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Isolation and Characterization of Precise Dye/Dendrimer Ratios

Casey A. Dougherty,^[a] Joseph C. Furgal,^[a] Mallory A. van Dongen,^[a] Theodore Goodson, III,^[a]
Mark M. Banaszak Holl,^{*[a]} Janet Manono,^[b] and Stassi DiMaggio^{*[b]}

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Isolation and Characterization of Precise Dye/Dendrimer Ratios

Casey A. Dougherty, Joseph C. Furgal, Mallory A. van Dongen, Theodore Goodson III, and Mark M. Banaszak Holl*

Department of Chemistry, University of Michigan, Ann Arbor, Michigan, USA 48109-1055

Janet Manono and Stassi DiMaggio*

Department of Chemistry, Xavier University, New Orleans, LA, USA 70125

Table S1. Characterization of precise ratio G5-Ac-TAMRA_n (n = 1 – 3, 3+).

# TAMRA dyes per G5	Yield (mg)	% Yield (determined by theoretical Poisson Distribution)	% Separation Yield (by mass of material placed on column)	% Yield (total mass from starting materials)	UPLC Average	¹ H NMR Ratio	MALDI-TOF-MS (g/mol)
1	11.7	40	15	7	1	0.7	28800
2	6.9	43	9	4	2	1.6	29600
3	2.1	36	3	1	3	3.1	31000
3+	2.5	>95	3	2	5.1	4.4	32300

Table S2: Characterization of precise ratio G5-Ac-MFCO_n (n = 1 - 4).

# Fluorinated Cyclooctynes per G5	Yield (mg)	% Yield (determined by theoretical Poisson Distribution)	% Separation Yield (by mass of material placed on column)	% Yield (total mass from starting materials)	UPLC Average	¹⁹ F NMR Ratio
1	4.4	28	6	3	1	1.2
2	6.0	30	8	4	2	2.2
3	5.7	34	7	4	3	3.2
4	4.3	41	6	3	4	4 (Set)

Table S3: Characterization of precise ratio G5-Ac-FC_n (n = 1 - 4).

# Fluorescein Dyes per G5	% Yield	¹ H NMR Average	UPLC Average	¹⁹ F NMR Ratio	MALDI-TOF-MS (g/mol)
1	55	1.2	0.9	0.8	28,300
2	57	1.8	1.5	1.6	29,900
3	48	3.3	2.7	2.9	30,600
4	51	3.0	3.5	4 (Set)	30,800

Table S4. Optical properties of precise ratio G5-Ac-FC_n (n = 1 - 4). Extinction coefficients and quantum yield values calculated on per particle basis.

# Fluorescein Dyes per G5	ϵ (M ⁻¹ cm ⁻¹)	Fluorescence Ratio	Quantum Yield
1	5.40E+05	1.0 (Set)	0.21
2	1.00E+06	1.5	0.20
3	1.20E+06	1.5	0.13
4	7.00E+06	1.3	0.14

Table S5. Optical Properties of precise ratio G5-Ac-TAMRA_n (n = 1 – 3, 3+).

# TAMRA Dyes per G5	Fluorescence Ratio	Quantum Yield
1	1.0 (Set)	0.14
2	0.7	0.06
3	0.6	0.04
3+	0.5	0.04

Figure S1. MALDI-TOF-MS spectra for a) G5-Ac-FC_n (n = 1 – 4) and b) G5-Ac-TAMRA_n (n = 1-3, 3+).

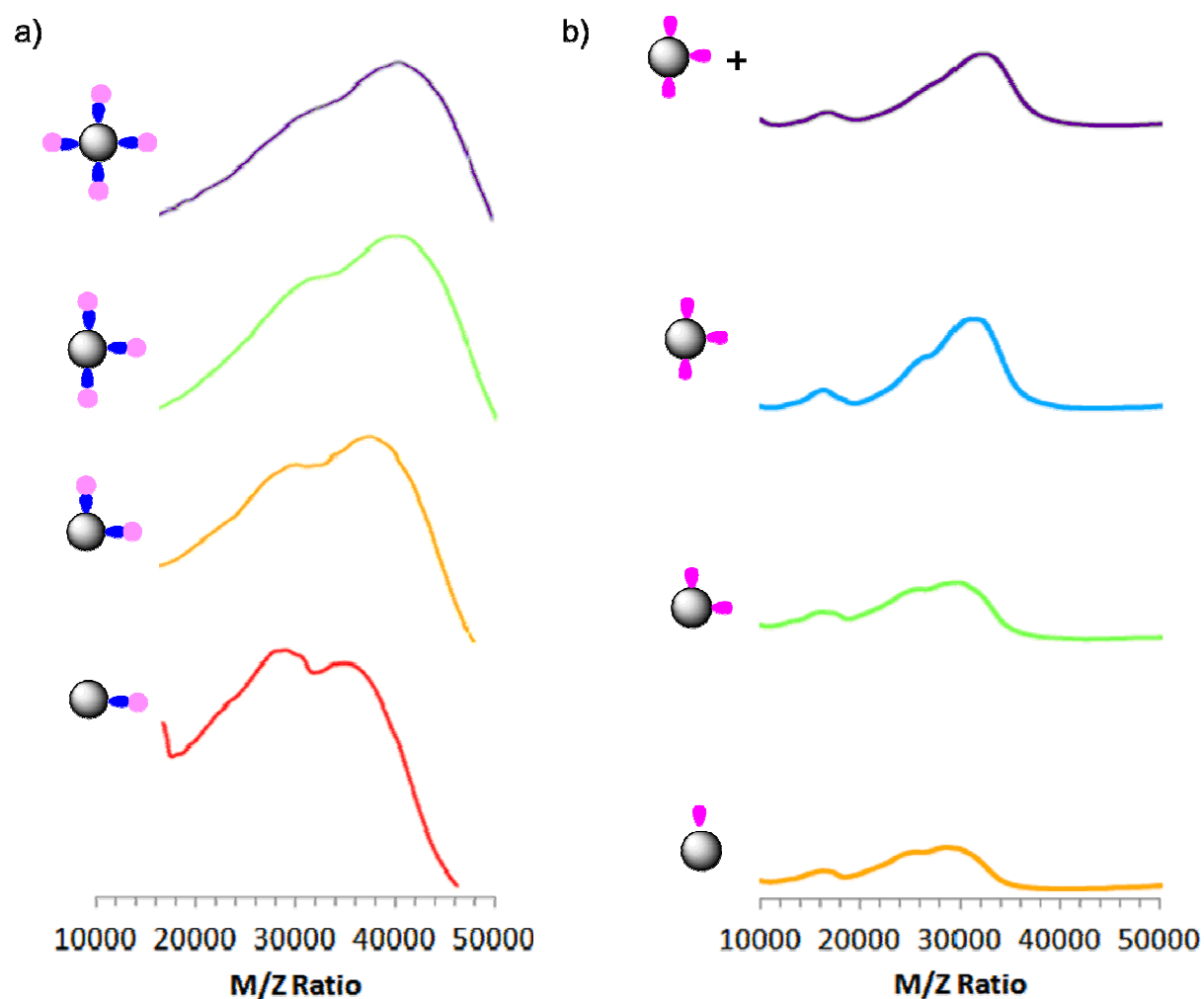
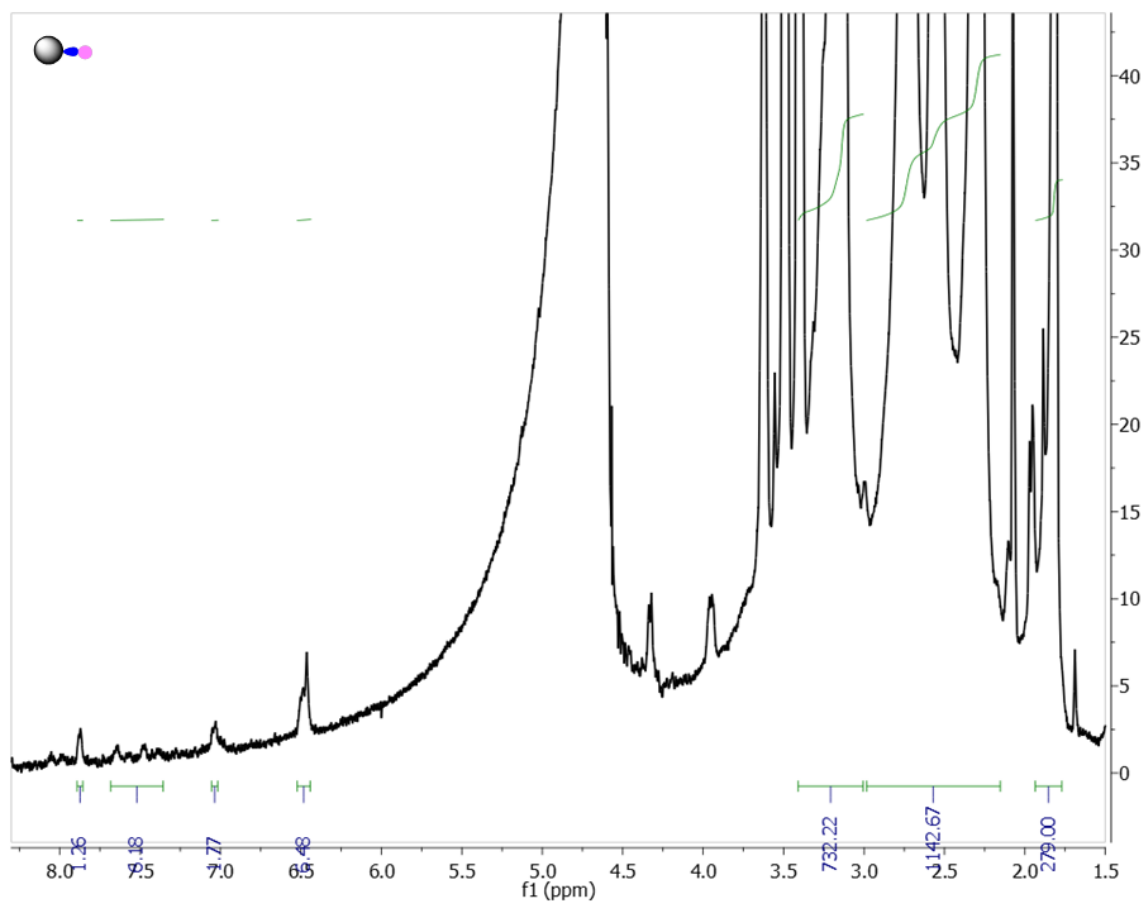
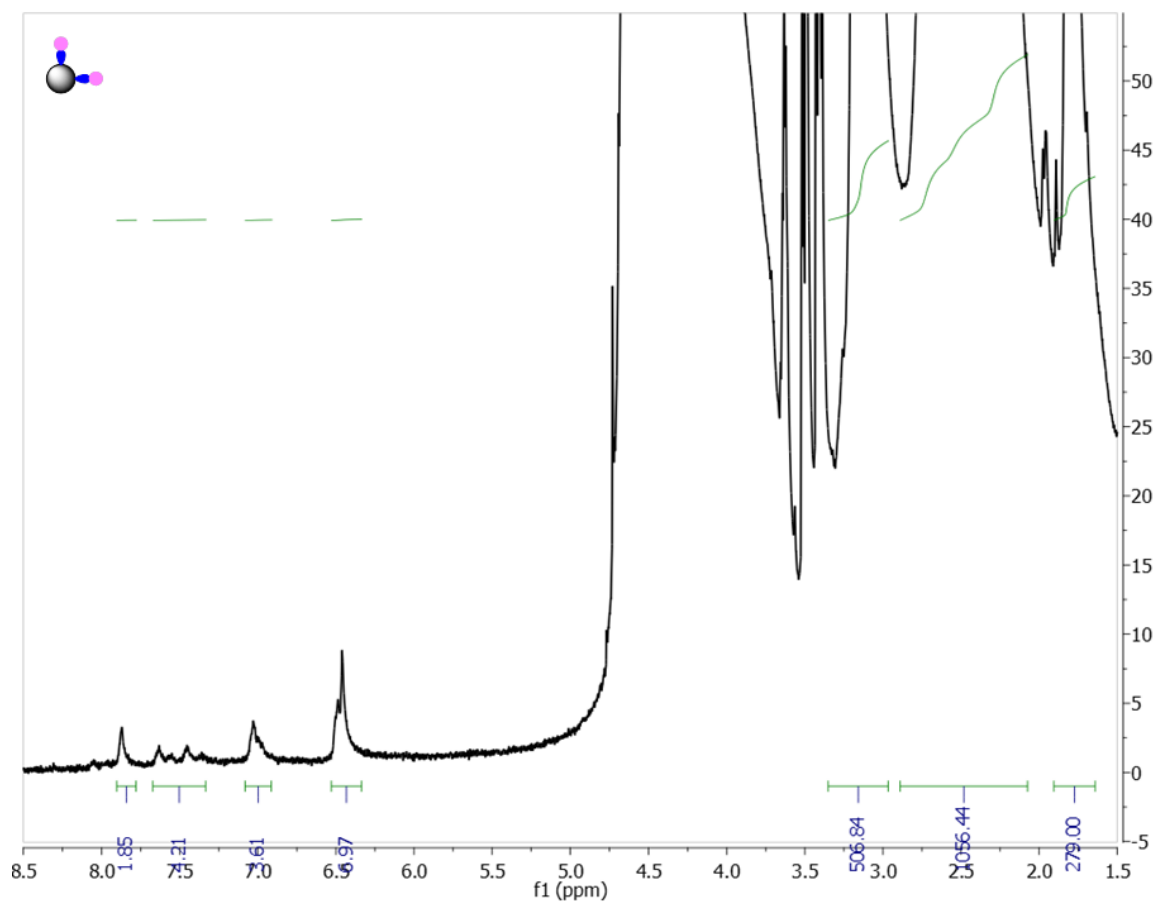
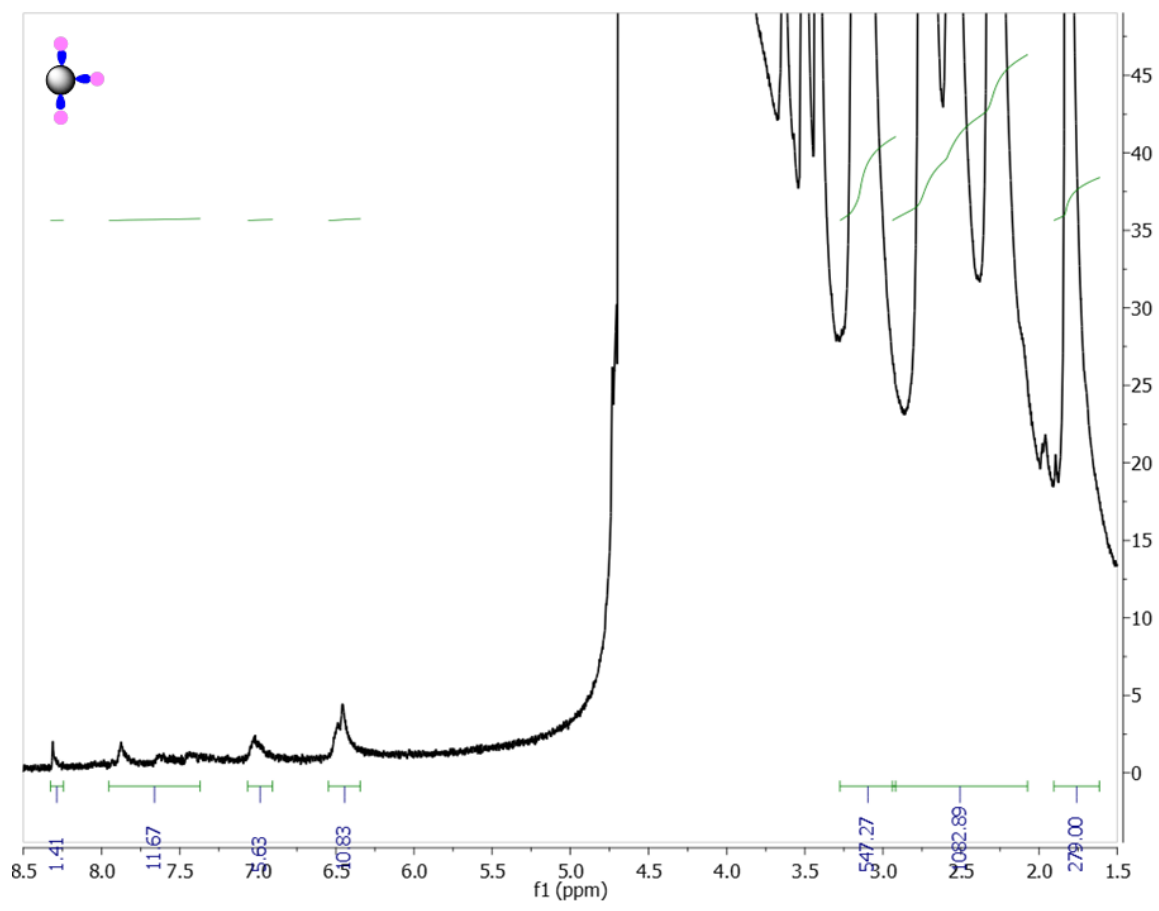


Figure S2. ^1H NMR (D_2O) spectra of G5-Ac-FC_n ($n = 1 - 4$)







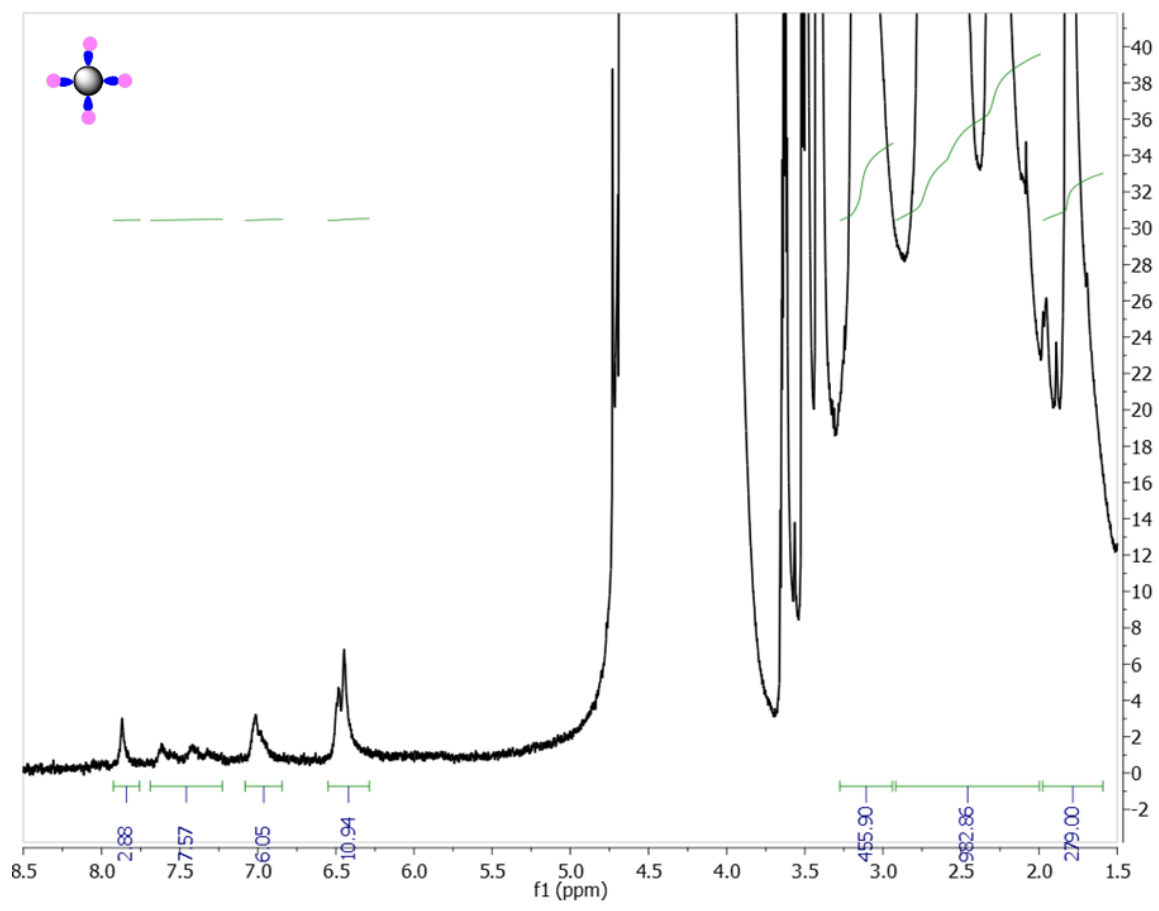
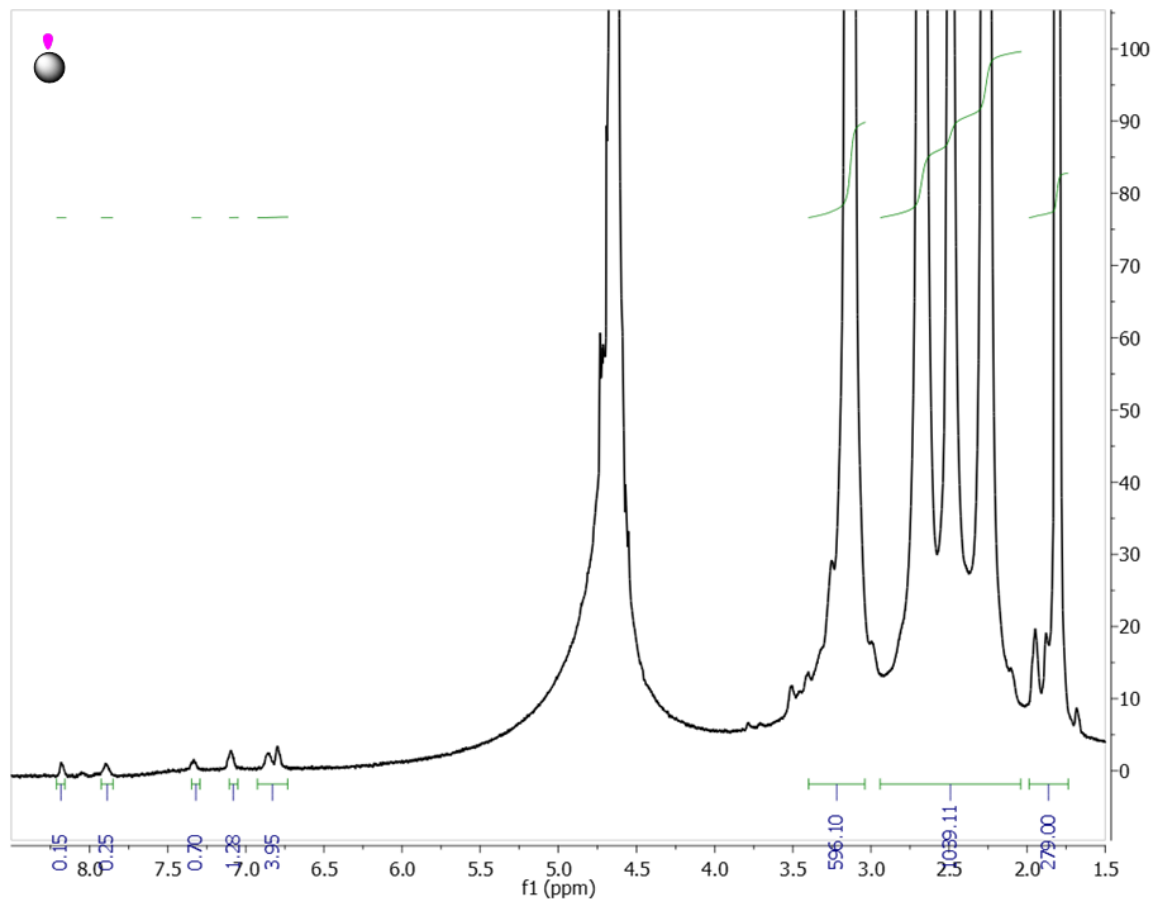
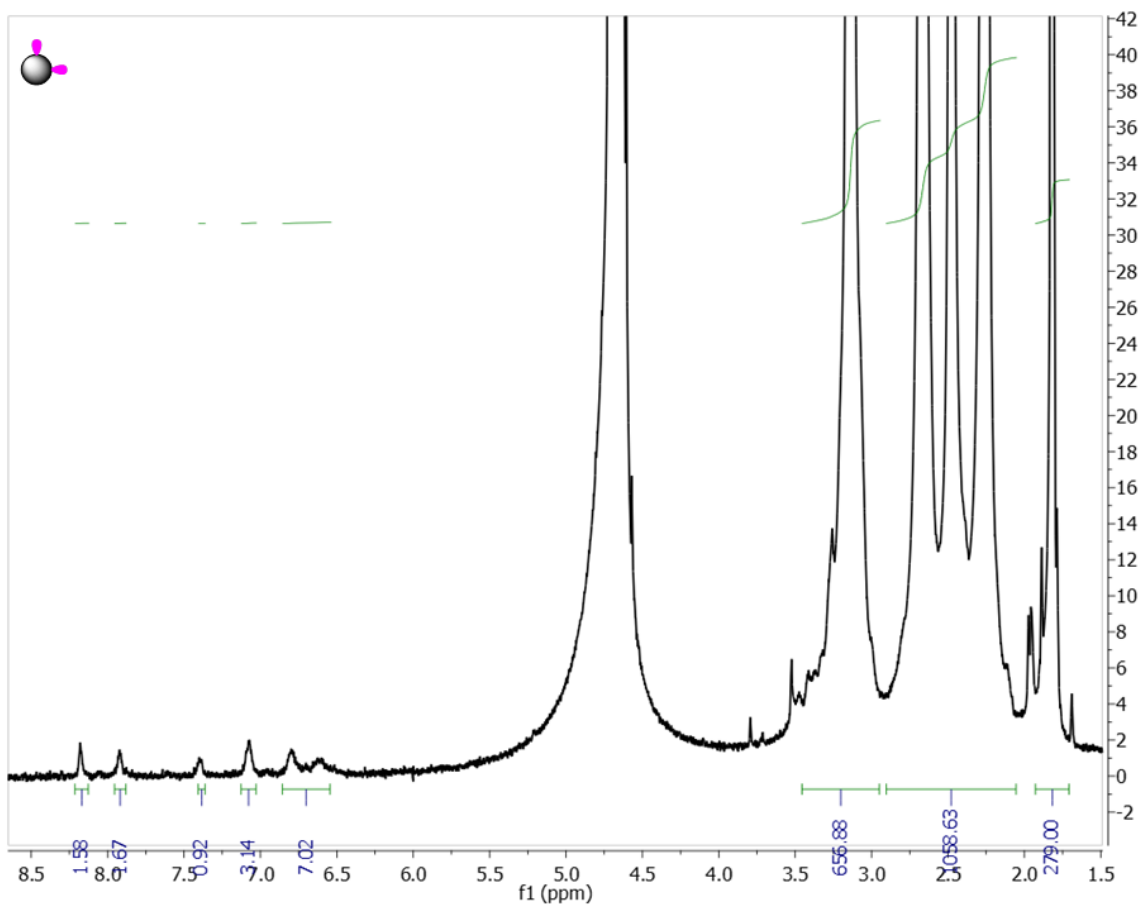
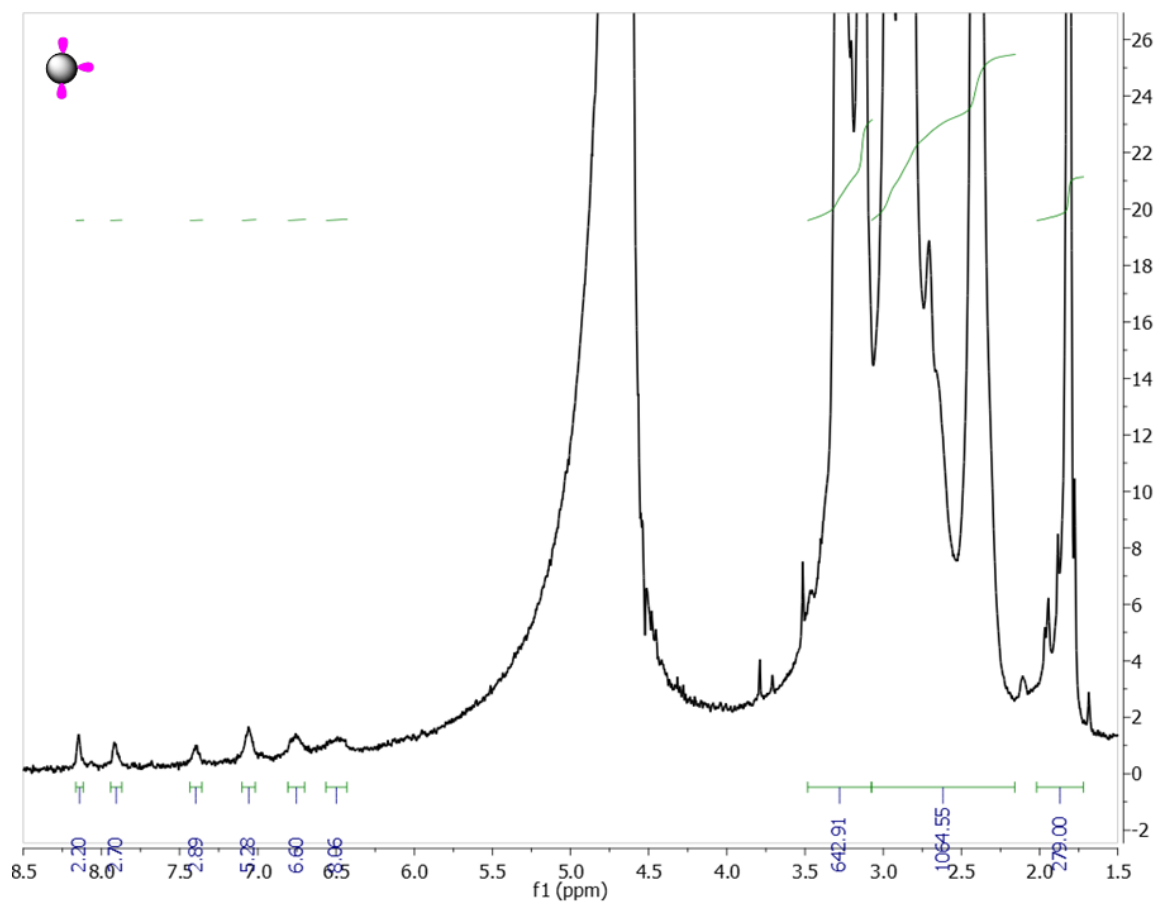


Figure S3. ^1H NMR (D_2O) of G5-TAMRA_n ($n = 1-3, 3+$).







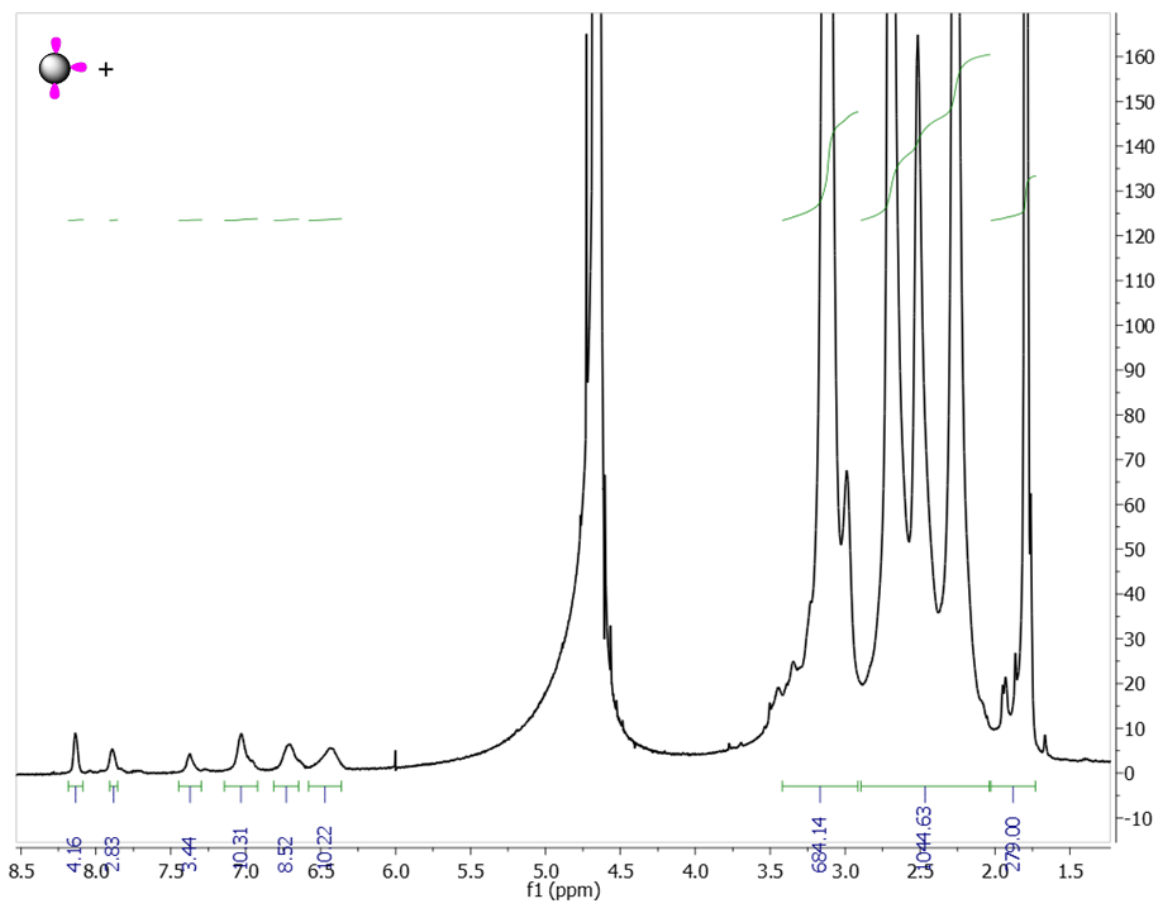


Figure S4. Fluorescence decay curves of G5-MFCO-Fluorescein- Ac_{100%} samples up to 250 ps time scale.

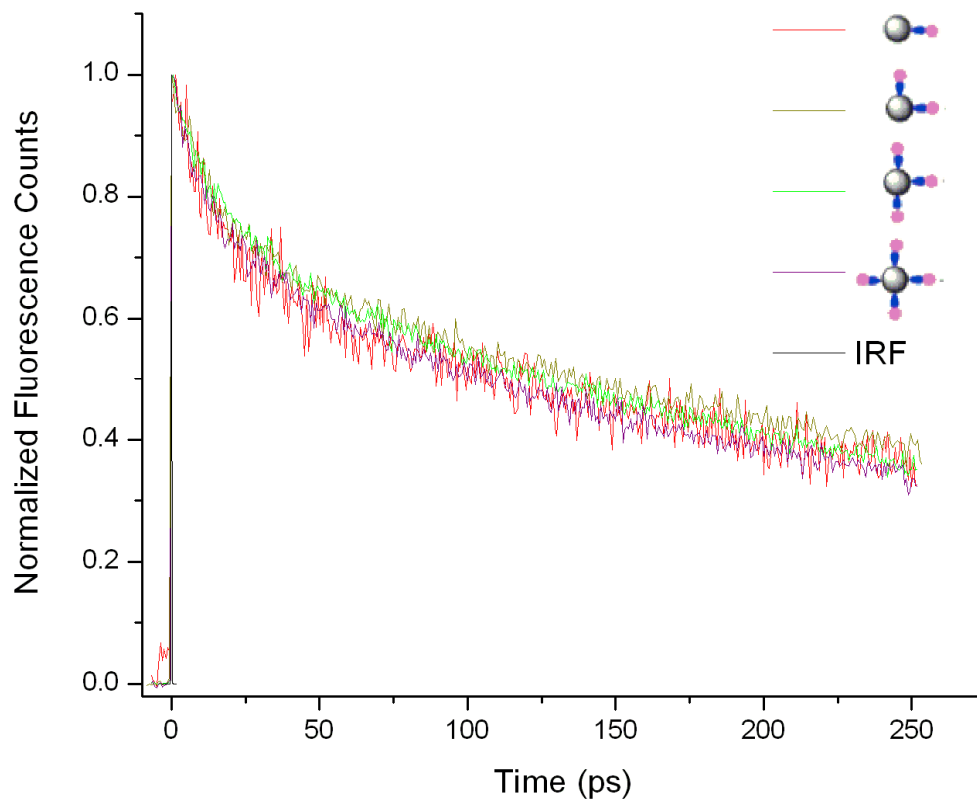


Figure S5. ^{19}F NMR spectra (DMSO- d_6) of pre and post-click materials for the small molecule MFCO and MFCO-Fluorescein.

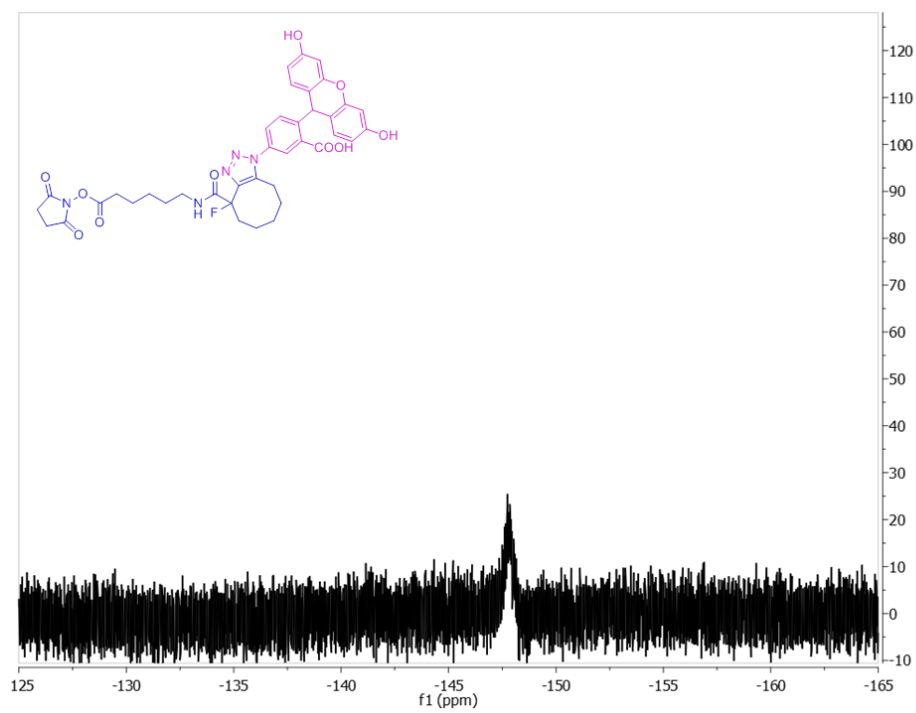
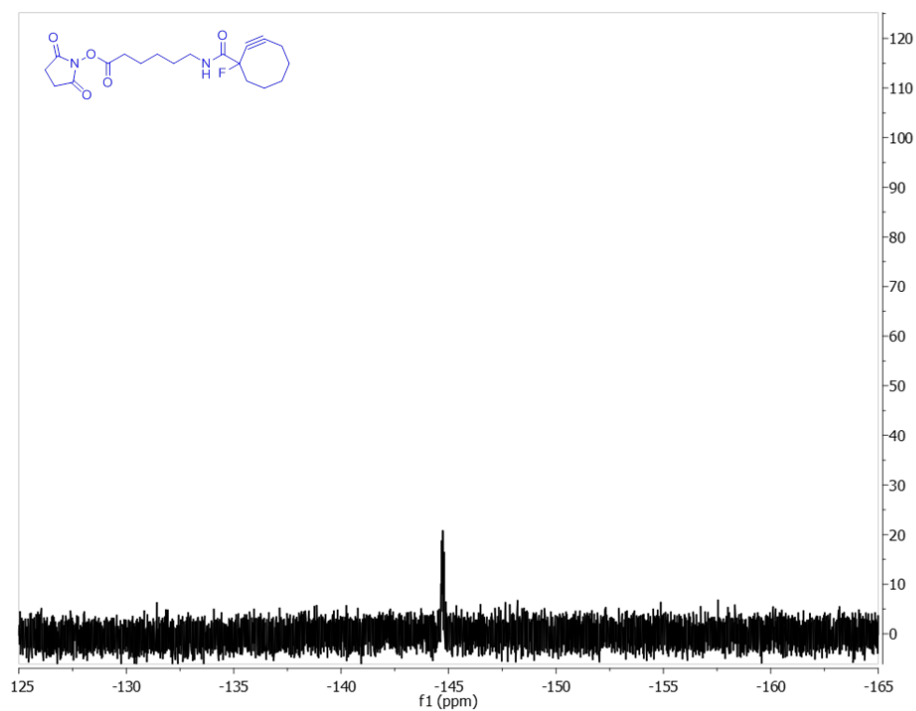


Figure S6. ^{19}F NMR (1:1 DMSO- d_6 : D_2O) spectra of the addition of G5 PAMAM dendrimer to the post clicked small molecule material.

