

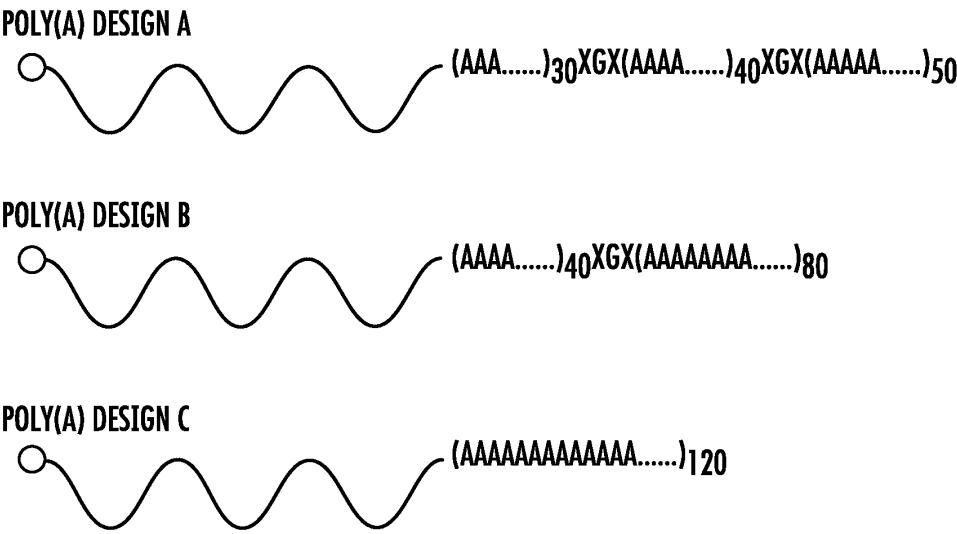


FIG. 1A

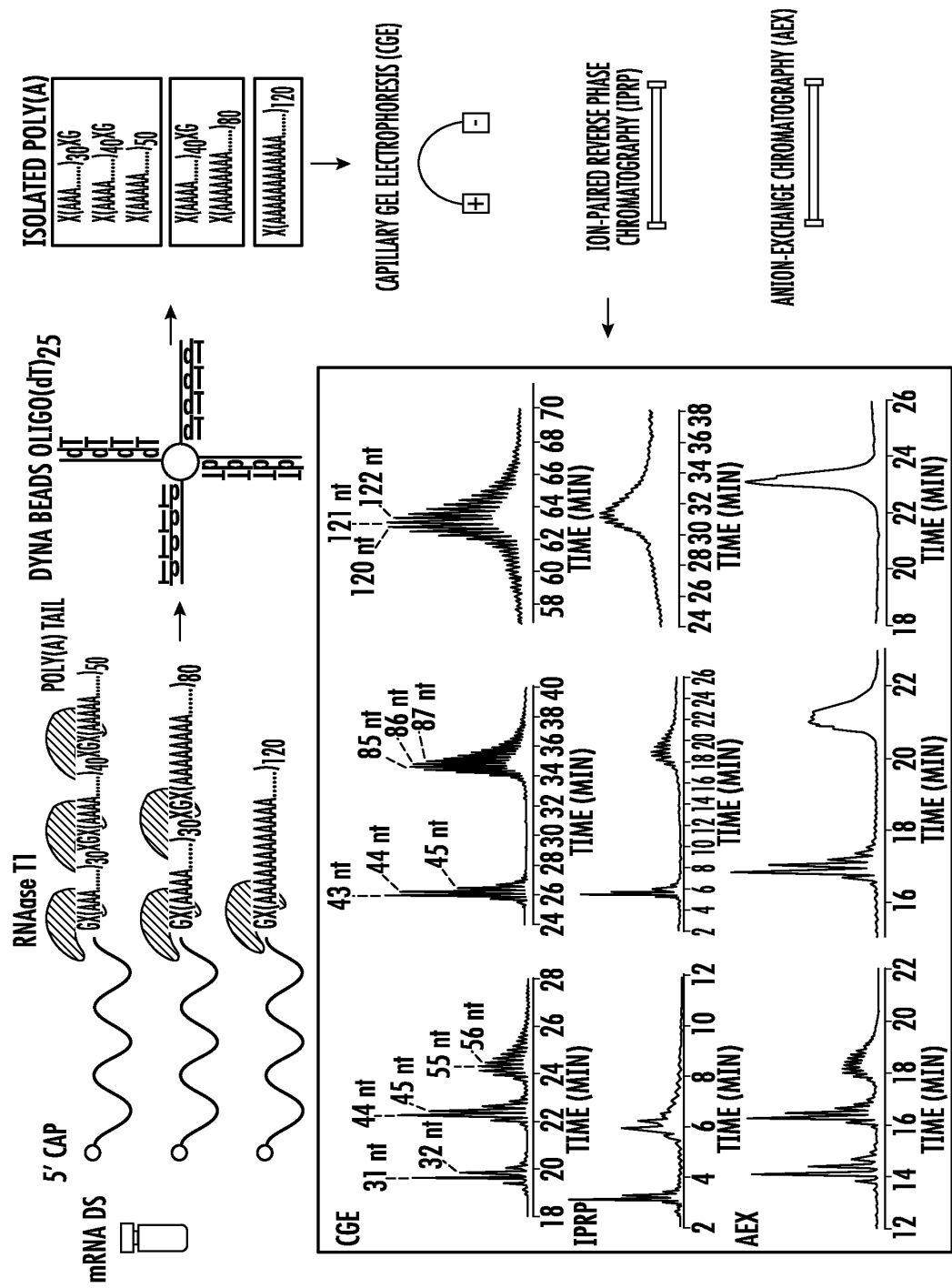


FIG. 1B

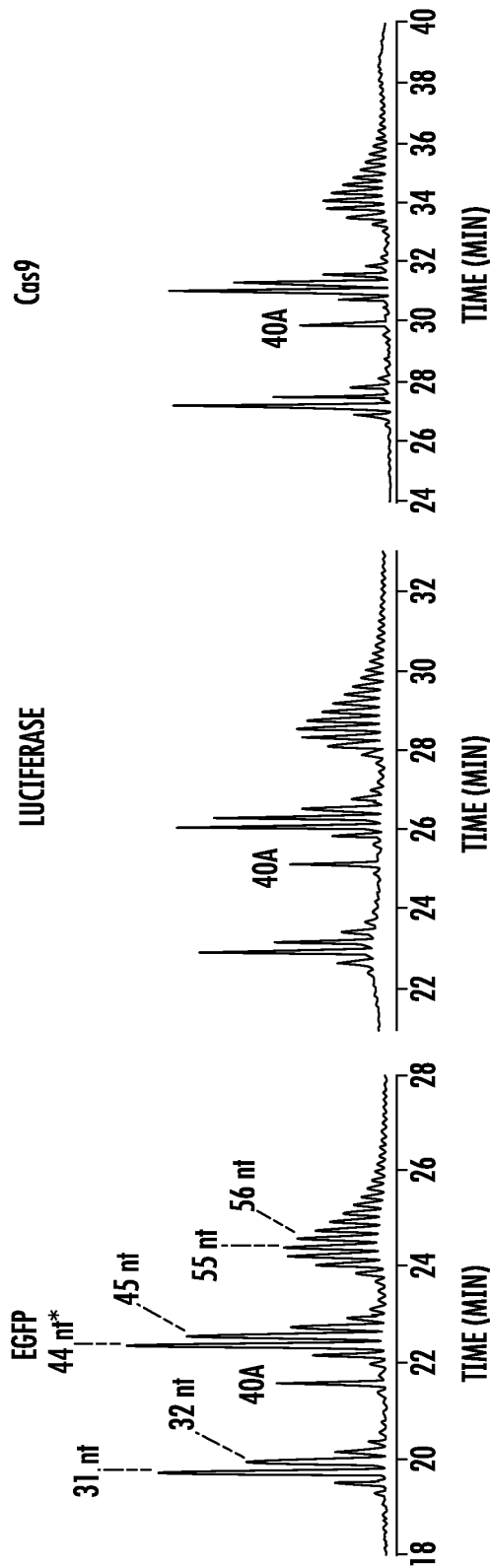


FIG. 2A

FIG. 2B

FIG. 2C

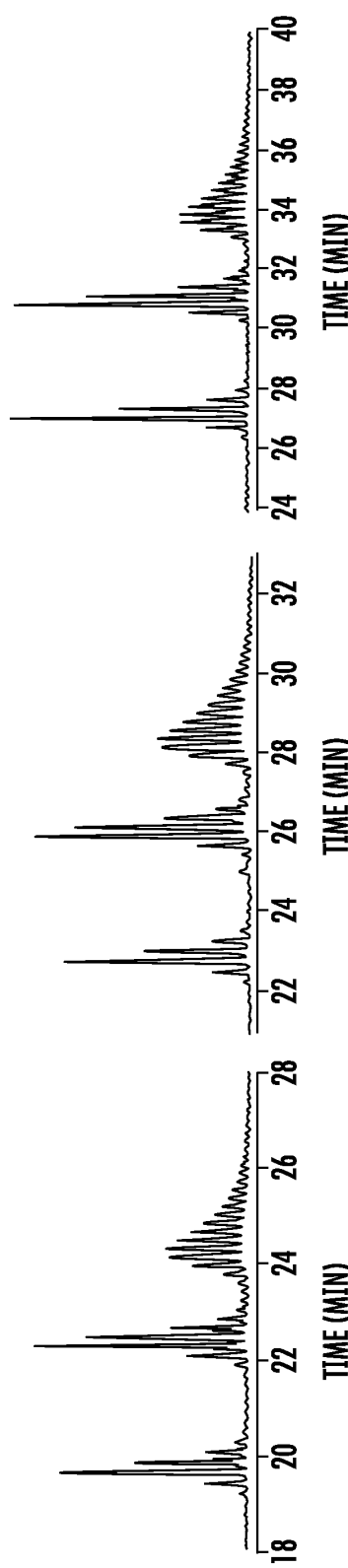


FIG. 2D

FIG. 2E

FIG. 2F

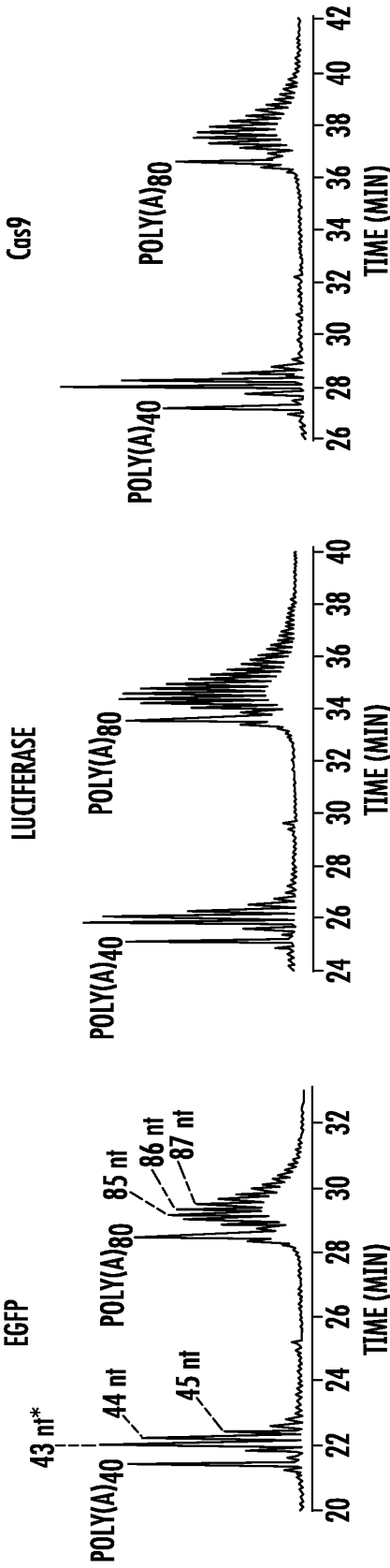


FIG. 3A

FIG. 3B

FIG. 3C

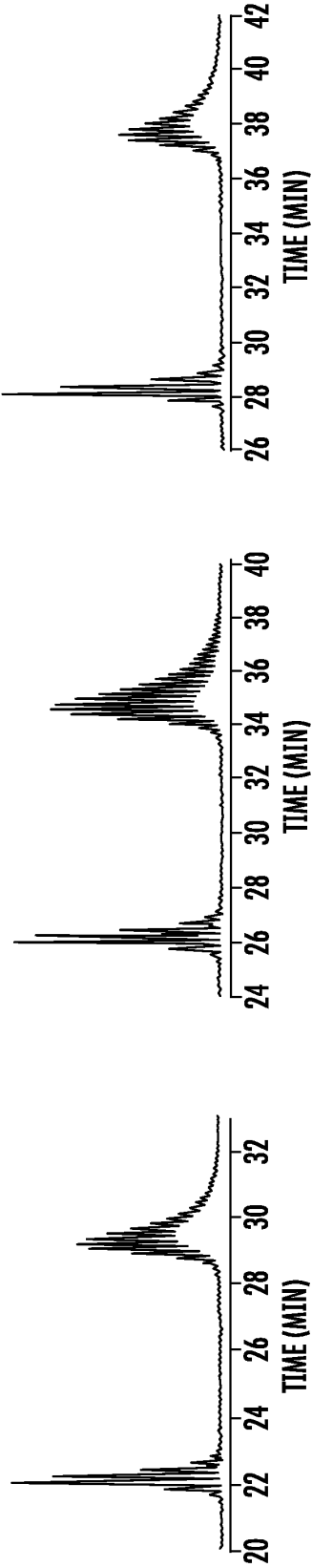


FIG. 3D

FIG. 3E

FIG. 3F

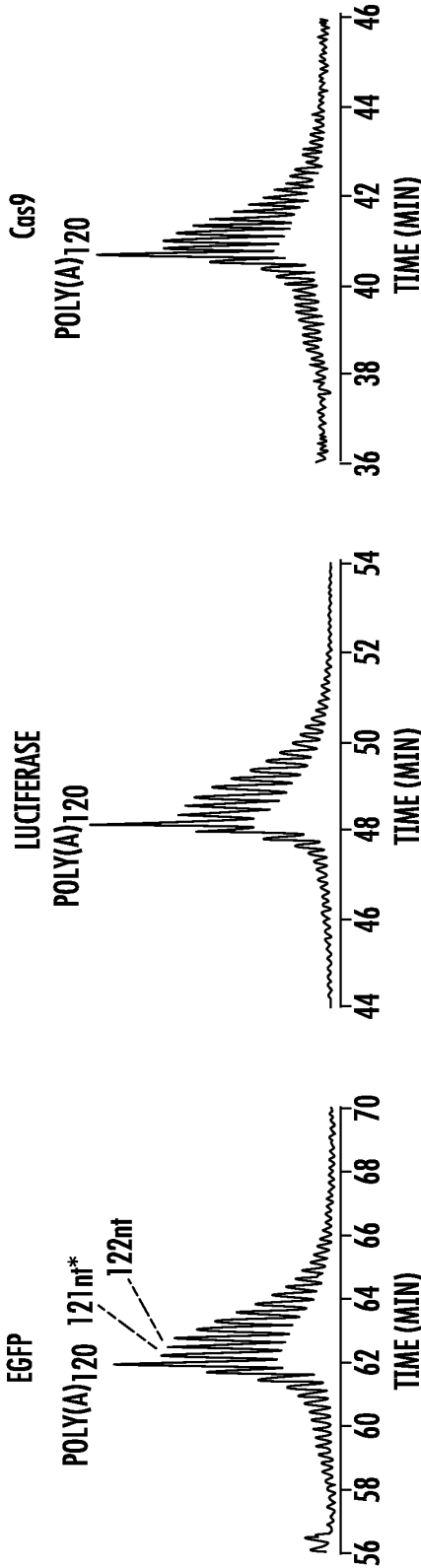


FIG. 4A

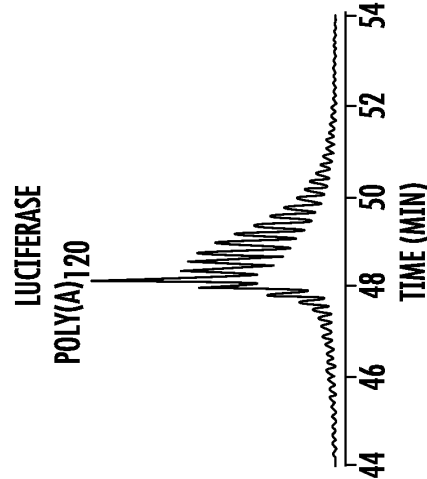


FIG. 4B

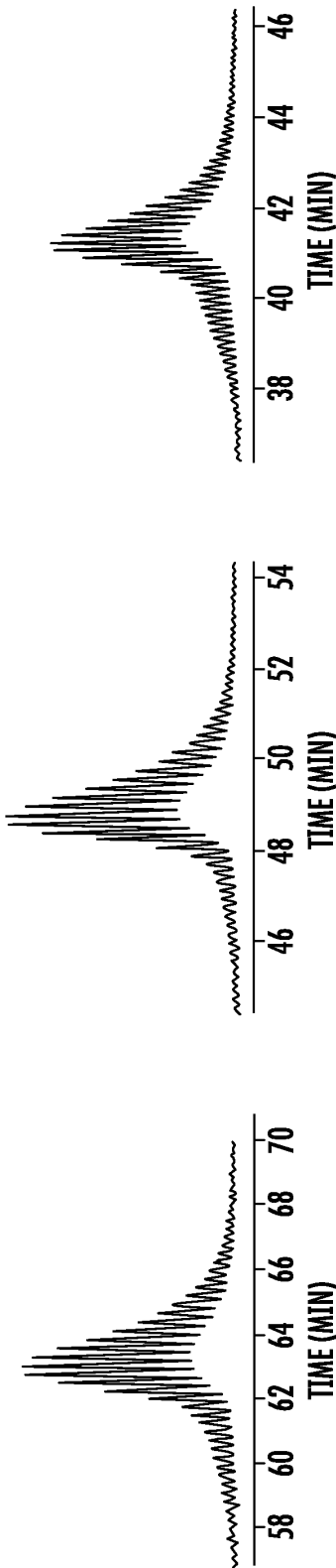


FIG. 4C

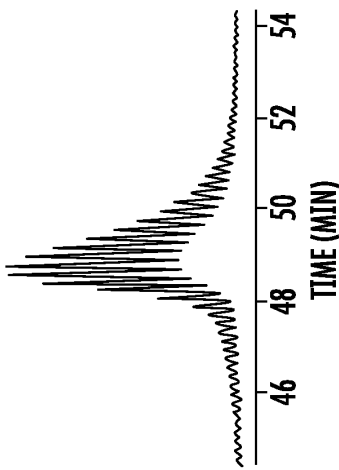


FIG. 4D

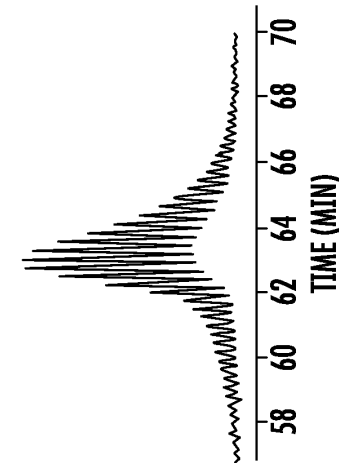


FIG. 4E

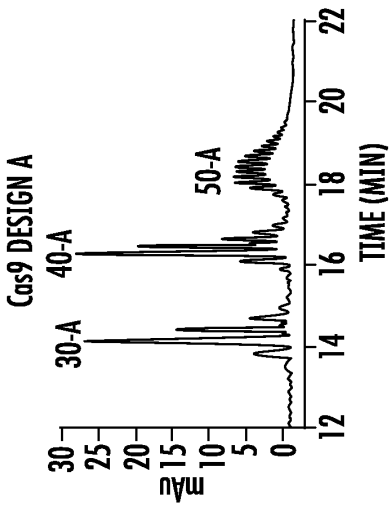


FIG. 5A

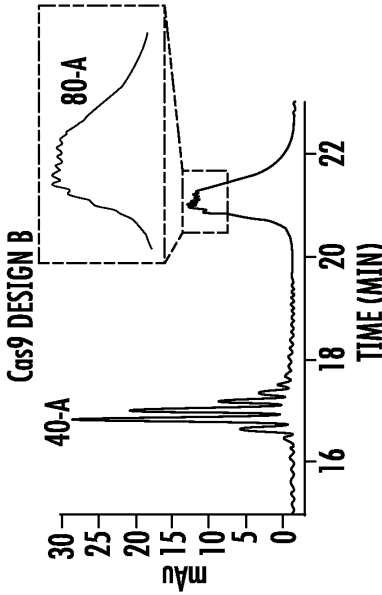


FIG. 5B

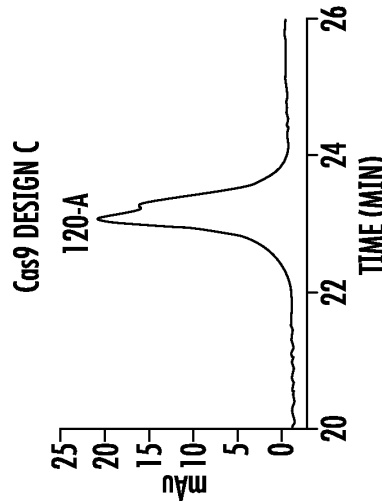
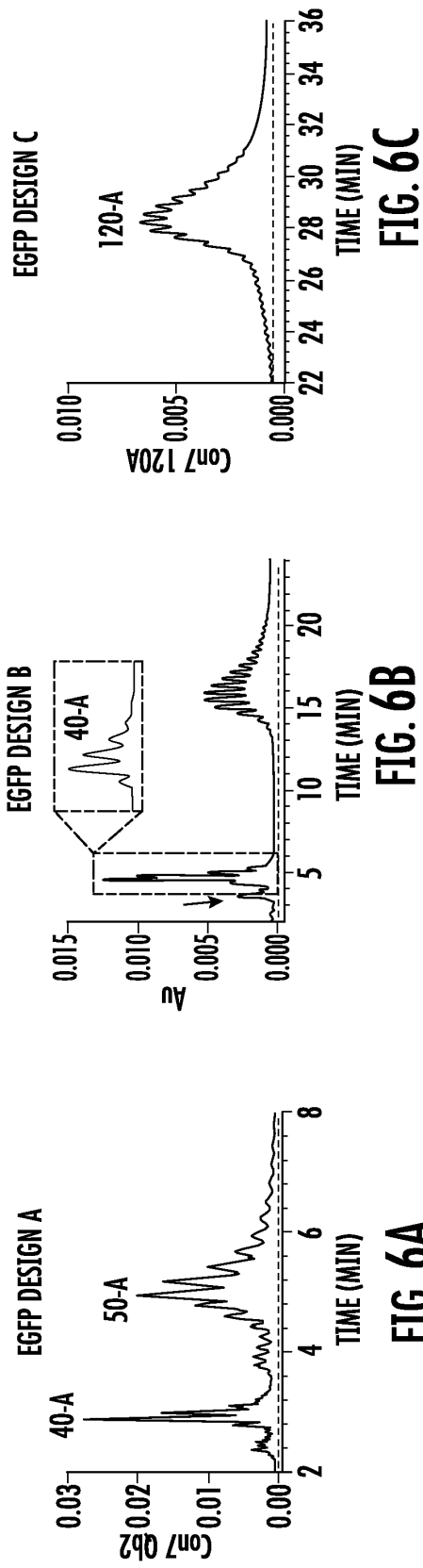
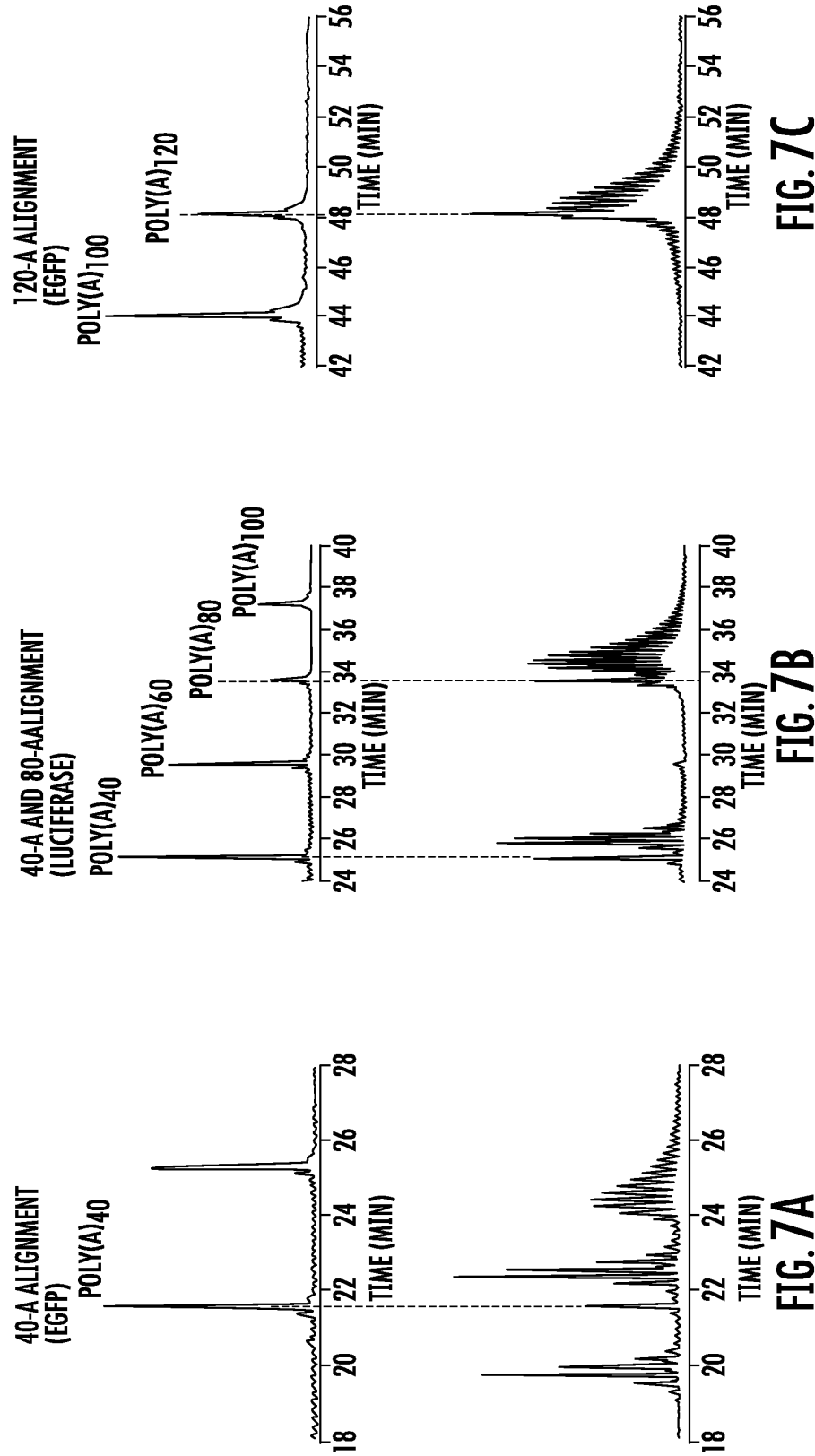
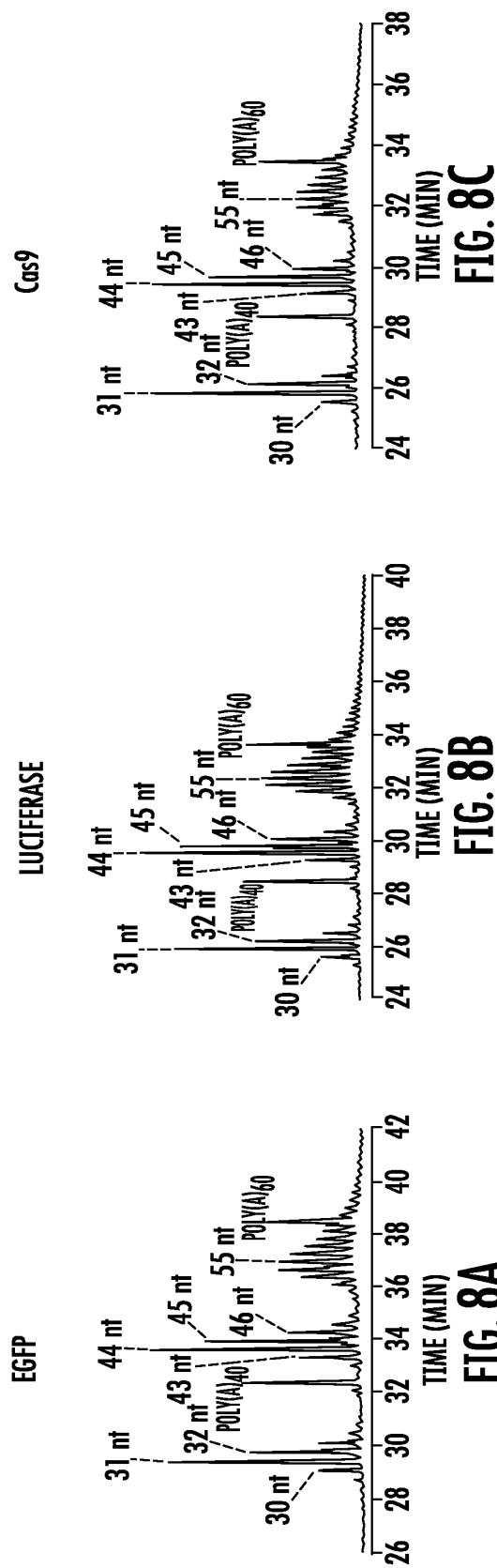
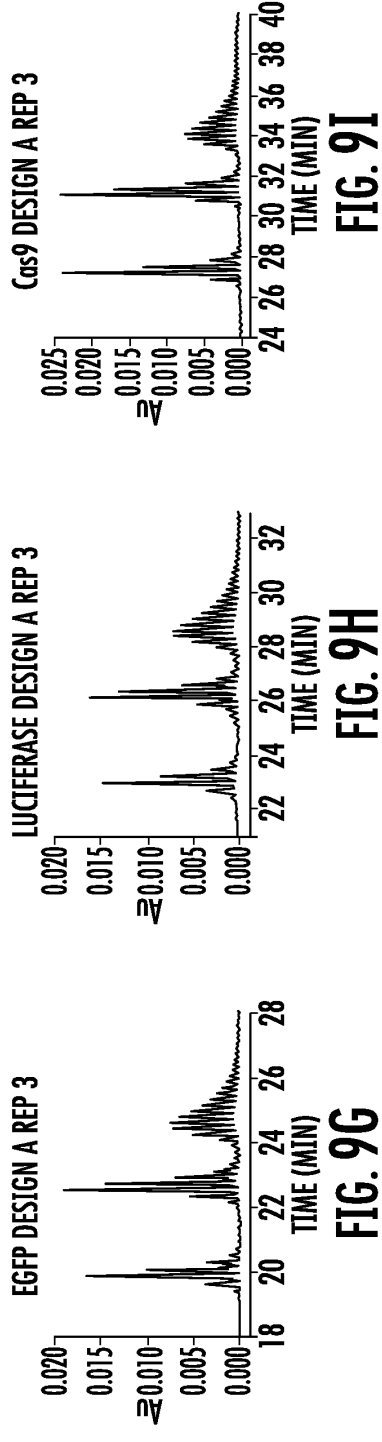
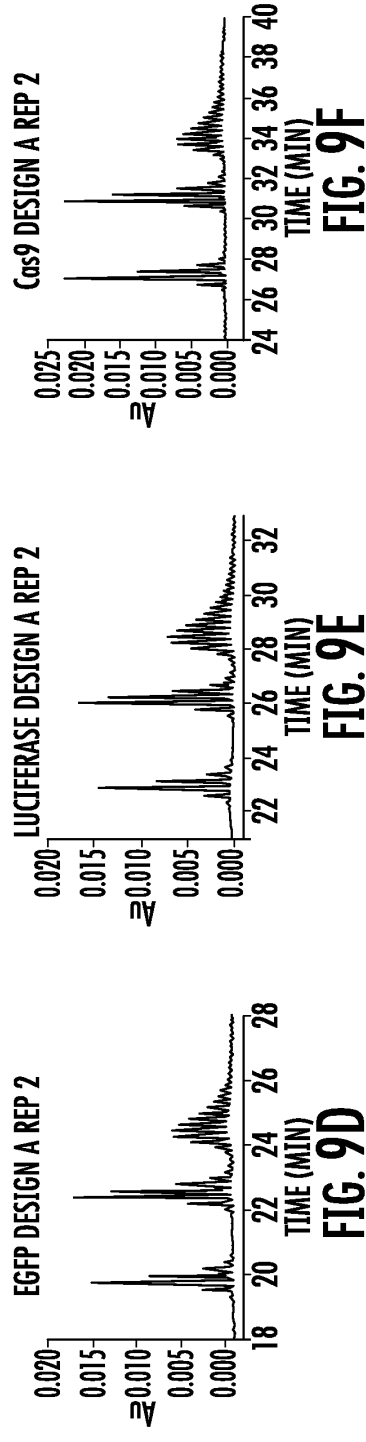
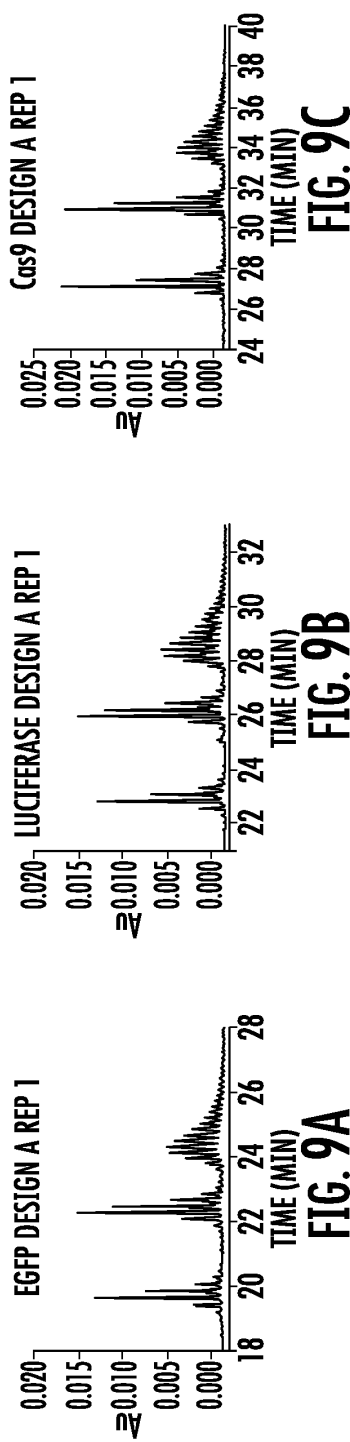


FIG. 5C









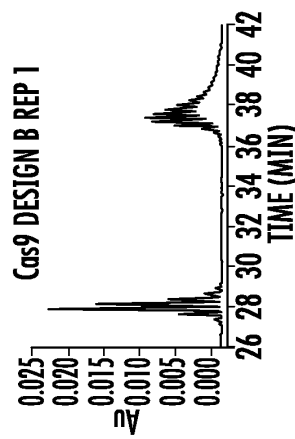


FIG. 10C

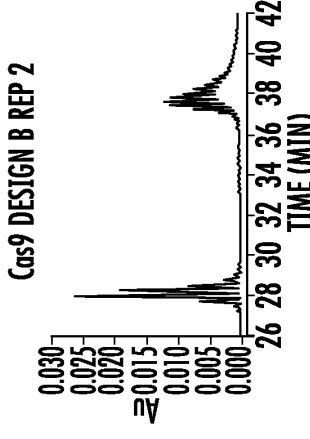


FIG. 10F

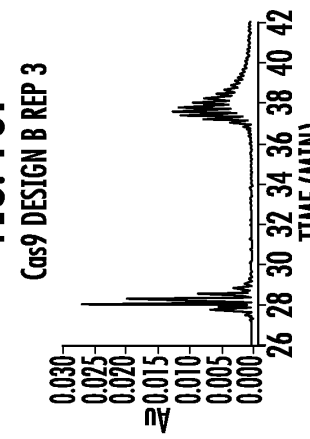


FIG. 10I

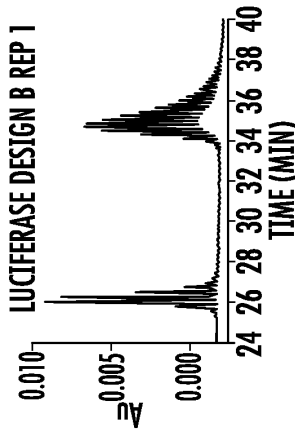


FIG. 10B

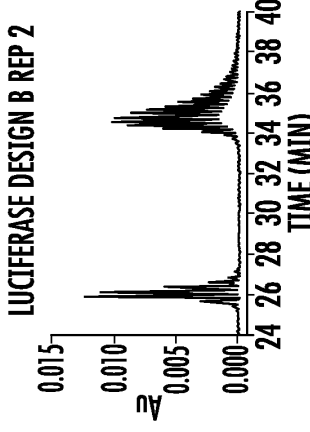


FIG. 10E

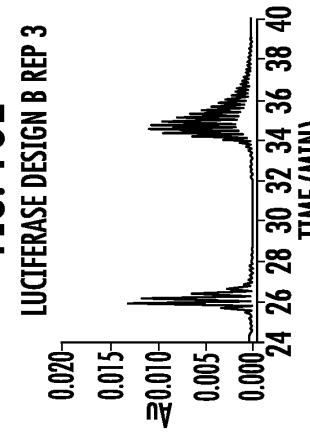


FIG. 10H

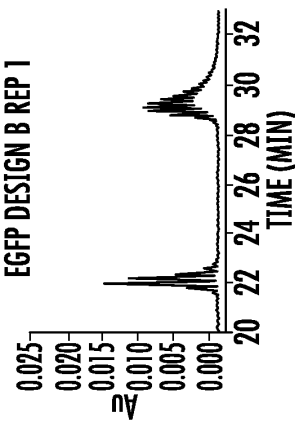


FIG. 10A

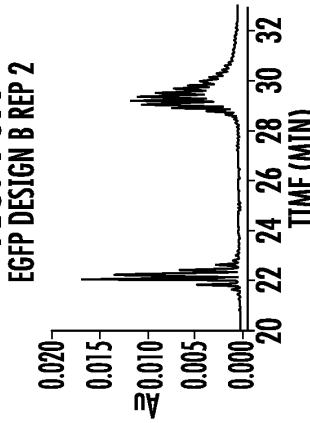


FIG. 10D

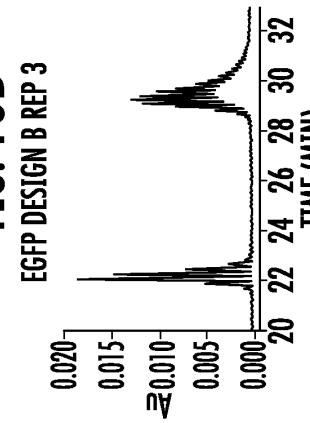


FIG. 10G

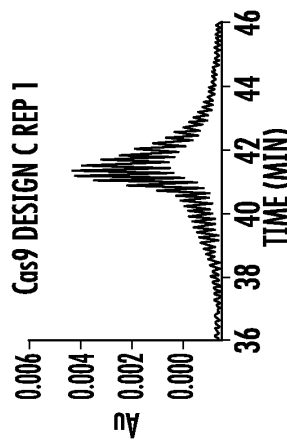


FIG. 11A
EGFP DESIGN C REP 2

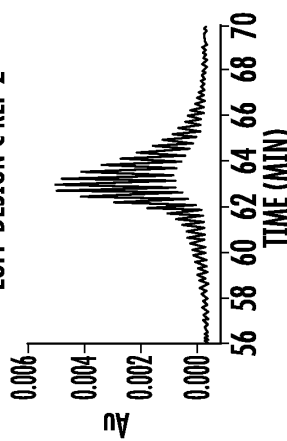


FIG. 11D
EGFP DESIGN C REP 3

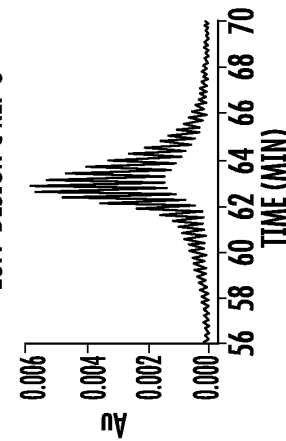


FIG. 11G

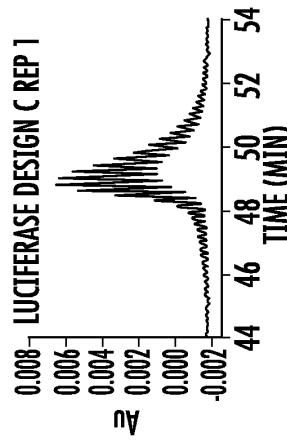


FIG. 11B
LUCIFERASE DESIGN C REP 2

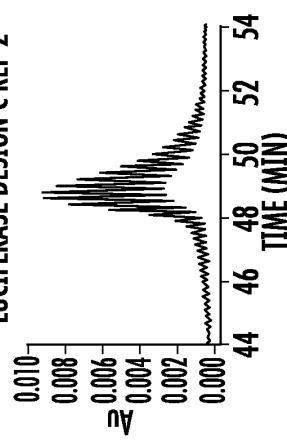


FIG. 11E
LUCIFERASE DESIGN C REP 3

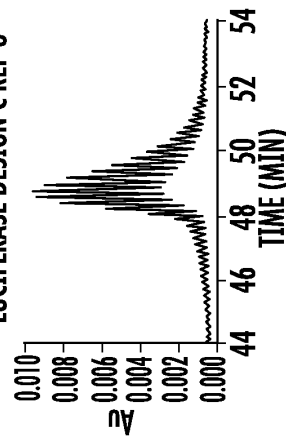


FIG. 11H

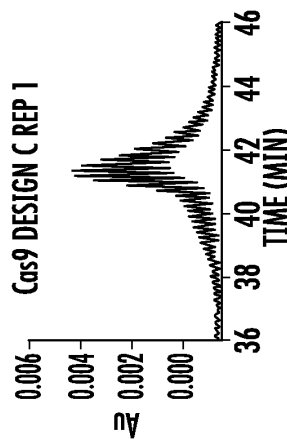


FIG. 11C
Cas9 DESIGN C REP 2

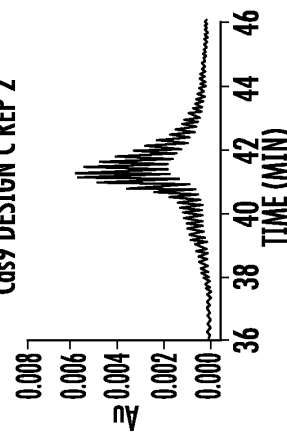


FIG. 11F
Cas9 DESIGN C REP 3

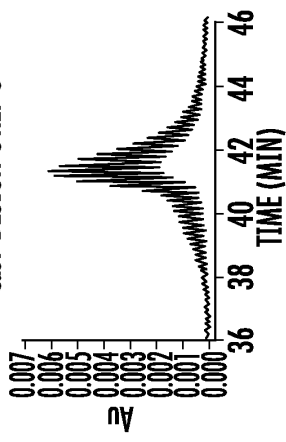


FIG. 11I

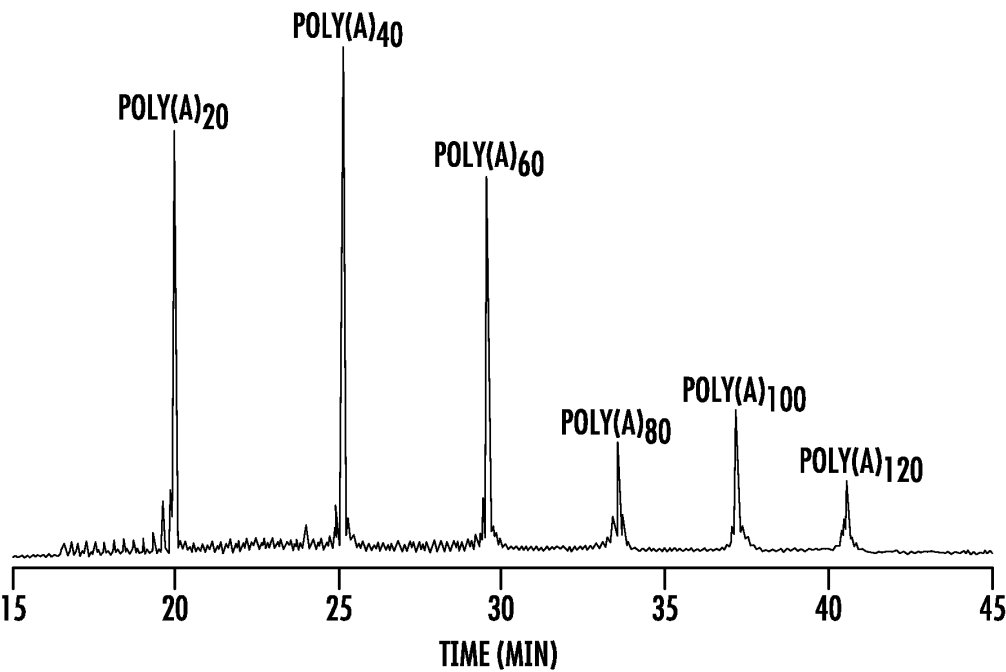


FIG. 12

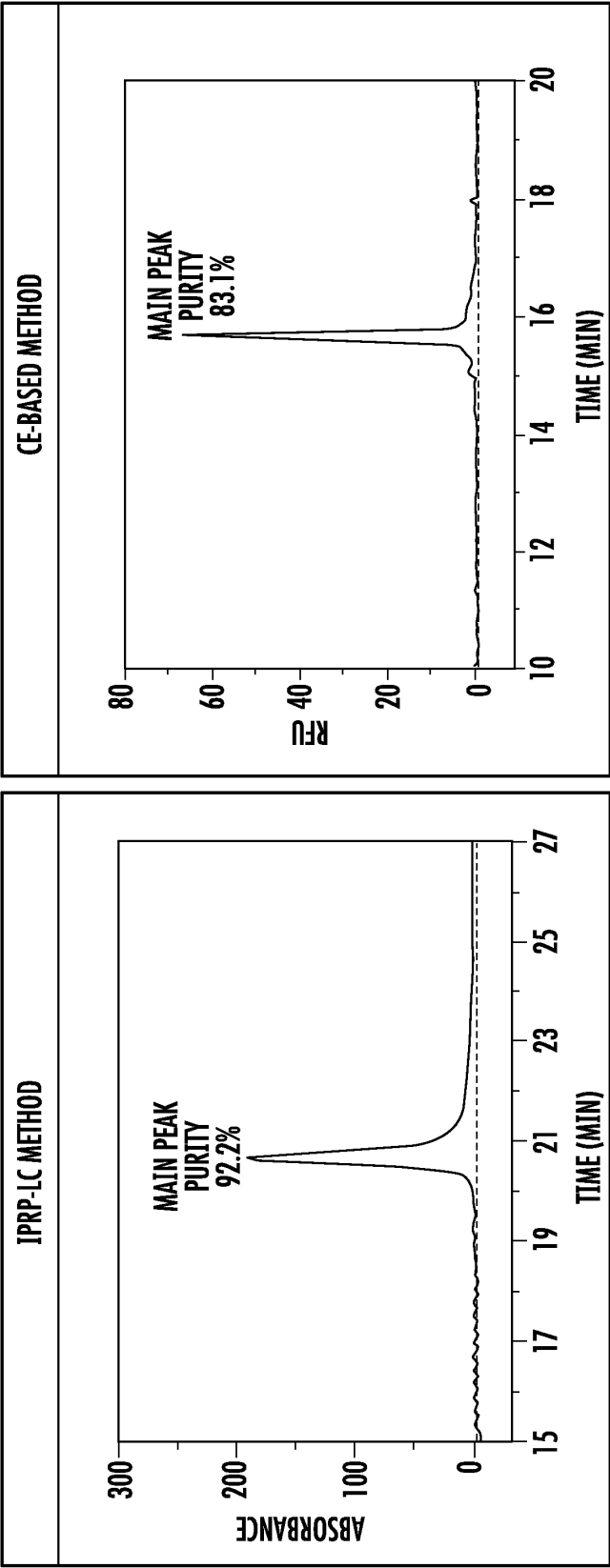


FIG. 13A

FIG. 13B

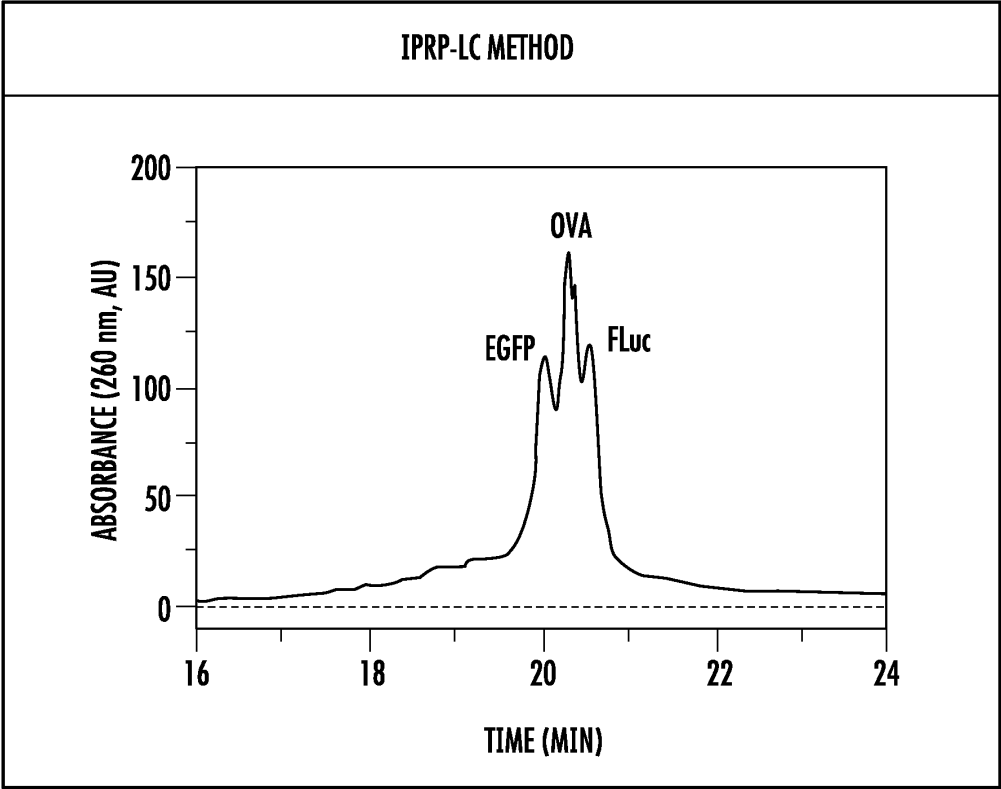


FIG. 14

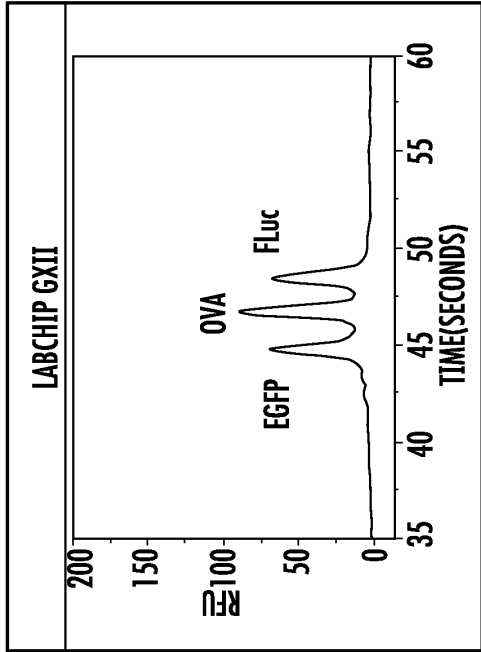


FIG. 15B

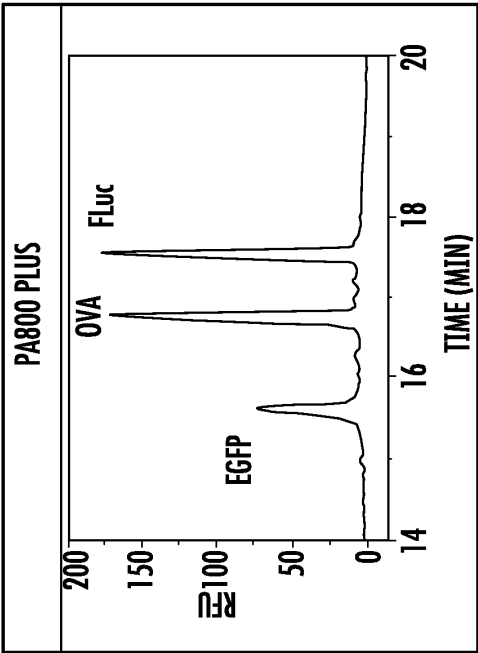


FIG. 15D

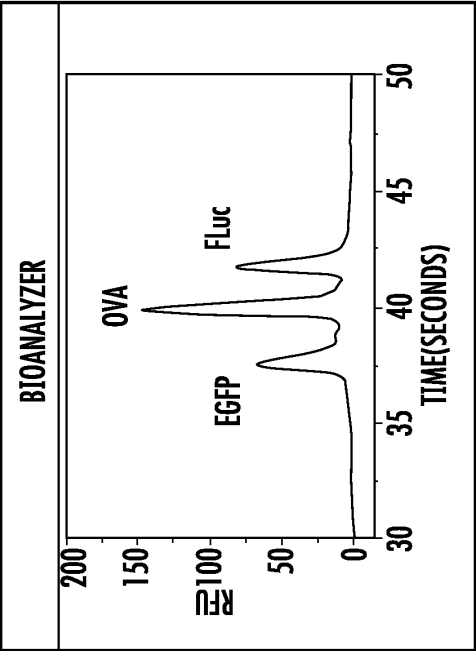


FIG. 15A

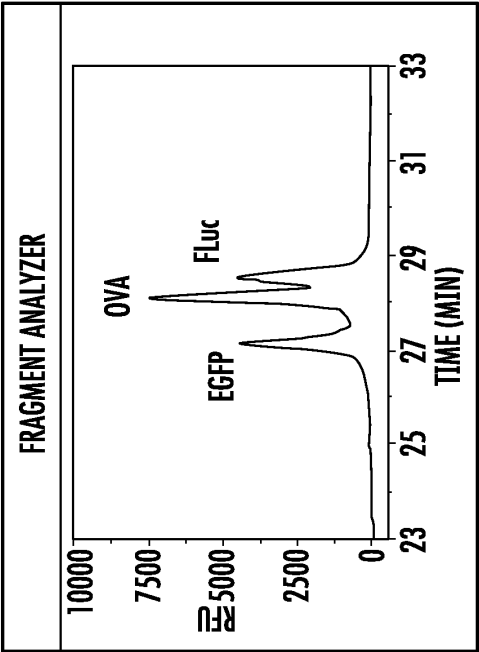


FIG. 15C

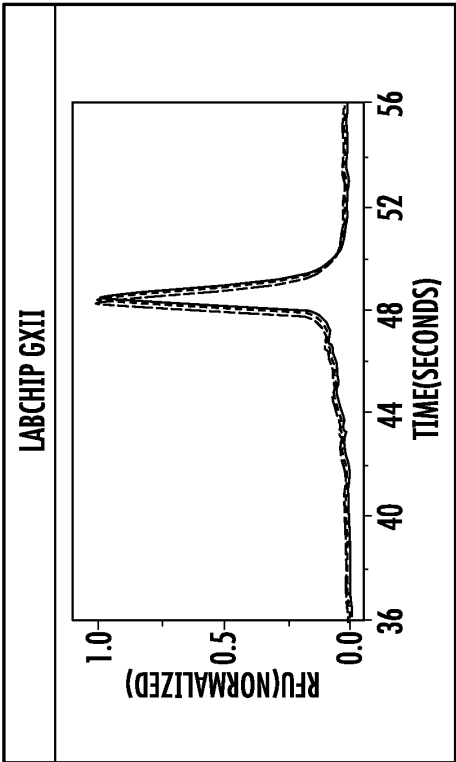


FIG. 16B

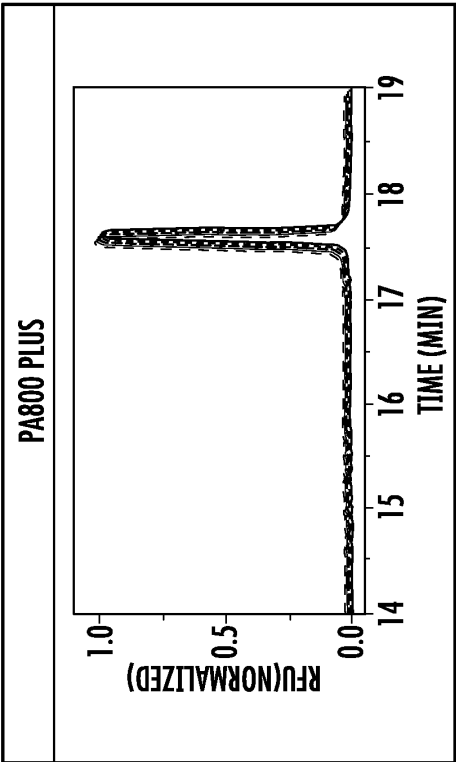


FIG. 16D

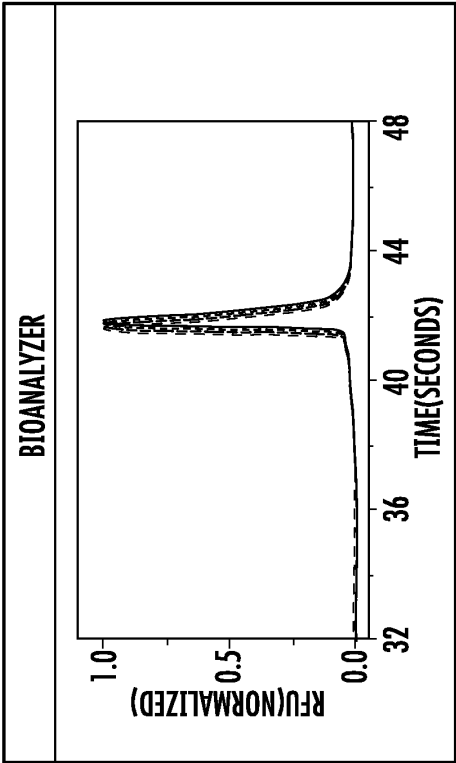


FIG. 16A

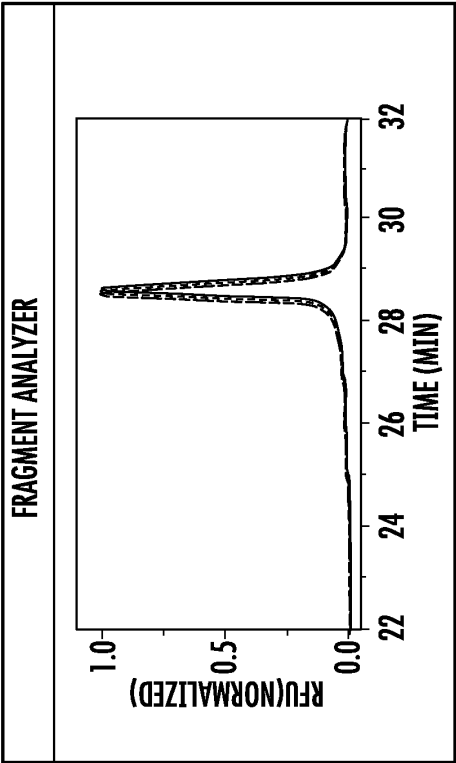


FIG. 16C

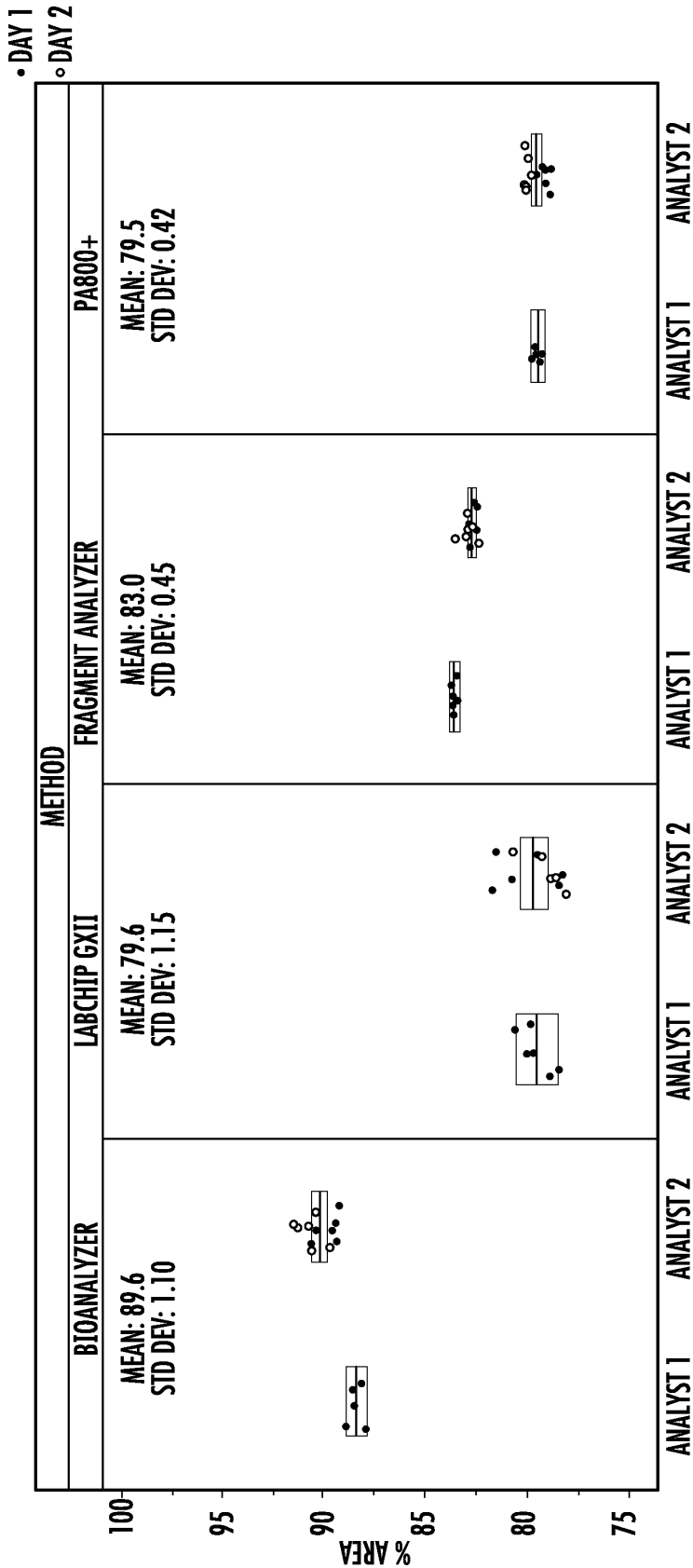


FIG. 17



FIG. 18

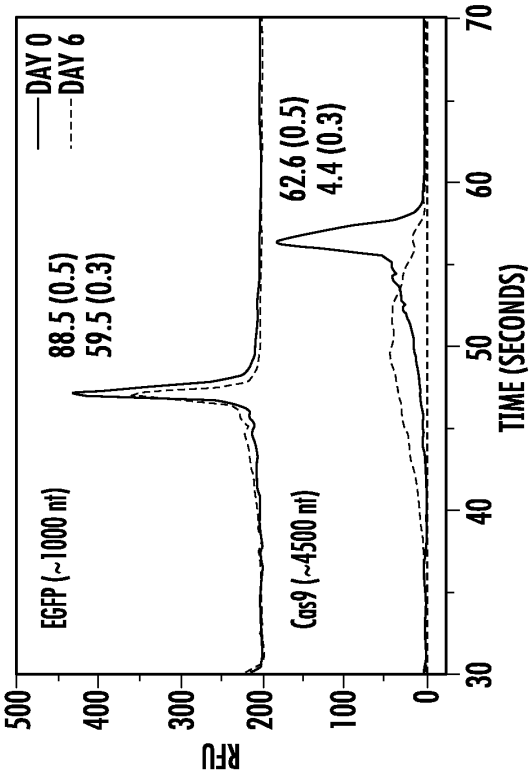


FIG. 19A

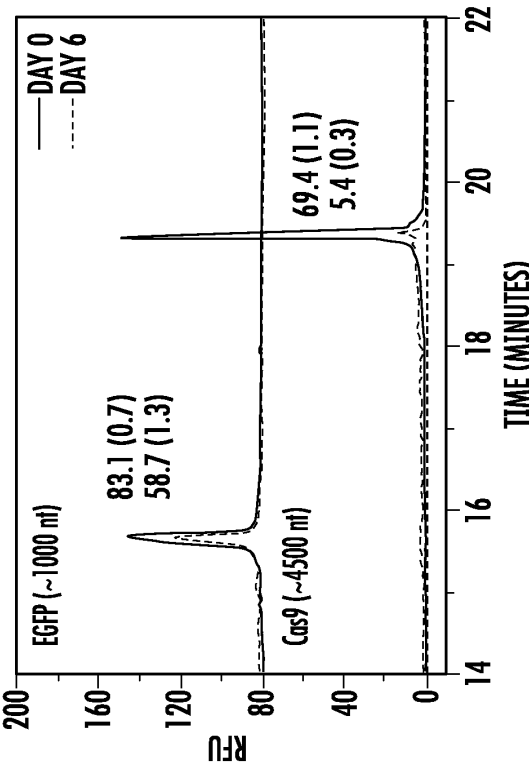


FIG. 19B

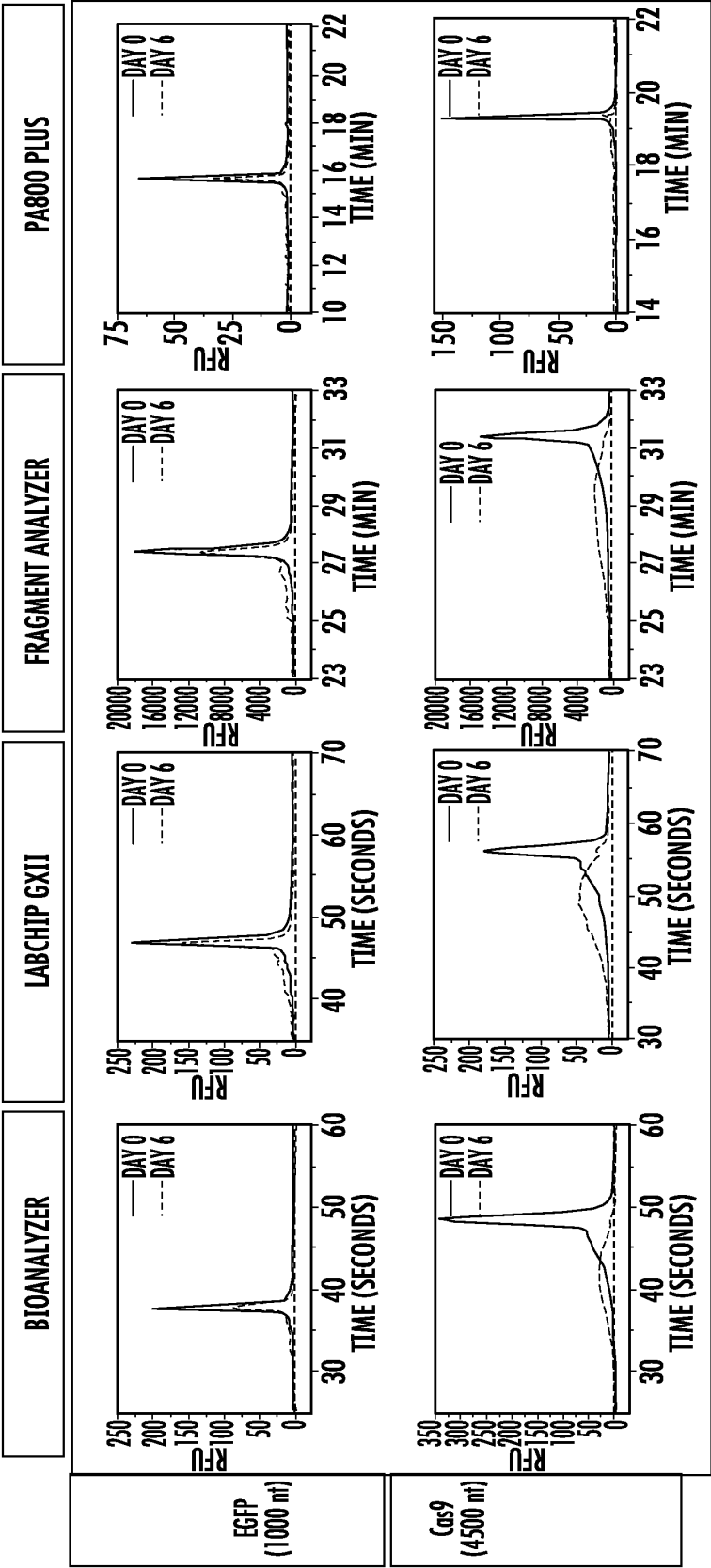


FIG. 20

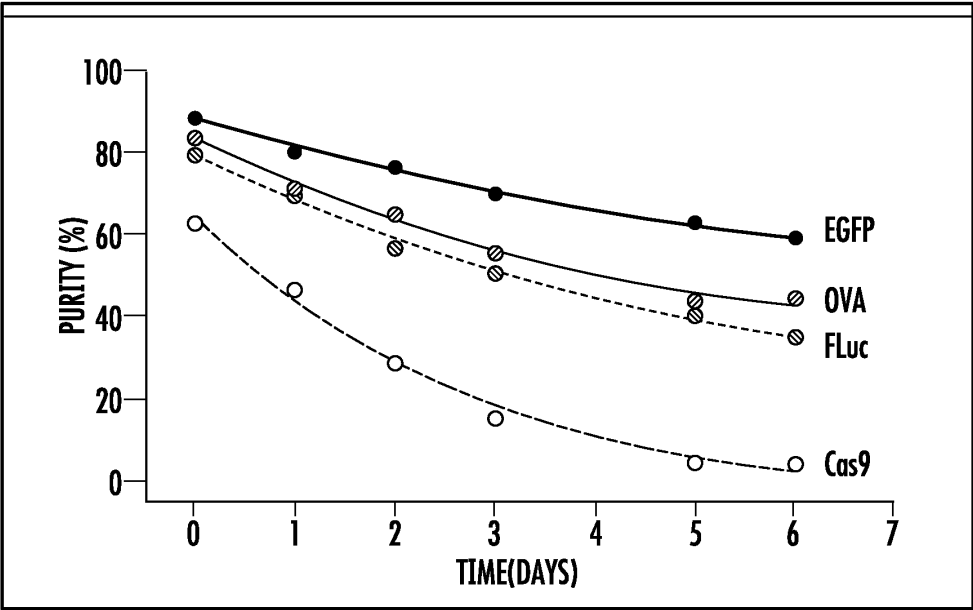


FIG. 21

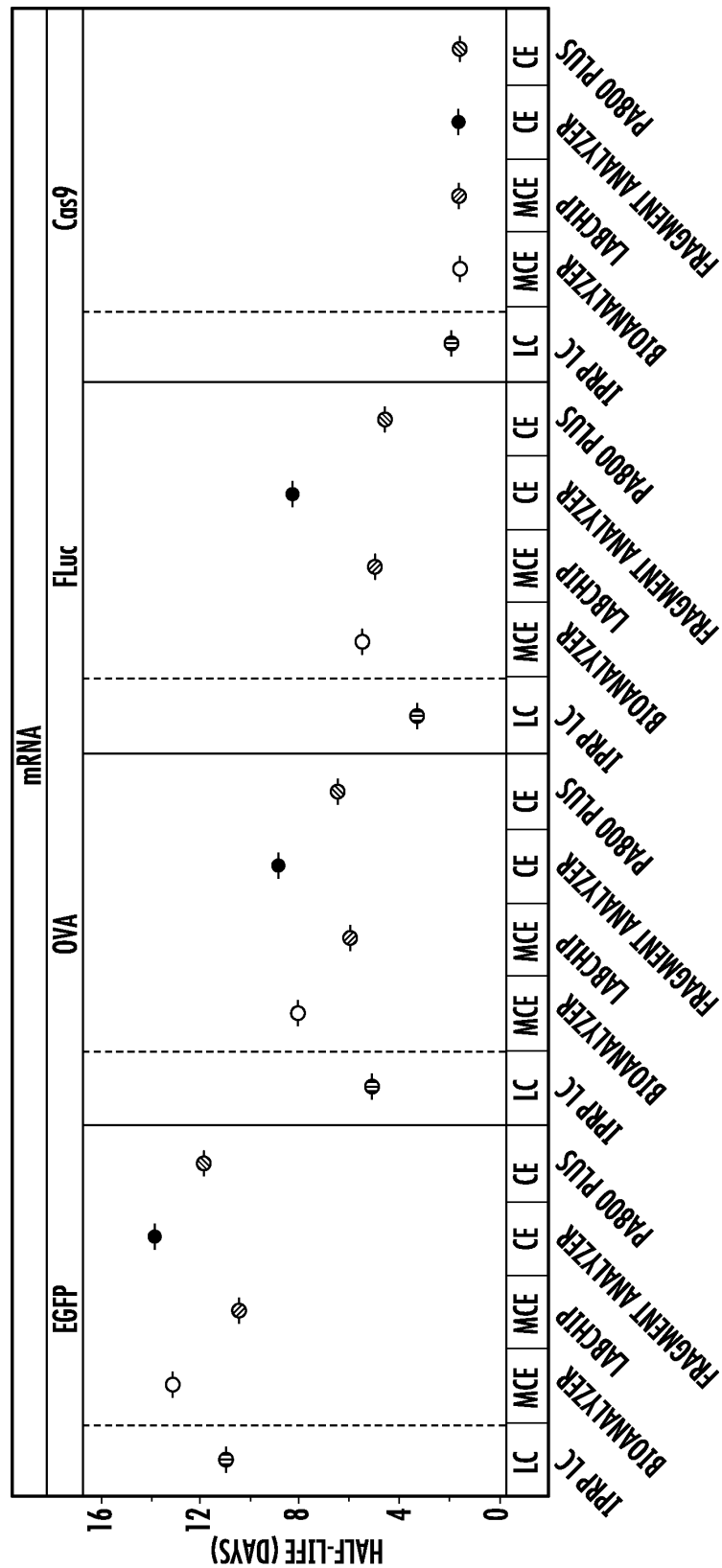


FIG. 22

SIZE MARKER NAME	UPDATE	SEQUENCE	3' END
20nt-50H-30H-1G	ORIGINAL FOR EVERY 19A, THERE IS 1G	AAAAAAAAAAAAAAAAAAG	OH
40nt-50H-30H-2G		(AAAAAAAAAAAAAAAAAAG) ²	OH
60nt-50H-30H-3G		(AAAAAAAAAAAAAAAAAAG) ³	OH
80nt-50H-30H-4G		(AAAAAAAAAAAAAAAAAAG) ⁴	OH
100nt-50H-30H-5G		(AAAAAAAAAAAAAAAAAAG) ⁵	OH
120nt-50H-30H-6G		(AAAAAAAAAAAAAAAAAAG) ⁶	OH
35nt-50H-30H	ROUND 1 MATCH BASE COMPOSITION (IN DIFFERENT ORDER) AND LENGTH TO EXPECTED POLY(A) TWO SETS 1 WITH 3'P 1 WITH 3'OH	AAAAAAAAAAAAAAAAAAGAAAAAAAAA	OH
35nt-50H-3P		AAAAAAAAAAAAAAAAAAGAAAAAAAAA	P
46nt-50H-30H		CAUAAAAAAAAAAAAAAAAAGAAAAAAAAA	OH
46nt-50H-3P		CAUAAAAAAAAAAAAAAAAAGAAAAAAAAA	P
53nt-50H-30H		AAAAAAAAAAAAAAAAAAGAAAAAAAAA	OH
53nt-50H-3P		AAAAAAAAAAAAAAAAAAGAAAAAAAAA	P
47nt-50H-30H		AAAAAAAAAAAAAAAAAAGAAAAAAAAA	OH
47nt-50H-3P		AAAAAAAAAAAAAAAAAAGAAAAAAAAA	P
83nt-50H-30H		AAAAAAAAAAAAAAAAAAGAAAAAAAAA AAAAAAAAAAAAAAAAAAGAAAA	OH

FIG. 24

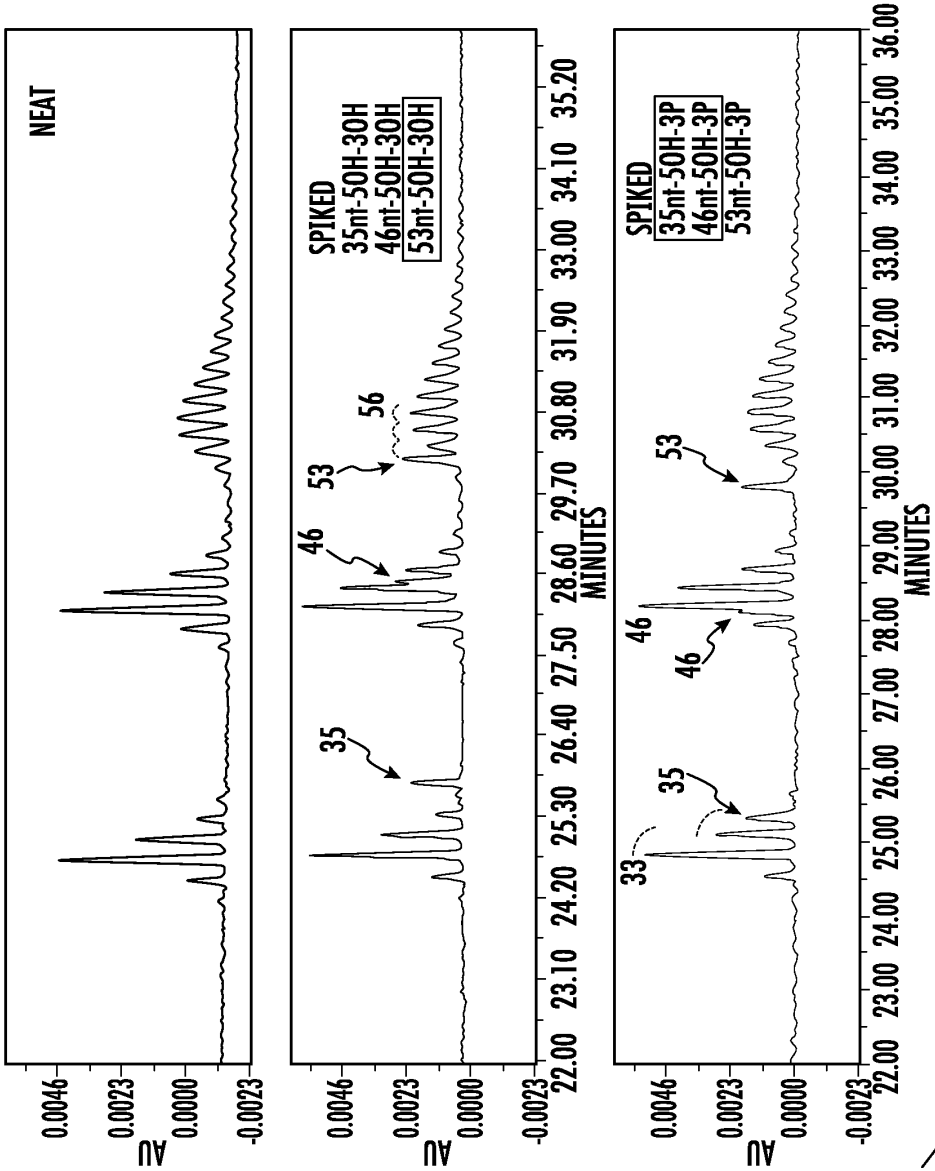
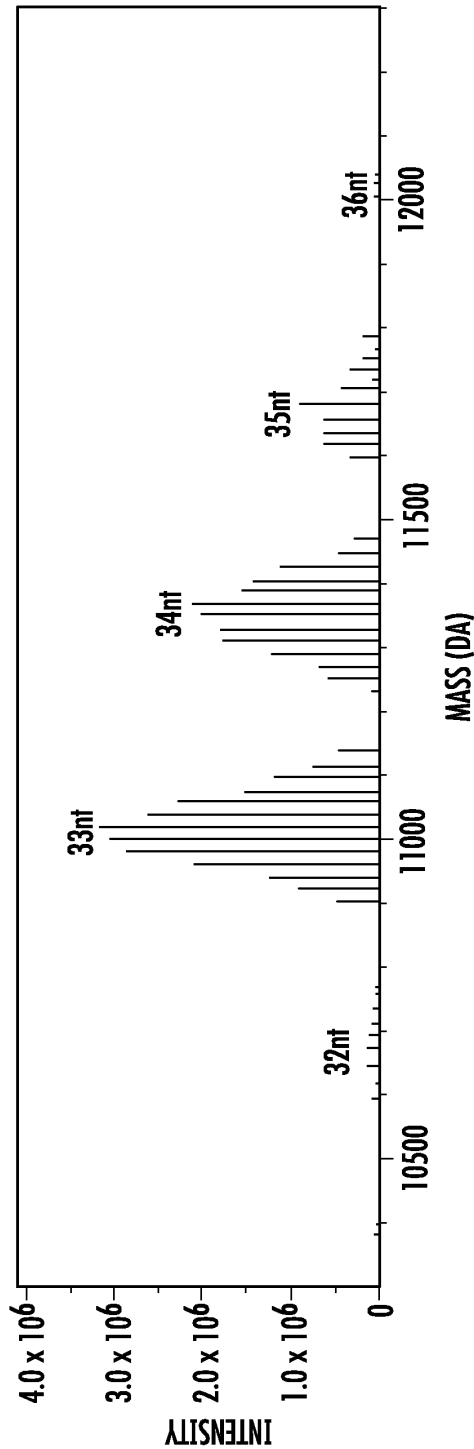


FIG. 25

POLY(A) DESIGN	EXPECTED POLY(A) LENGTH	CGE ORIGINAL LADDER	CGE
			NEW LADDER — ROUND 1 35NT-50H-3P 46NT-50H-3P 53NT-50H-30H
A	35, 46, 53	31, 44, 55	33, 46, 56

FIG. 26



POLY(A) DESIGN	EXPECTED POLY(A) LENGTH	CGE		
		ORIGINAL LADDER	NEW LADDER – ROUND 1	CEMS
A	35, 46, 53	31, 44, 55	35nt-50H-3P 46nt-50H-3P 53nt-50H-30H	33, 46, TBD

FIG. 27

SIZE MARKER NAME	UPDATE	SEQUENCE	3' END
20nt-50H-30H-1G	ORIGINAL FOR EVERY 19A, THERE IS 1G	AAAAAAAAAAAAAAAAAAG	OH
40nt-50H-30H-2G		(AAAAAAAAAAAAAAAAAAG) ²	OH
60nt-50H-30H-3G		(AAAAAAAAAAAAAAAAAAG) ³	OH
80nt-50H-30H-4G		(AAAAAAAAAAAAAAAAAAG) ⁴	OH
100nt-50H-30H-5G		(AAAAAAAAAAAAAAAAAAG) ⁵	OH
120nt-50H-30H-6G		(AAAAAAAAAAAAAAAAAAG) ⁶	OH
35nt-50H-30H	ROUND 1 MATCH BASE COMPOSITION (IN DIFFERENT ORDER) AND LENGTH TO EXPECTED POLY(A) TWO SETS 1 WITH 3'P 1 WITH 3'OH	AAAAAAAAAAAAAAAAAAGAAAAAAAAAAAAAAAAA	OH
35nt-50H-3P		AAAAAAAAAAAAAAAAAAGAAAAAAAAAAAAAAAAA	P
46nt-50H-30H		CAUAAAAAAAAAAAAAAAAAAGAAAAAAAAAAAAAAAAA	OH
46nt-50H-3P		CAUAAAAAAAAAAAAAAAAAAGAAAAAAAAAAAAAAAAA	P
53nt-50H-30H		AAAAAAAAAAAAAAAAAAGAAAAAAAAAAAAAAAAA	OH
53nt-50H-3P		AAAAAAAAAAAAAAAAAAGAAAAAAAAAAAAAAAAA	P
47nt-50H-30H		AAAAAAAAAAAAAAAAAAGAAAAAAAAAAAAAAAAA	OH
47nt-50H-3P		AAAAAAAAAAAAAAAAAAGAAAAAAAAAAAAAAAAA	P
83nt-50H-30H	ROUND 2 SAME SEQUENCE AS ROUND 1 WITH NT-METHYL-PSEUDOURIDINE (m ¹ ψ) MODIFIED U'S EXPECTED 3' FUNCTIONAL GROUP BASED ON RNaseT1 rxn 3'P 3'OH	AAAAAAAAAAAAAAAAAAGAAAAAAAAAAAAAAAAA	OH
35nt-50H-3P-N1M		AAAAAAAAAAAAAAAAAAGAAAAAAAAAAAAAAAAA	P
46nt-50H-3P-N1M		CAU ^{NTM} AAAAAAAAAAAAAAAAAAGAAAAAAAAAAAAAAAAA ^{NTM} AAAAAAA	P
53nt-50H-30H-N1M		AAAAAAAAAAAAAAAAAAGAAAAAAAAAAAAAAAAA ^{NTM} AAAAAAA	OH
47nt-50H-3P-N1M		AAAAAAAAAAAAAAAAAAGAAAAAAAAAAAAAAAAA ^{NTM} AAAAAAA	P
83nt-50H-30H-N1M		AAAAAAAAAAAAAAAAAAGAAAAAAAAAAAAAAAAA ^{NTM} AAAAAAA	OH

FIG. 28

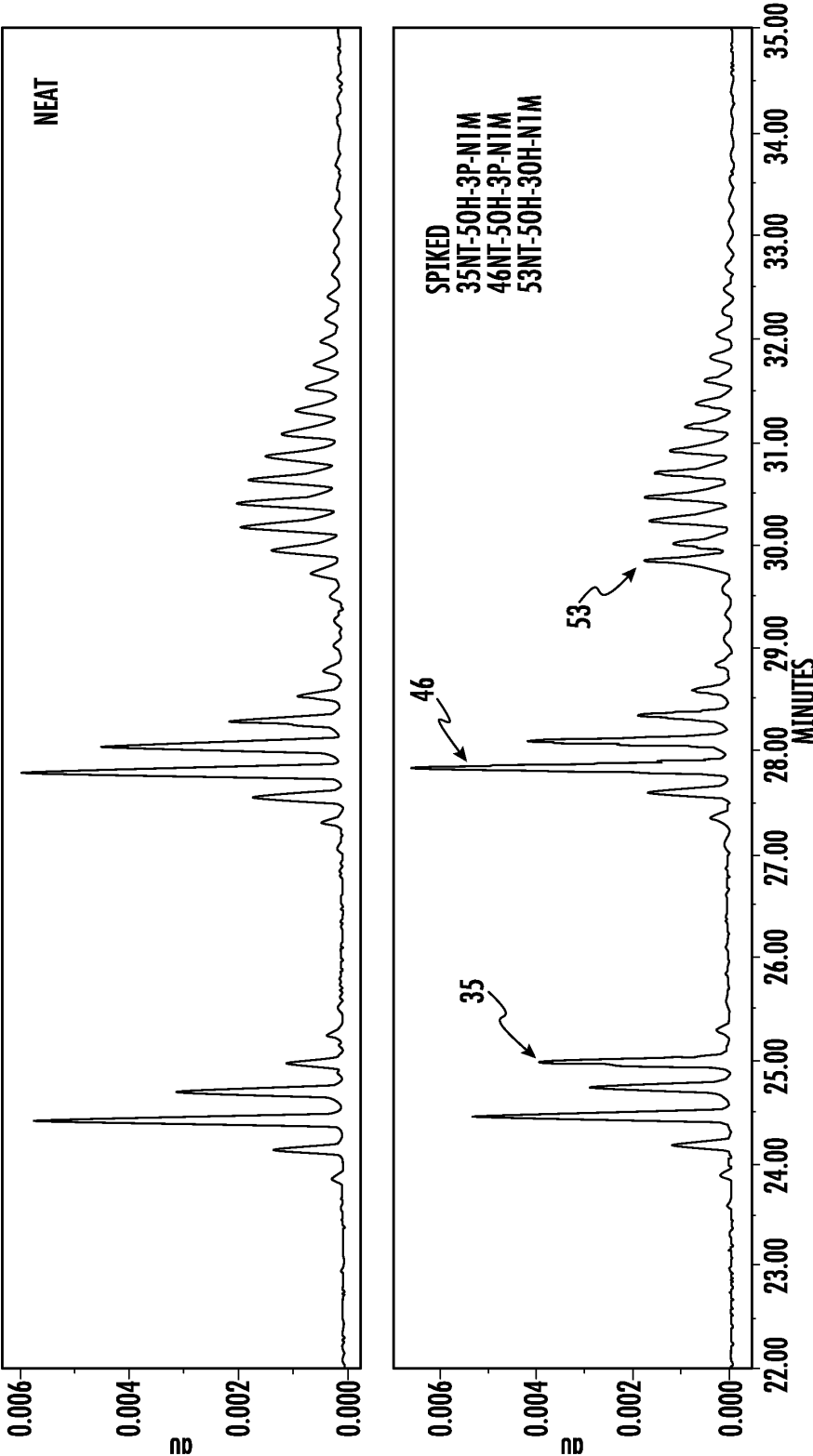


FIG. 29