

1 / 17

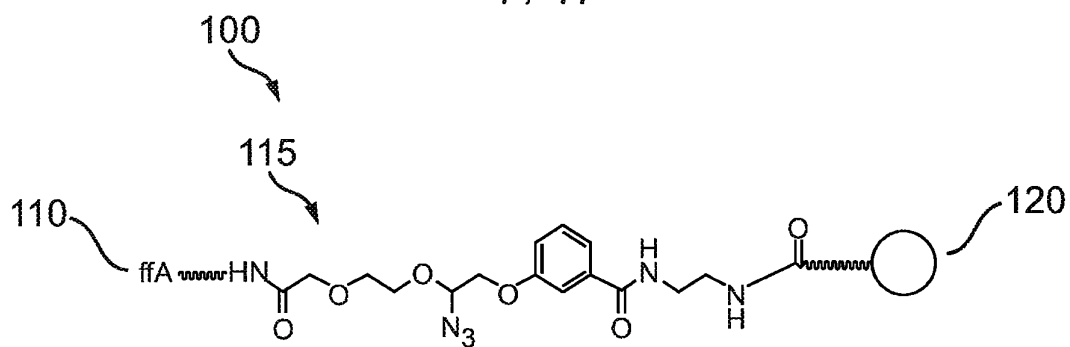


Fig. 1A

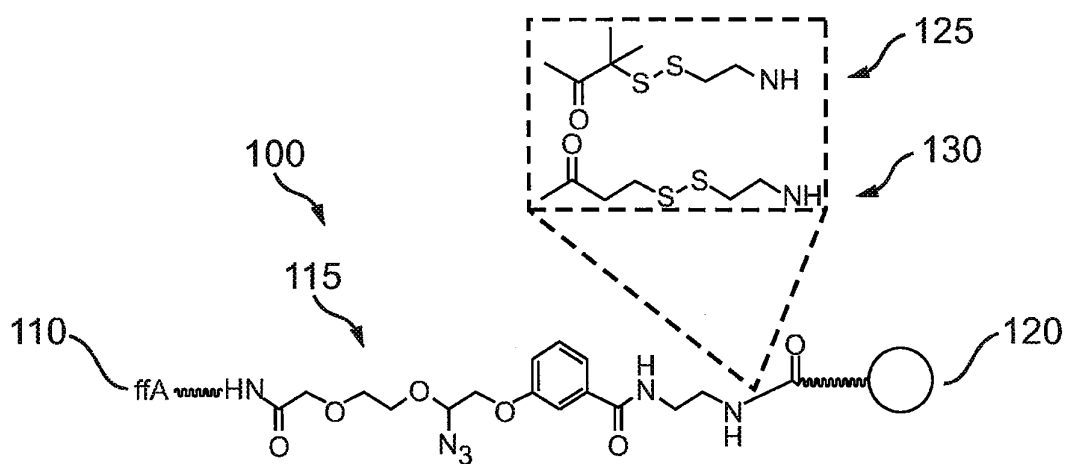


Fig. 1B

2 / 17

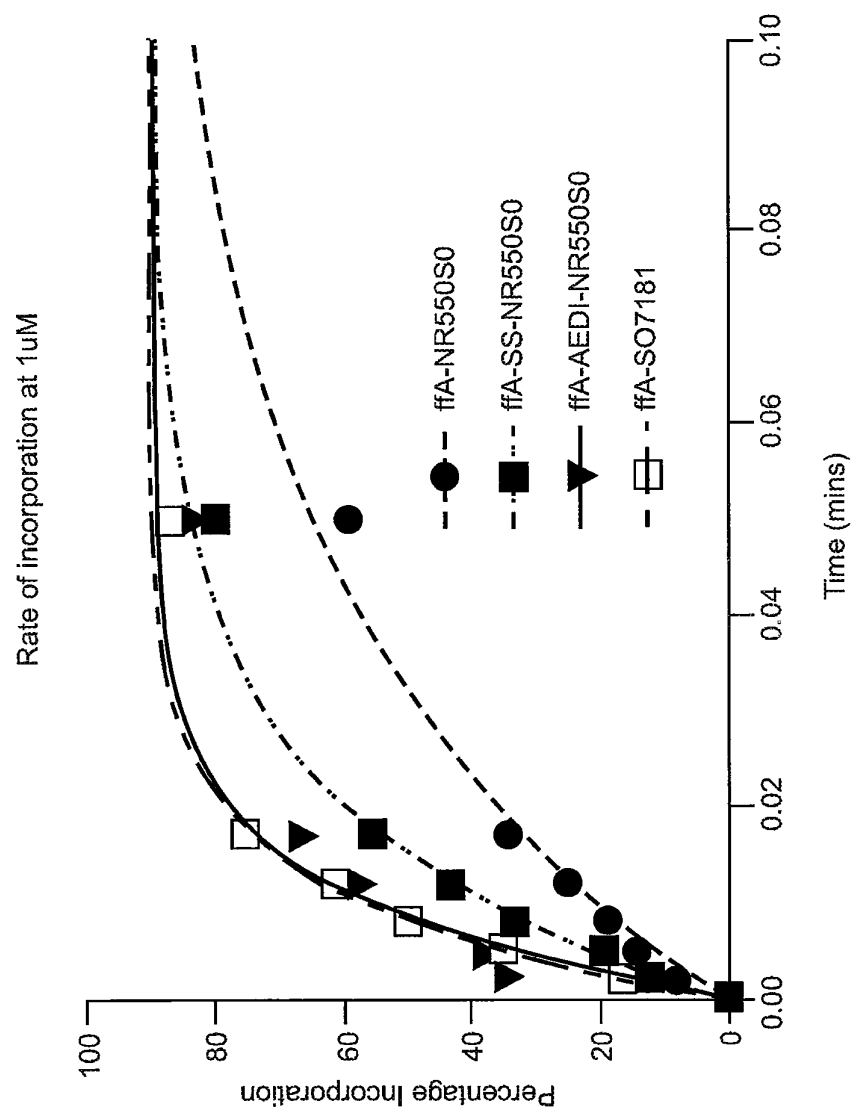


Fig. 2

3 / 17

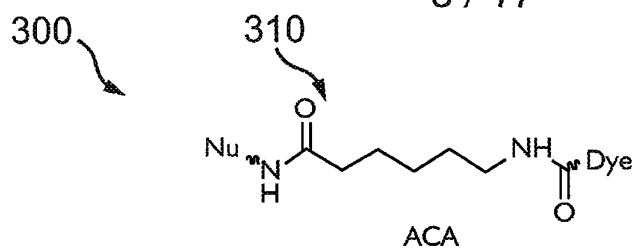


Fig. 3A

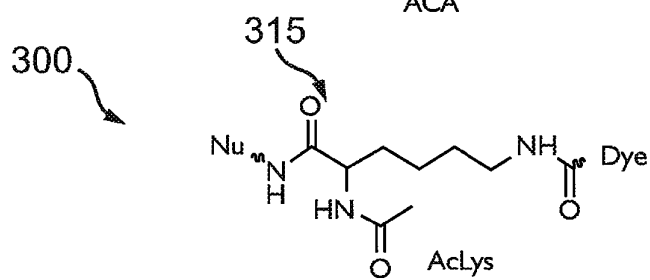


Fig. 3B

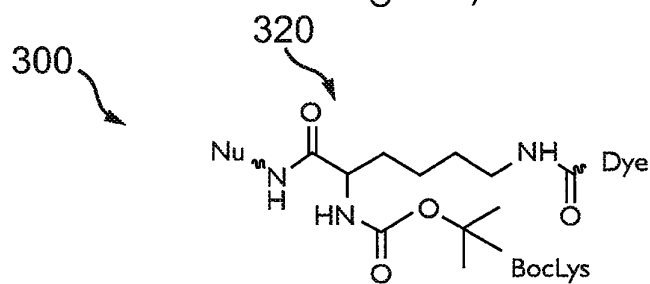


Fig. 3C

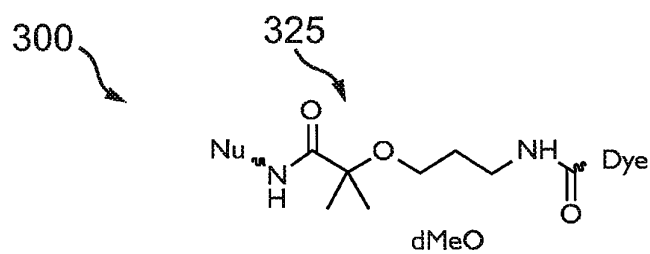


Fig. 3D

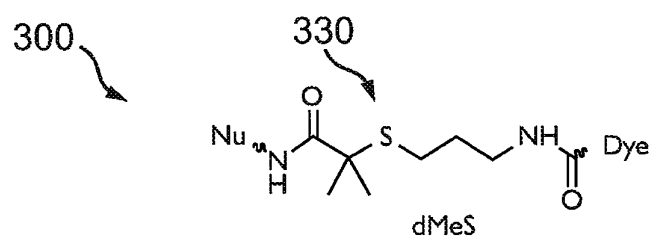


Fig. 3E

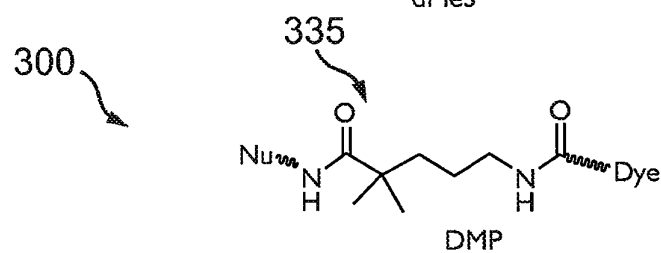


Fig. 3F

4 / 17

Dye set	Density	%PF	Ph R1	PPh R1	Ph R2	PPh R2	%Align R1	%Align R2	error R1	error R2
V4	230	79.6	0.205	0.111	0.35	0.149	82.2	79.3	1.41	3.19
V5.75	187	77.65	0.371	0.048	0.442	0.164	80.06	79.99	2.16	3.94
V10/cyan-peg4	222	79.88	0.305	0.084	0.53	0.179	81.89	79.45	1.42	3.48
V10/cyan-peg4, A-AEDI550S0	223	81.83	0.14	0.123	0.294	0.197	81.61	67.12	0.85	5.84
V10/cyan-peg4, A-AcLys550S0	227	78.52	0.2	0.128	0.319	0.272	82.23	78.52	1.44	3.48
V10/cyan, A-AcLys550S0	145	86.27	0.178	0.211	0.283	0.29	82.4	79.84	1.33	3.33

Fig. 4

5 / 17

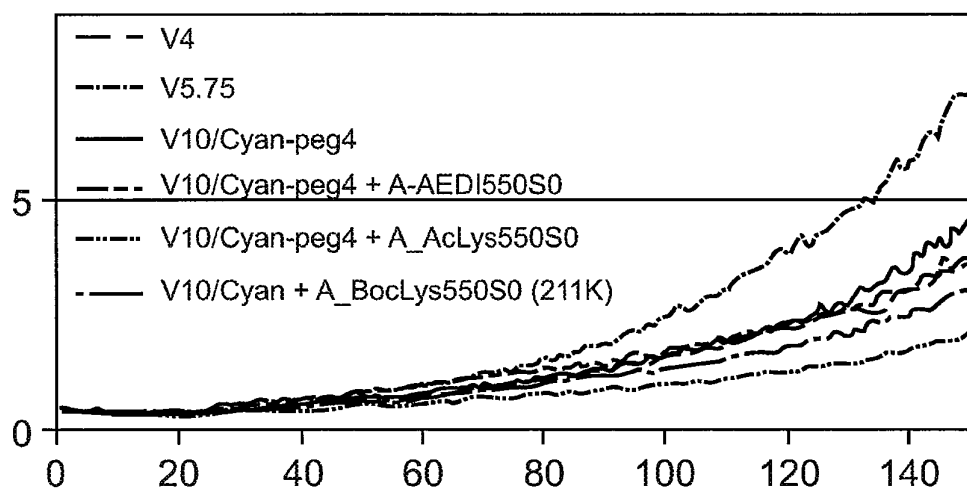


Fig. 5A

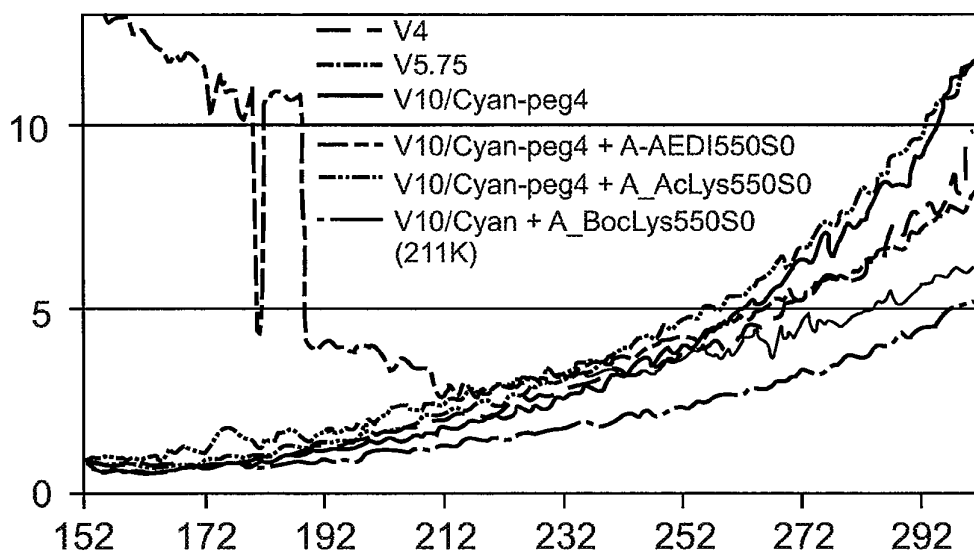


Fig. 5B

6 / 17

Dye set	Density	%PF	Ph R1	PPh R1	Ph R2	PPh R2	%Align R1	%Align R2	error R1	error R2
V4	191	82.62	0.132	0.151	0.242	0.163	81.91	79.59	1.34	2.43
V5.75	235	79.02	0.212	0.05	0.304	0.187	82.54	78.74	1.4	4.2
V10/Cyan-peg4	213	84.7	0.2	0.063	0.348	0.179	83.3	81.19	0.96	2.02
V10/Cyan-peg4	220	83.03	0.188	0.115	0.317	0.207	82.92	80.9	1.11	2.16
V10/Cyan-peg4, A-AEDI-550S0	252	76.37	0.102	0.097	0.132	0.412	80.1	34.9	0.84	25.58
V10/Cyan-peg4, A-ACA550S0	204	85.88	0.145	0.076	0.271	0.222	83.21	80.58	0.96	2.39

Fig. 6

7 / 17

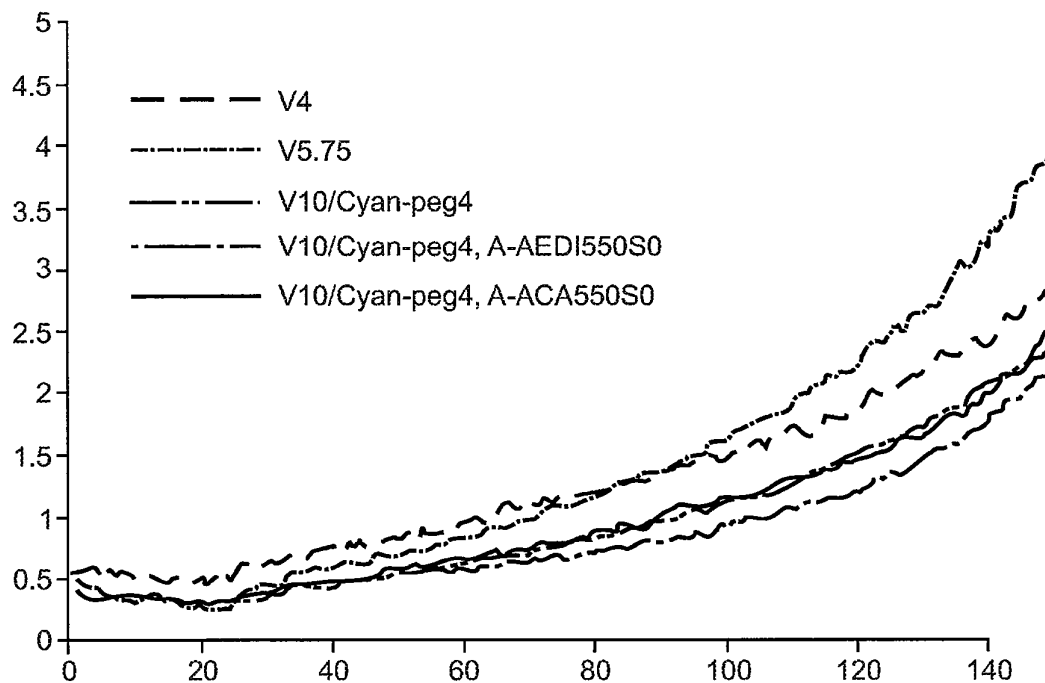


Fig. 7A

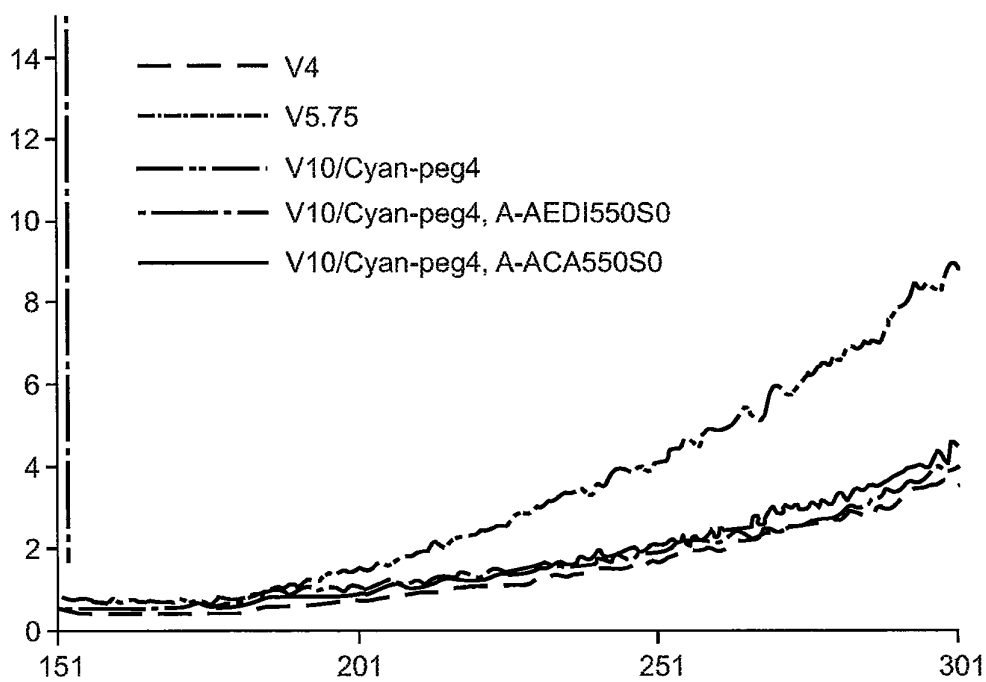
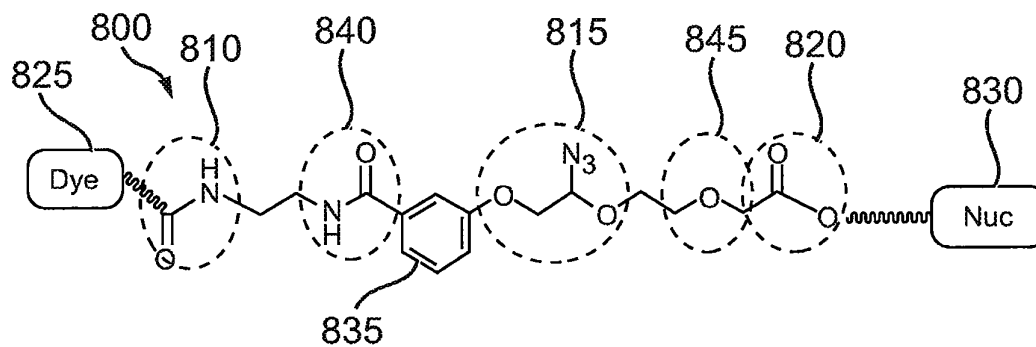
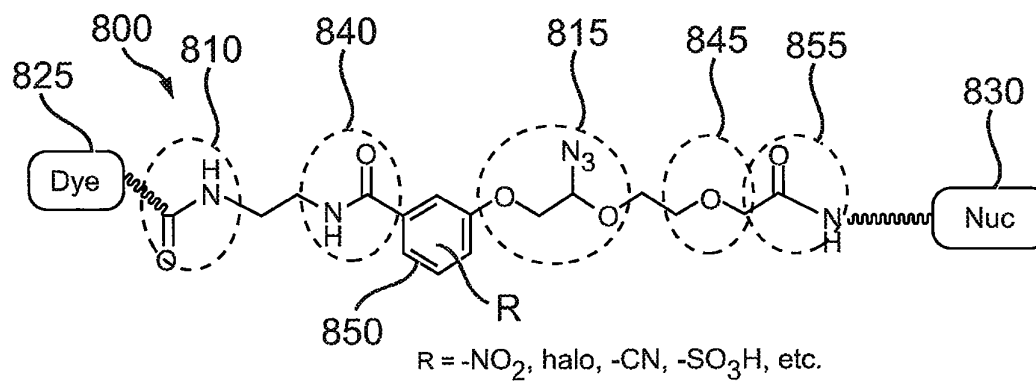
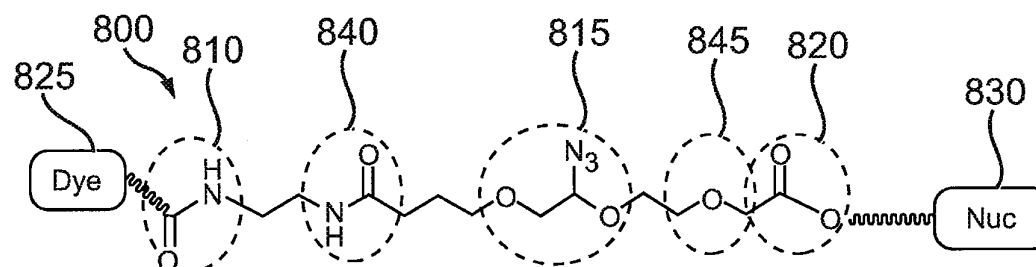


Fig. 7B

8 / 17

*Fig. 8A**Fig. 8B**Fig. 8C*

9 / 17

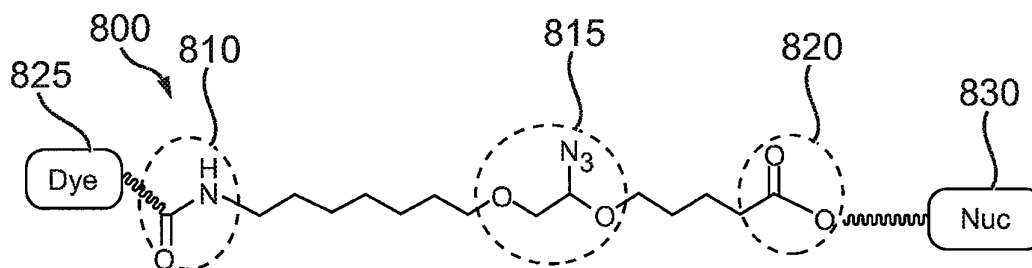


Fig. 8D

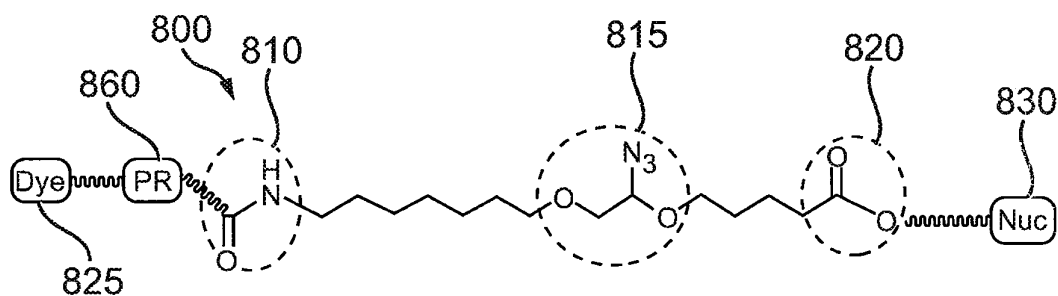


Fig. 8E

10 / 17

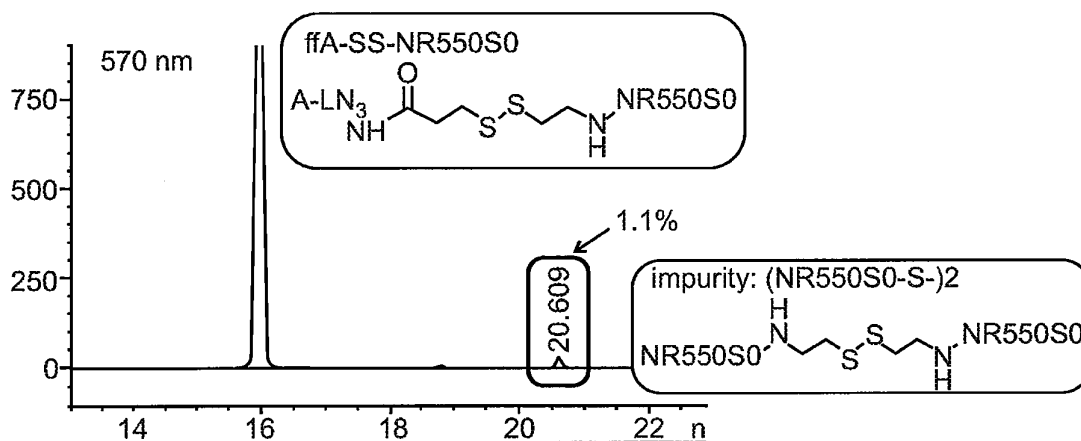


Fig. 9A

	Buffers	Results*	
	21 hours @ 60°C	ffA-SS-NR550S0	ffA-AEDI-NR550S0
1	PR2 buffer	~50% disulfide side-product	~6% disulfide side-product
2	Incorporation buffer (pH 9.9) (no Mg ²⁺ , no Chaps)	~10% disulfide side-product	No disulfide side-product
3	IMX	~38% disulfide side-product	No disulfide side-product
4	IMX + Pol 812	~34% disulfide side-product	No disulfide side-product
5	SRE	No disulfide side-product	No disulfide side-product
6	TEAB (0.1M): CH ₃ CN (1.1)	~20% disulfide side-product	No disulfide side-product

Fig. 9B

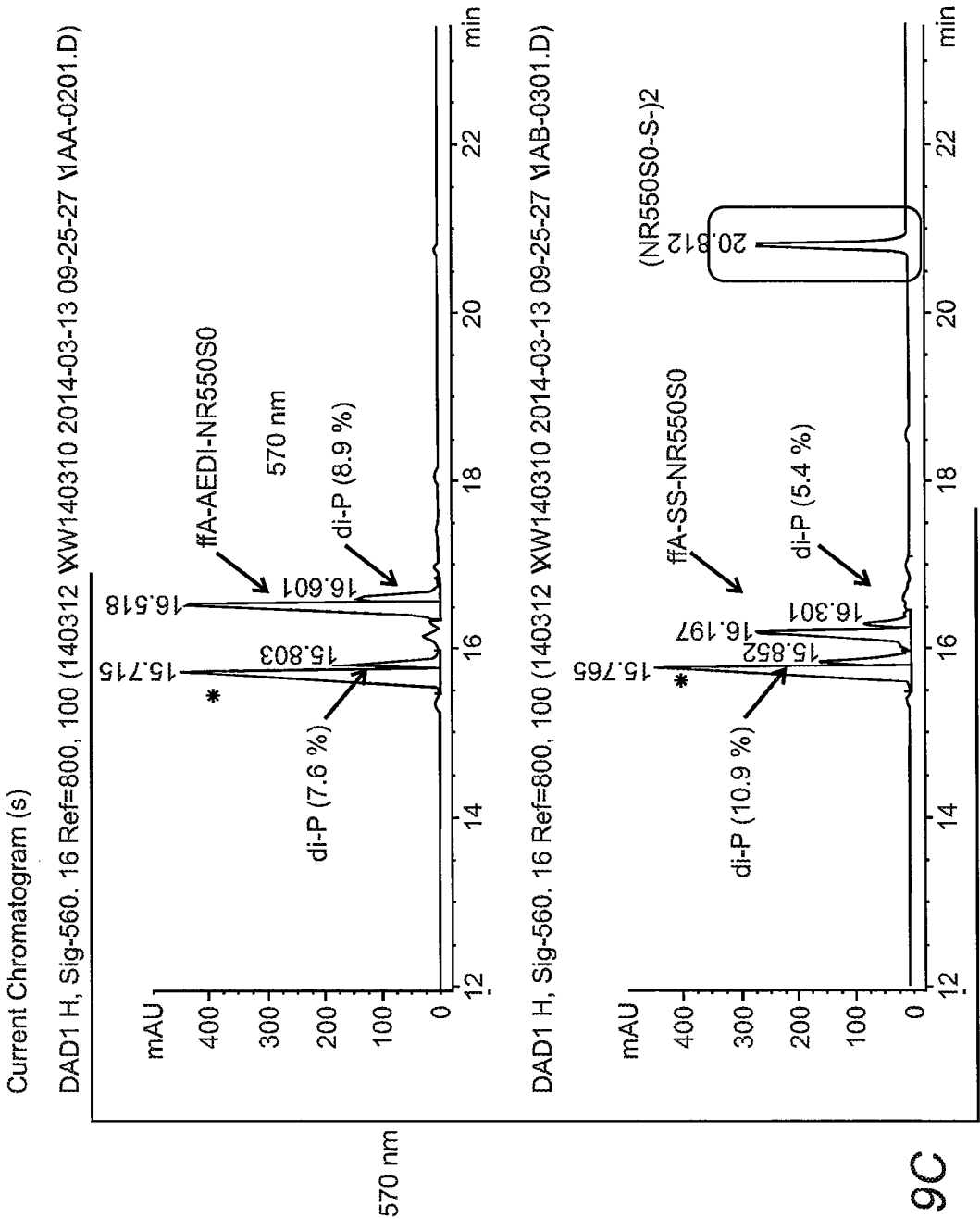
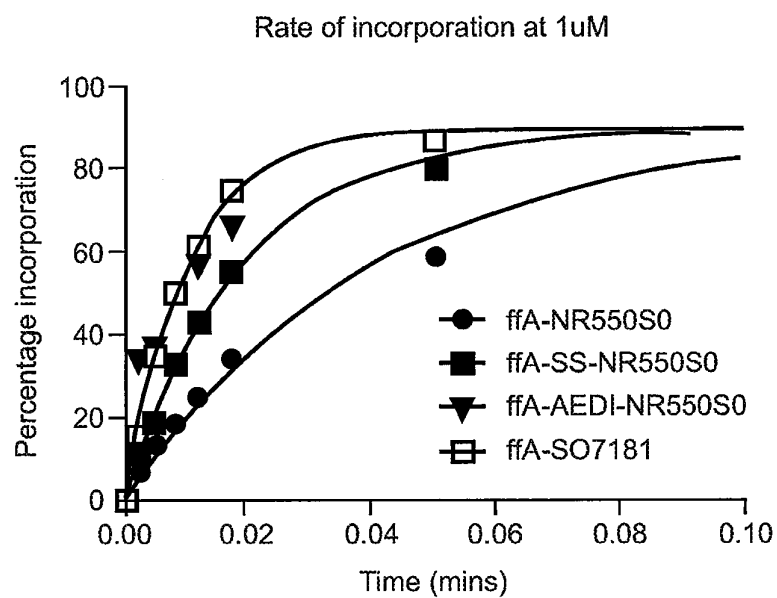


Fig. 9C

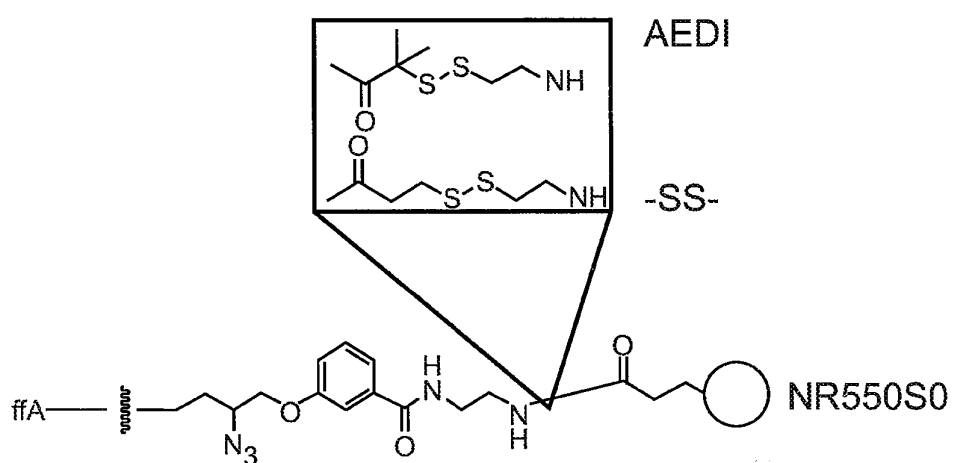
12 / 17

*Fig. 10A*

ffA	K (uM/min)
NR550S0	22 (1X)
-SS-NR550S0	54 (2X)
-AEDI-NR550S0	97 (4X)
Std -SO7181	99 (4X)

Fig. 10B

13 / 17

*Fig. 10C*

14 / 17

V10 combination with different A-550S0
(same concentration)
Scatter plot for tile 1 cycle2

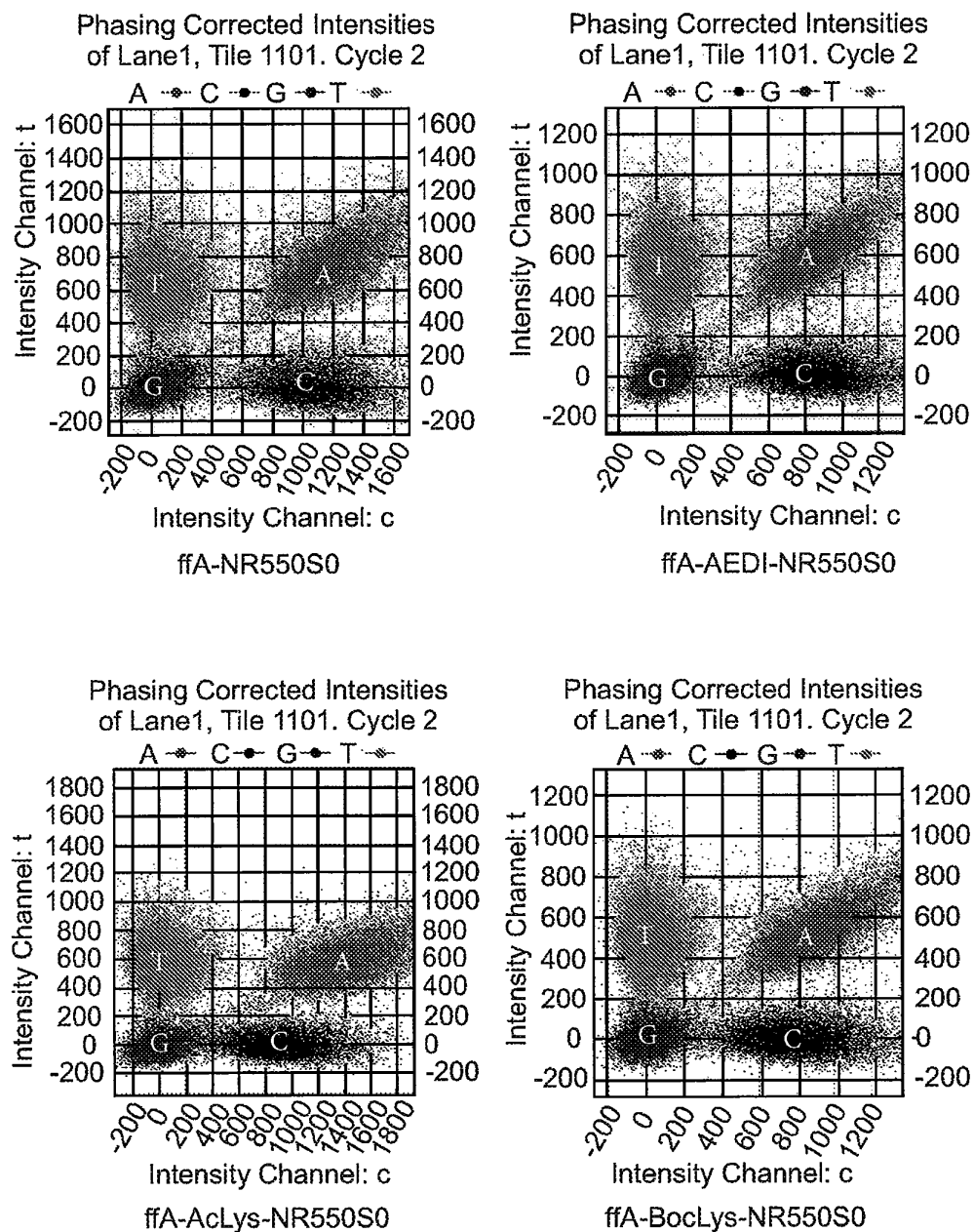
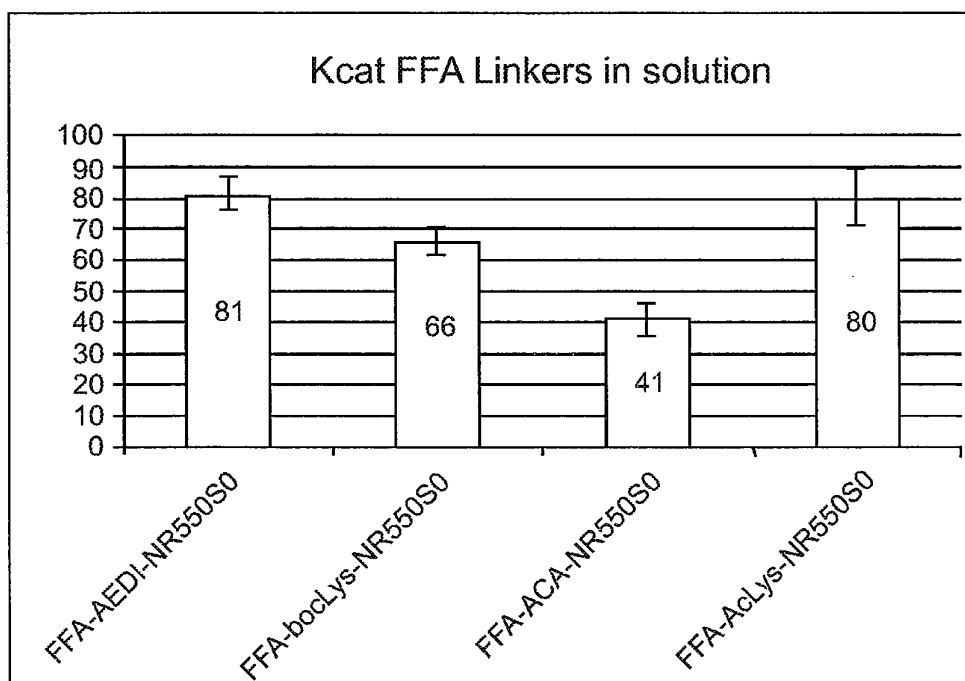


Fig. 11A

15 / 17

*Fig. 11B*

16 / 17

Dye set	Density	%PF	Ph R1	PPh R1	Ph R2	PPh R2	%Align R1	%Align R2	error R1	error R2
ffNs + ffA-NR550S0	222	79.88	0.305	0.084	0.53	0.179	81.89	79.45	1.42	3.48
ffNs + ffA-AEDI-NR550S0	223	81.83	0.14	0.123	0.294	0.197	81.61	67.12*	0.85	5.84*
ffNs + ffA-AcLys-NR550S0	227	78.52	0.2	0.128	0.319	0.272	82.23	78.52	1.44	3.48
ffNs + ffA-BocLys-NR550S0	211	82.97	0.126	0.146	0.226	0.249	82.54	80.45	1.17	1.99

Fig. 12A

17 / 17

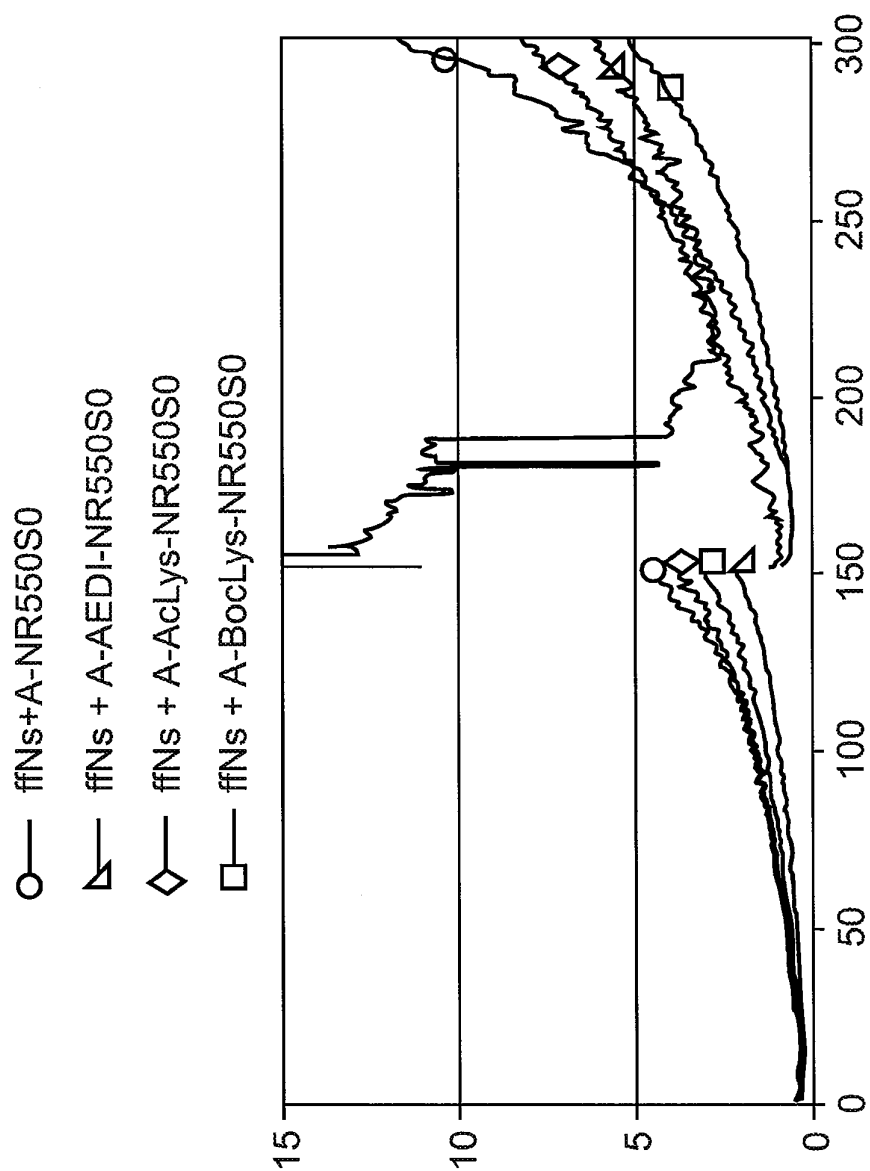


Fig. 12B