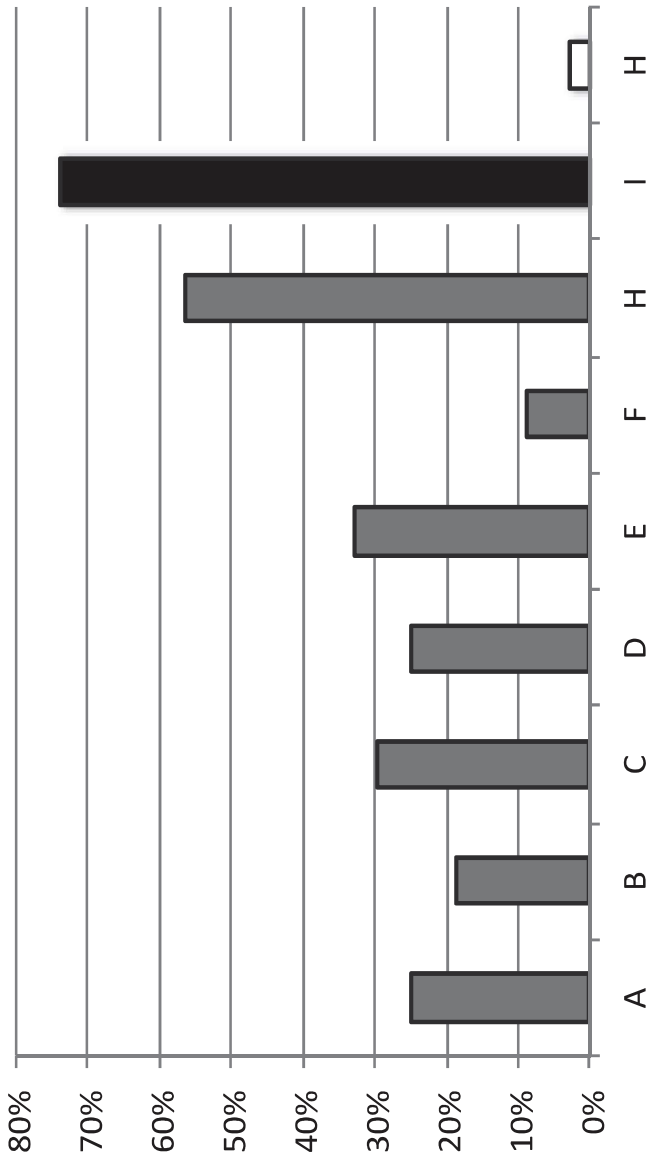


FIG. 8

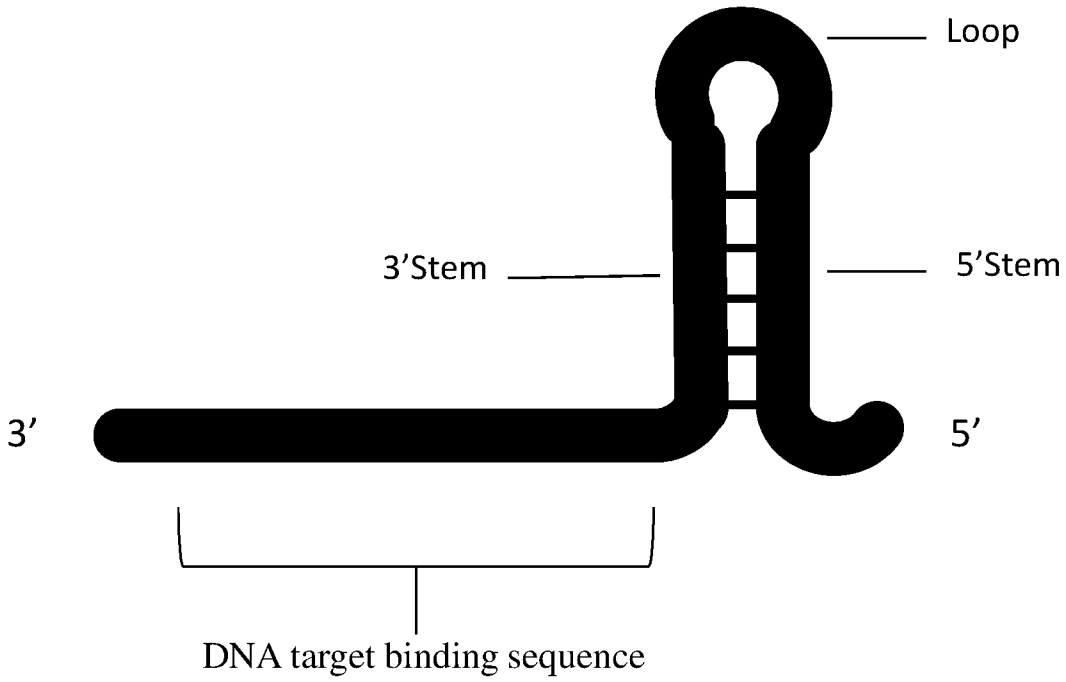


FIG. 9

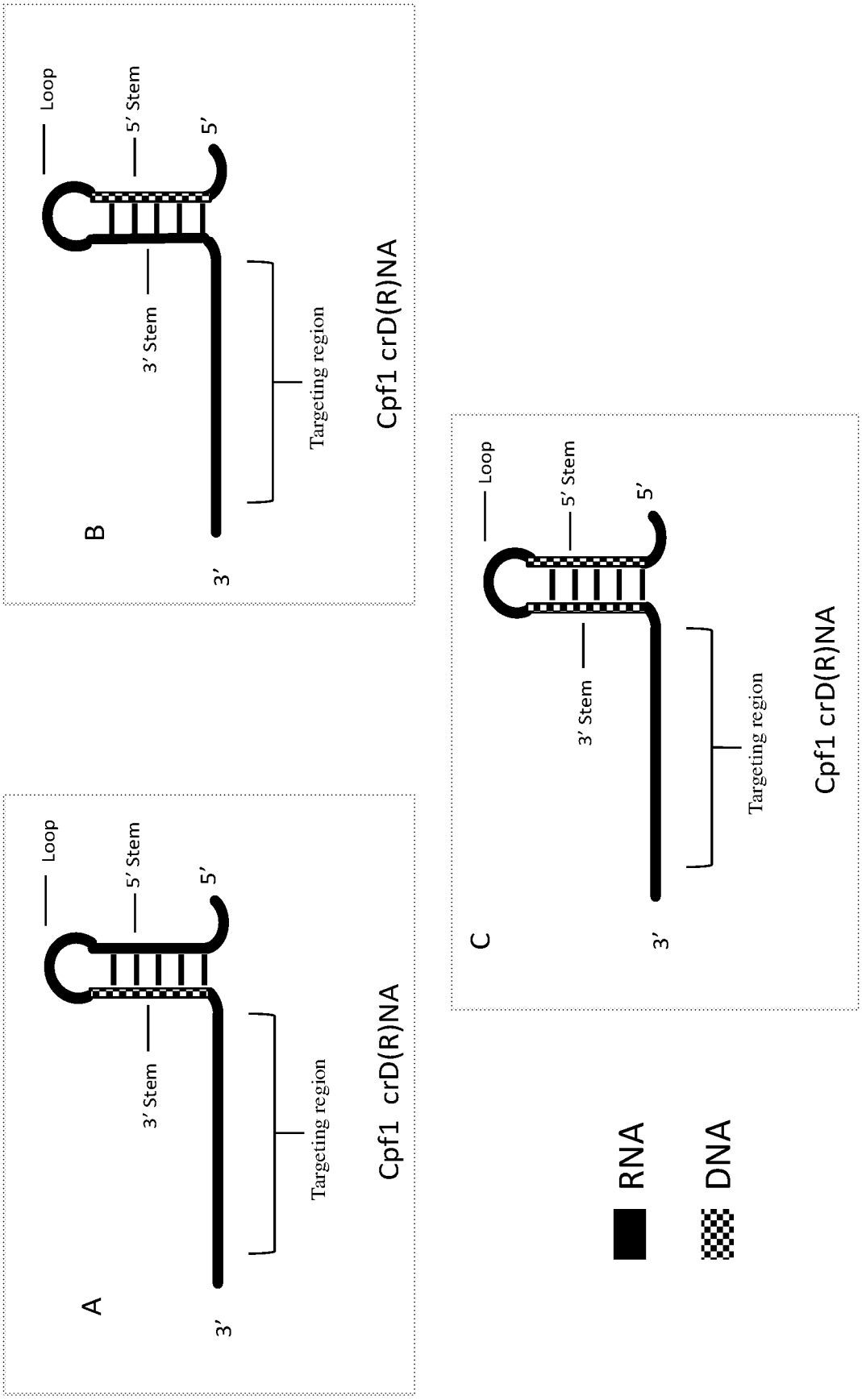
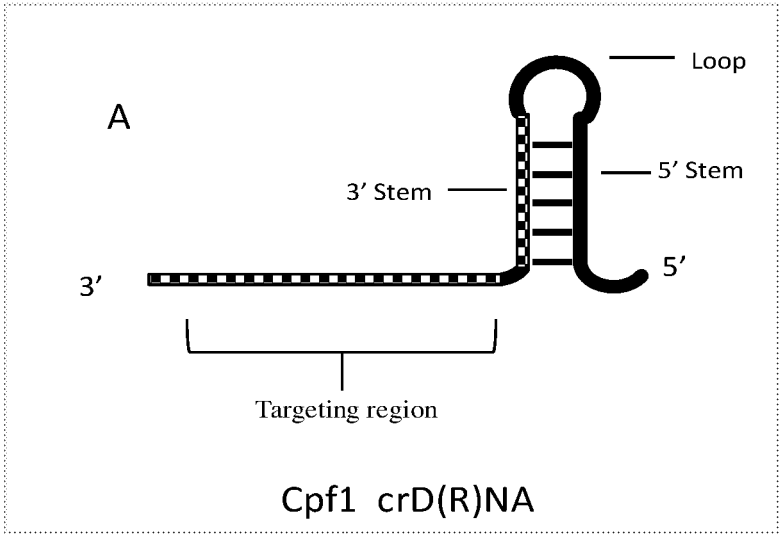
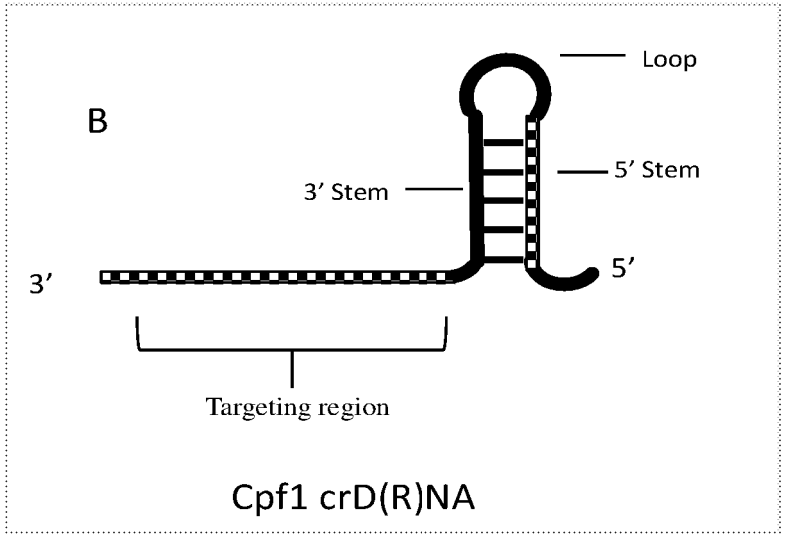
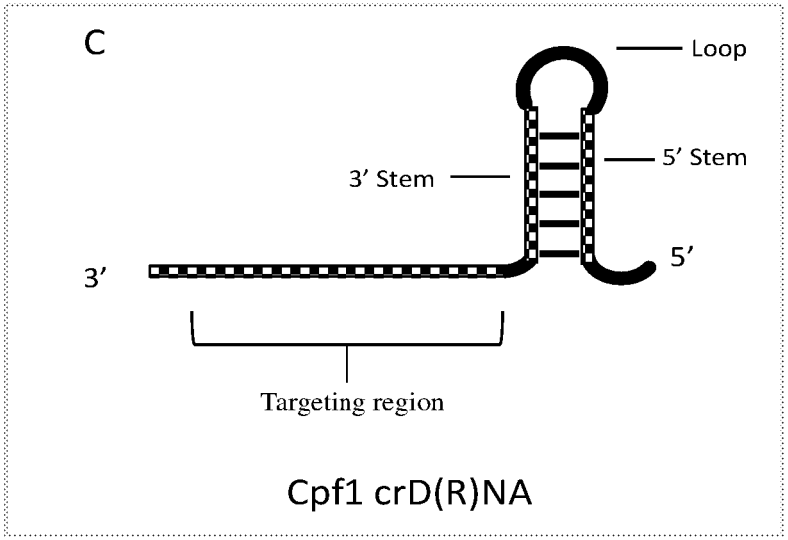
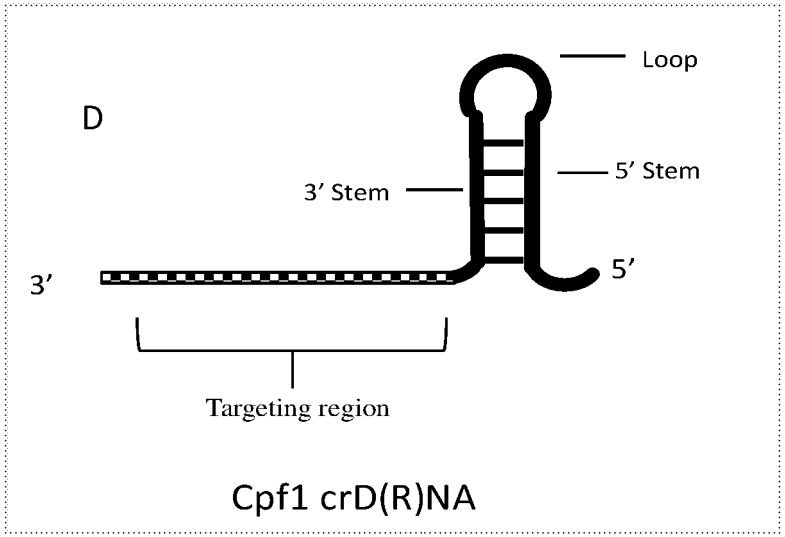

A
Loop
5′ Stem
5′
3′ Stem
Targeting region
3′
Cpf1 crD(R)NA
B
Loop
5′ Stem
5′
3′ Stem
Targeting region
3′
Cpf1 crD(R)NA
C
Loop
5′ Stem
5′
3′ Stem
Targeting region
3′
Cpf1 crD(R)NA
RNA
DNA

FIG. 10A-C









RNA
DNA

FIG. 11A-D

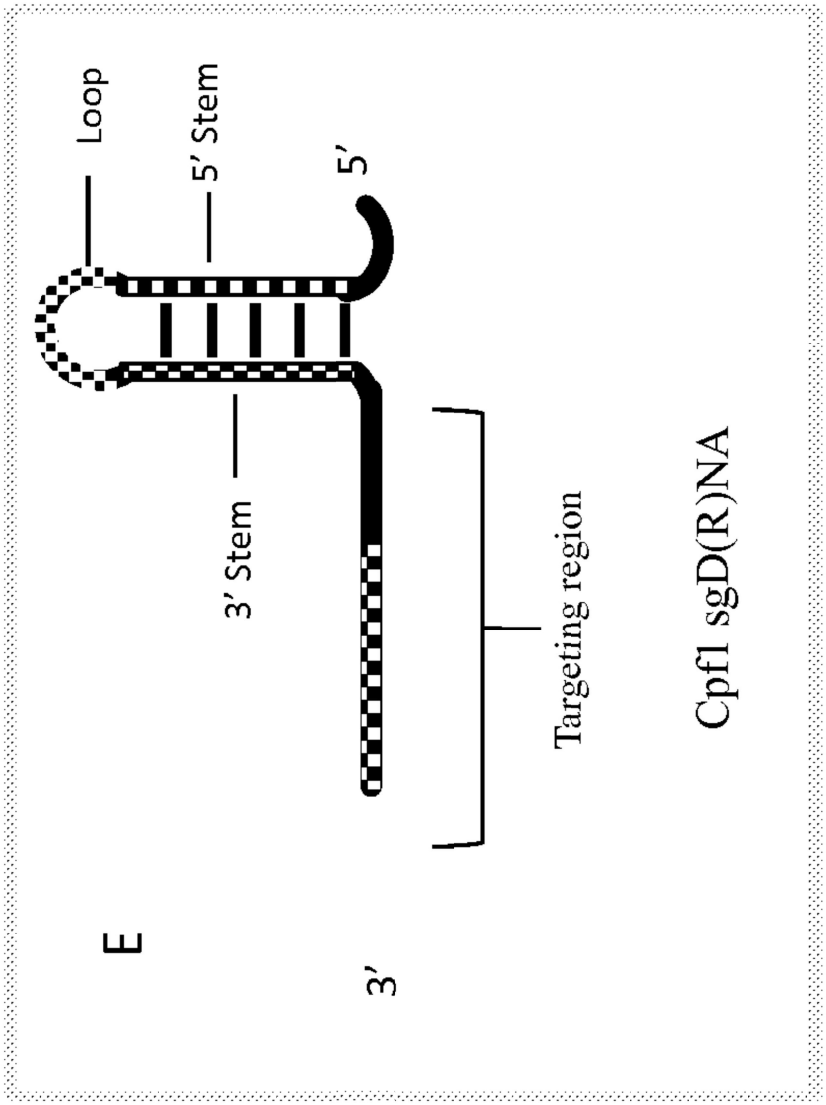


FIG. 11E

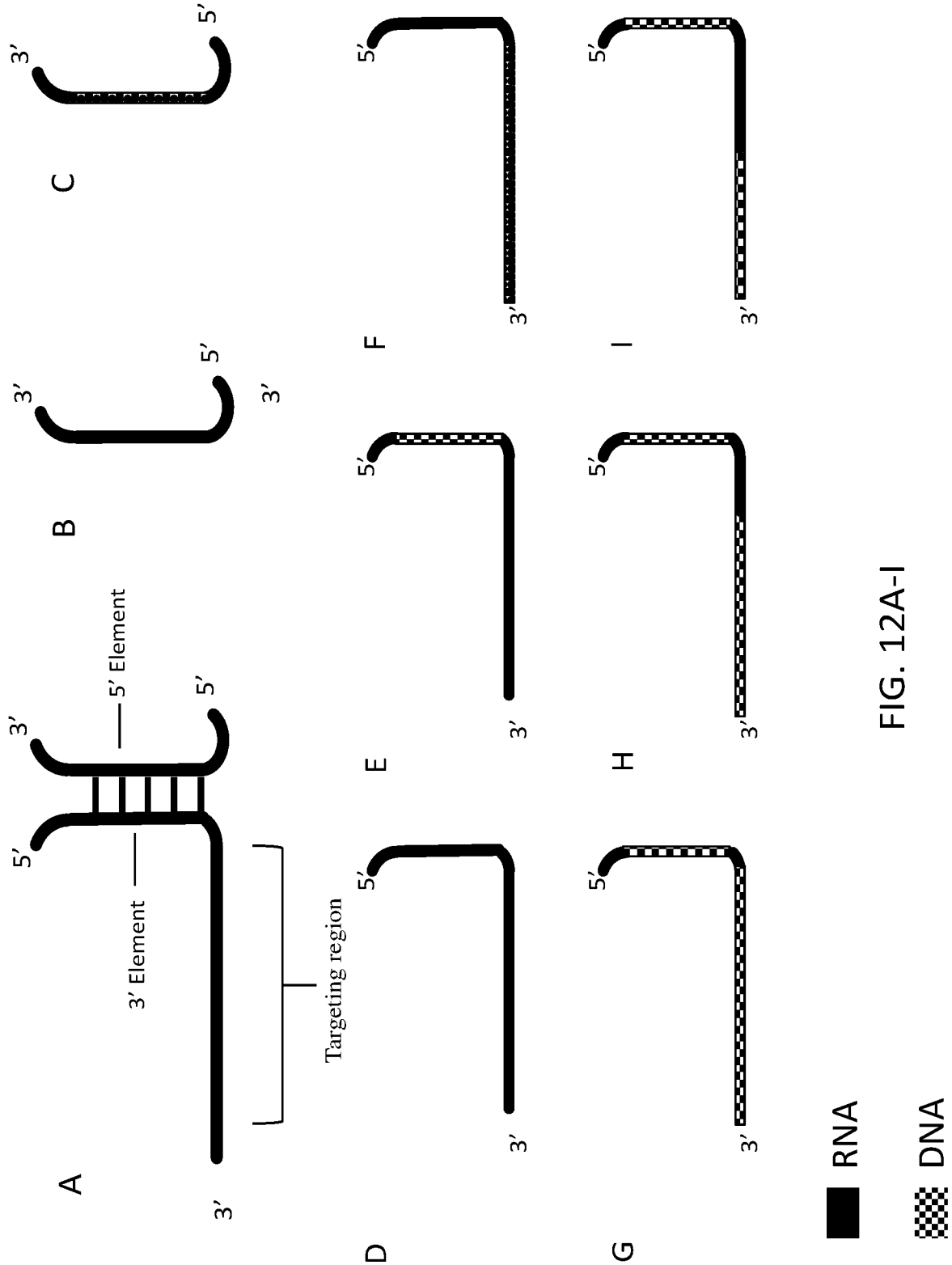


FIG. 12A-I

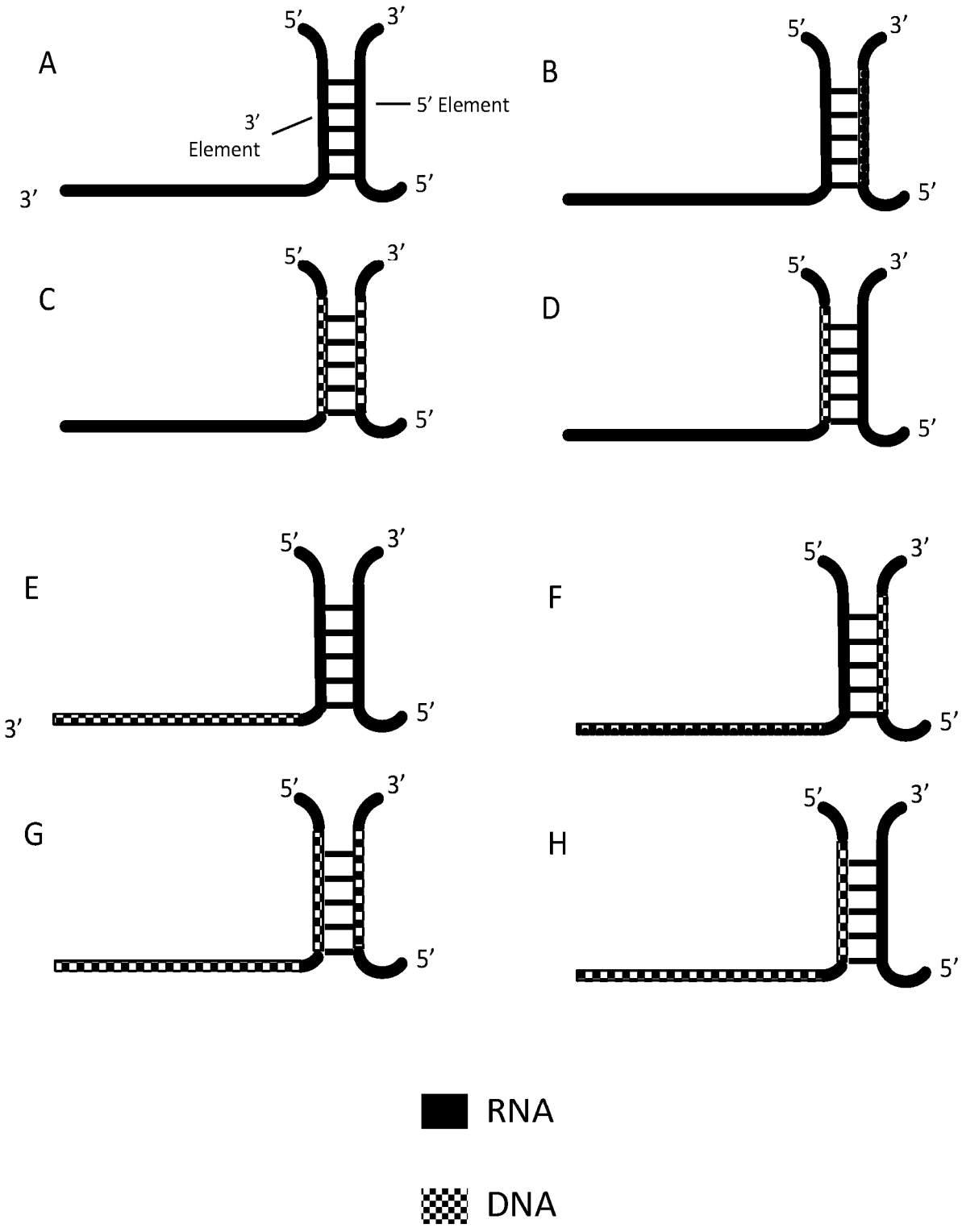
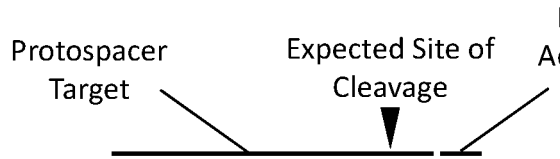

A
5′
3′
3′ Element
5′ Element
3′
5′
B
5′
3′
5′
C
5′
3′
5′
D
5′
3′
5′
E
5′
3′
3′
5′
F
5′
3′
5′
G
5′
3′
5′
H
5′
3′
5′
RNA
DNA

FIG. 13A-H



			SEQ ID NO:	Frequency in Treated	Frequency in Control
	Reference	CAGCGCACGTATATATACGCGTACGCGTACGTGTGAGGTATATATATCCTCCGCCG	216		
sgD(R)NA corresponding to SEQ ID NO.: 204	Mutation 1	CAGCGCACGTATATATACGCGTACGCGTACGT-TGAGGTATATATATCCTCCGCCG	217	5	0
sgD(R)NA corresponding to SEQ ID NO.: 205	Mutation 1	CAGCGCACGTATATATACGCGTACGCGTACGTtGTGAGGTATATATATCCTCCGCCG	218	113	0
	Mutation 2	CAGCGCACGTATATATACGCGTACGCGTACG-GTGAGGTATATATATCCTCCGCCG	219	62	0
	Mutation 3	CAGCGCAC----------GTATATATATCCTCCGCCG	220	12	0
	Mutation 4	CAGCGCACGTATATATACGCGTACGCGTACGT-TGAGGTATATATATCCTCCGCCG	221	5	0
sgD(R)NA corresponding to SEQ ID NO.: 206	Mutation 1	CAGCGCACGTATATATACGCGTACGCGTA----TGAGGTATATATATCCTCCGCCG	222	5	0
	Mutation 2	CAGCGCACGTATATATACGCGTACGCGTACGT-TGAGGTATATATATCCTCCGCCG	223	4	0

FIG. 14A



			SEQ ID NO:	Frequency in Treated	Frequency in Control
	Reference	AGTCCGCTGGCCGAGGTCGACTACCGGCCGGTGAAGCAC	234		
sgD(R)NA corresponding to SEQ ID NO.: 224	Mutation 1	AGTCCGCTGGCCGAGGTCGACTACCaGGCCGGTGAAGCAC	235	88	16
	Mutation 2	AGTCCGCTGGCCGAGGTCGACTtgCCGGCCGGTGAAGCAC	236	30	0
	Mutation 3	AGTCCGCTGGCC----------GGTGAAGCAC	237	17	0
	Mutation 4	AGTCCGCTGGCCGAGGTCGAC--caGGCCGGTGAAGCAC	238	14	0
	Mutation 5	AGTCCGCTGGCCGAGGTCGACTACCtGGCCGGTGAAGCAC	239	12	0
	Mutation 6	AGTCCGC----------caGTGAAGCAC	240	10	0
	Mutation 7	AGTCCGCTGGCCGAGGTCGACTAC-GGCCGGTGAAGCAC	241	10	0
	Mutation 8	AGTCCGCTGGCCGAGGTCGACTACCcGGCCGGTGAAGCAC	242	9	0
sgD(R)NA corresponding to SEQ ID NO.: 225	Mutation 1	AGTCCGCTGGCCGAGGTCGACTACCaGGCCGGTGAAGCAC	243	81	16
	Mutation 2	AGTCCGCTGGCCG----------GTGAAGCAC	244	27	0
	Mutation 3	AGTCCGCTGGCCGAGGTCGACTAC-GGCCGGTGAAGCAC	245	9	0
	Mutation 4	AGTCCGCTGGCCGAGGTCGACT--tGGCCGGTGAAGCAC	246	8	0
sgD(R)NA corresponding to SEQ ID NO.: 226	Mutation 1	AGTCCGCTGGCCGAGGTCGACTACCaGGCCGGTGAAGCAC	247	638	16
	Mutation 2	AGTCCGCTGGCCGAGGTCGACTAC-GGCCGGTGAAGCAC	248	52	0
	Mutation 3	AGTCCGCTGGCCGAGGTCGACTACCtGGCCGGTGAAGCAC	249	46	0
	Mutation 4	AGTCCGCTGGCCGAGGTCGACTACCcGGCCGGTGAAGCAC	250	35	0
	Mutation 5	AGTCCGCTGGTC----------aaGGCCGGCGAAGCAC	251	29	0
	Mutation 6	AGTCCGCTGGCCG----------GTGAAGCAC	252	28	0
	Mutation 7	AGTCCGCTGGCCGAGGTCGACTA--aGCCGGTGAAGCAC	253	27	0
	Mutation 8	AGTCCGCTGGCCGAGGT----------GAAGCAC	254	23	0

FIG. 14B