Naphthalimides as anti-cancer agents: Systematic synthesis and biological activity along with their encapsulated G0.5 PAMAM dendrimer nanoparticles

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1. HPLC Calibration curve data

A calibration curve was built with an exact quantity of each naphthalimide derivatives and Amonafide as reference and solubilized in H_2O or acidified H_2O using formic acid by analyzing standard solutions at concentration 46-704 μM. The regression equation and R2 value of each naphthalimide derivative summarized in **Table S1**.

Table S 1. HPLC data for naphthalimide derivatives used as encapsulated drugs in G0.5 PAMAM nanoparticle

Naphthalimide derivative	Time (min)	λ_{max}(nm)	R^2	Regression equation
3	1.83	347	0.9993	y = 1590x - 17825
4a	2.29	359	0.9946	y = 4489.4x - 134111
4b	2.32	380	0.9905	y = 3677.8x - 35947
4c	3.18	280	0.9957	y = 2768.1x + 42430
4d	2.11	350	0.9911	y = 1740.3x - 3215.8
4e	2.47	450	0.9935	y = 1989.9x + 44293
4f	3.16	490	0.999	y = 2329.1x - 132872

2. Supplementary Results
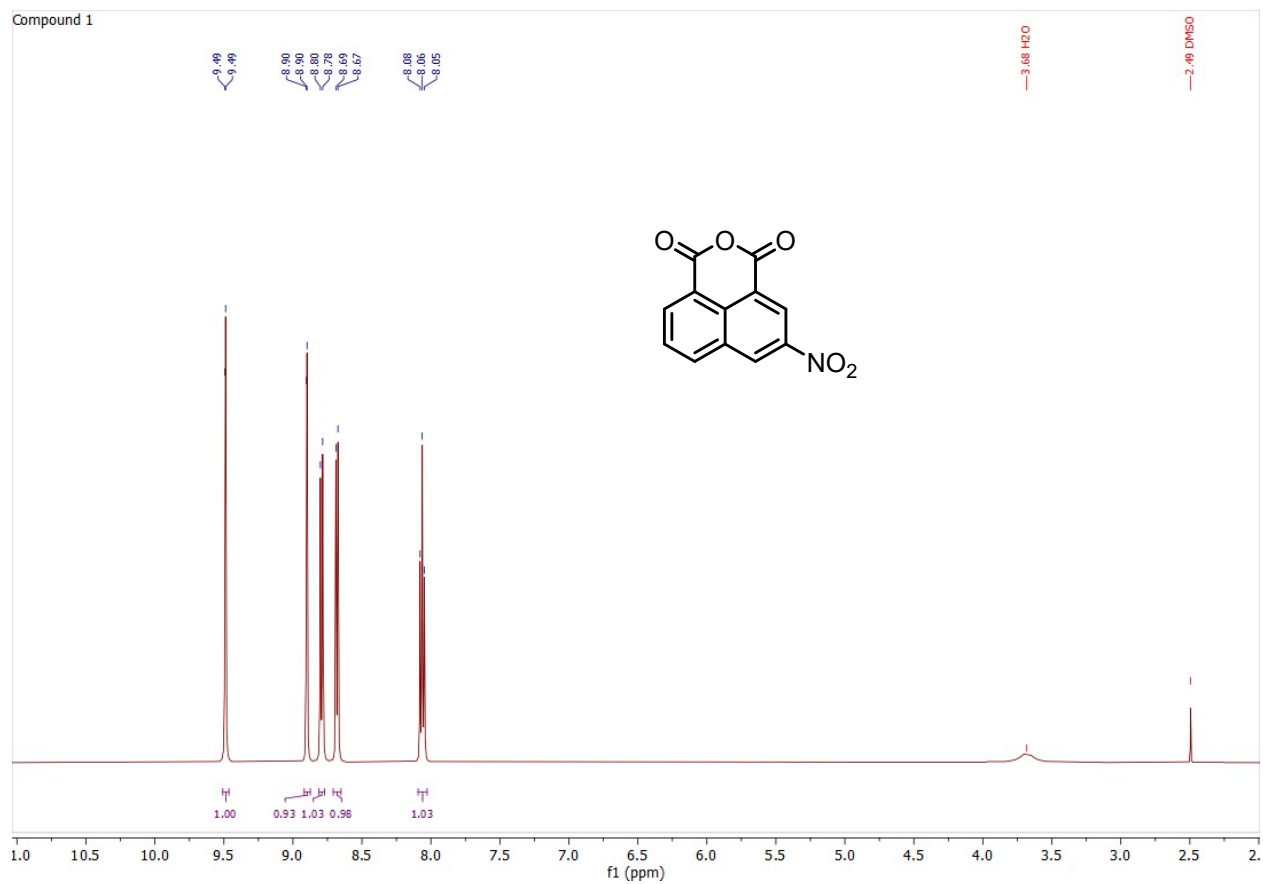

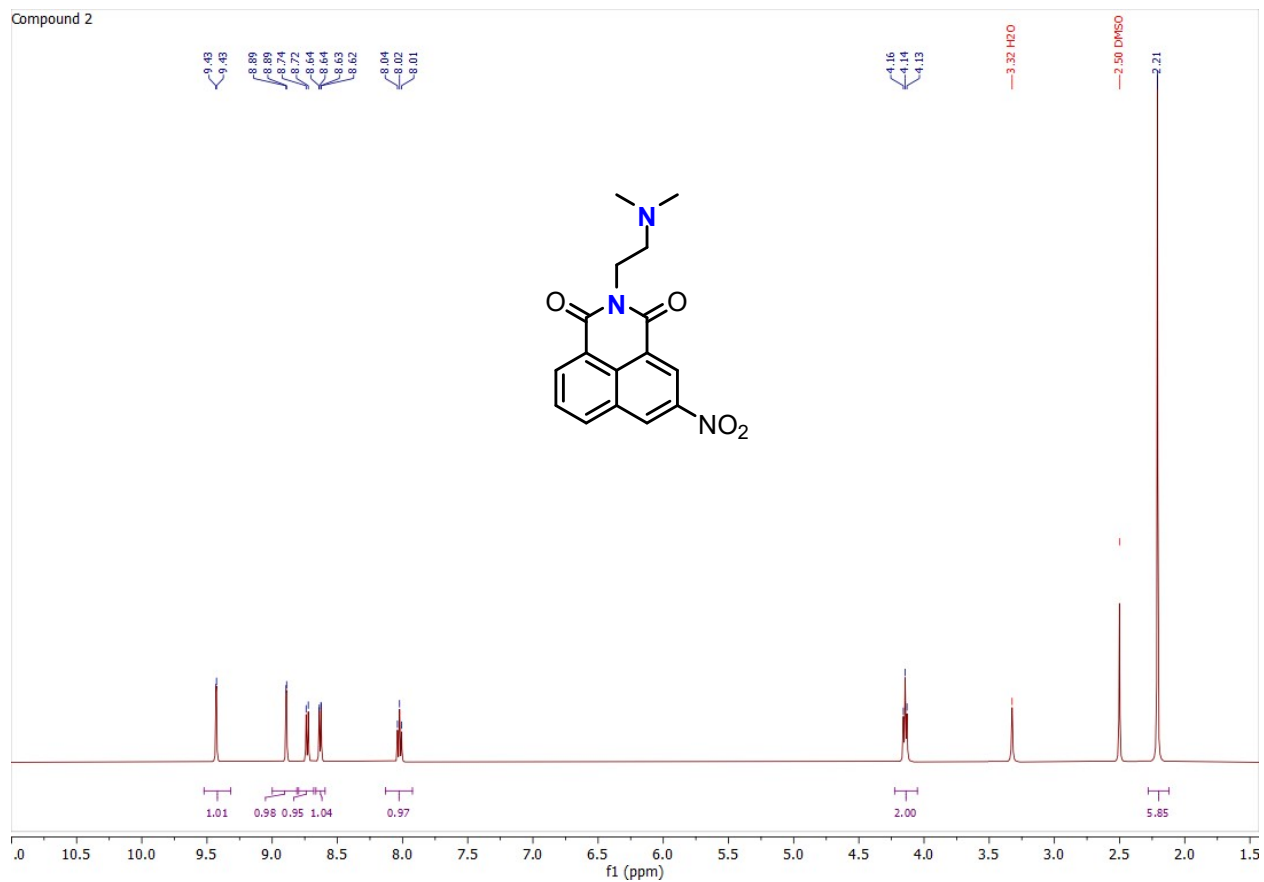**Fig. S 1.** ^{1}H NMR (500 MHz, DMSO) of 3-nitro-1,8-naphthalic anhydride (Compound 1)

Compound 2

Fig. S 2. ^{1}H NMR (500 MHz, DMSO) of Mitonafide (Compound 2)
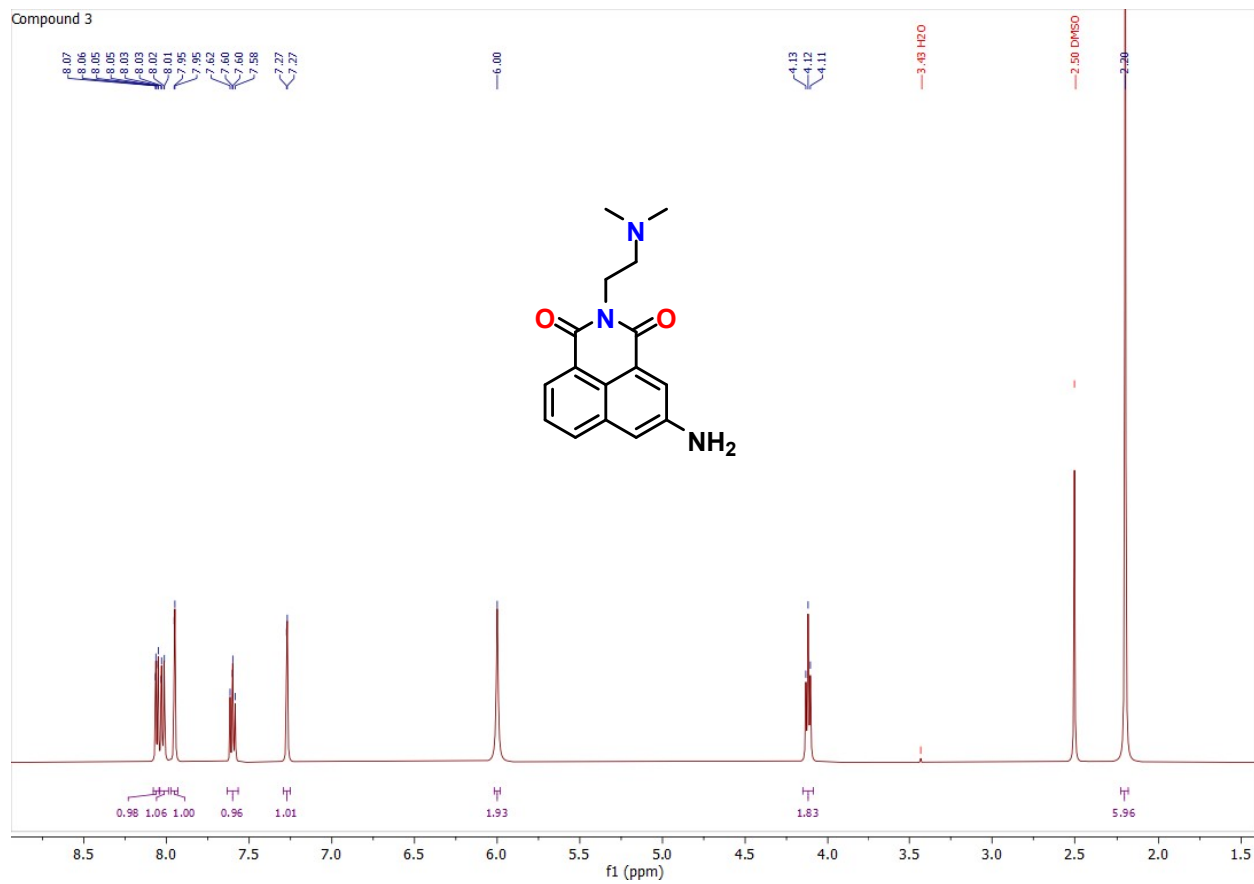
Compound 3

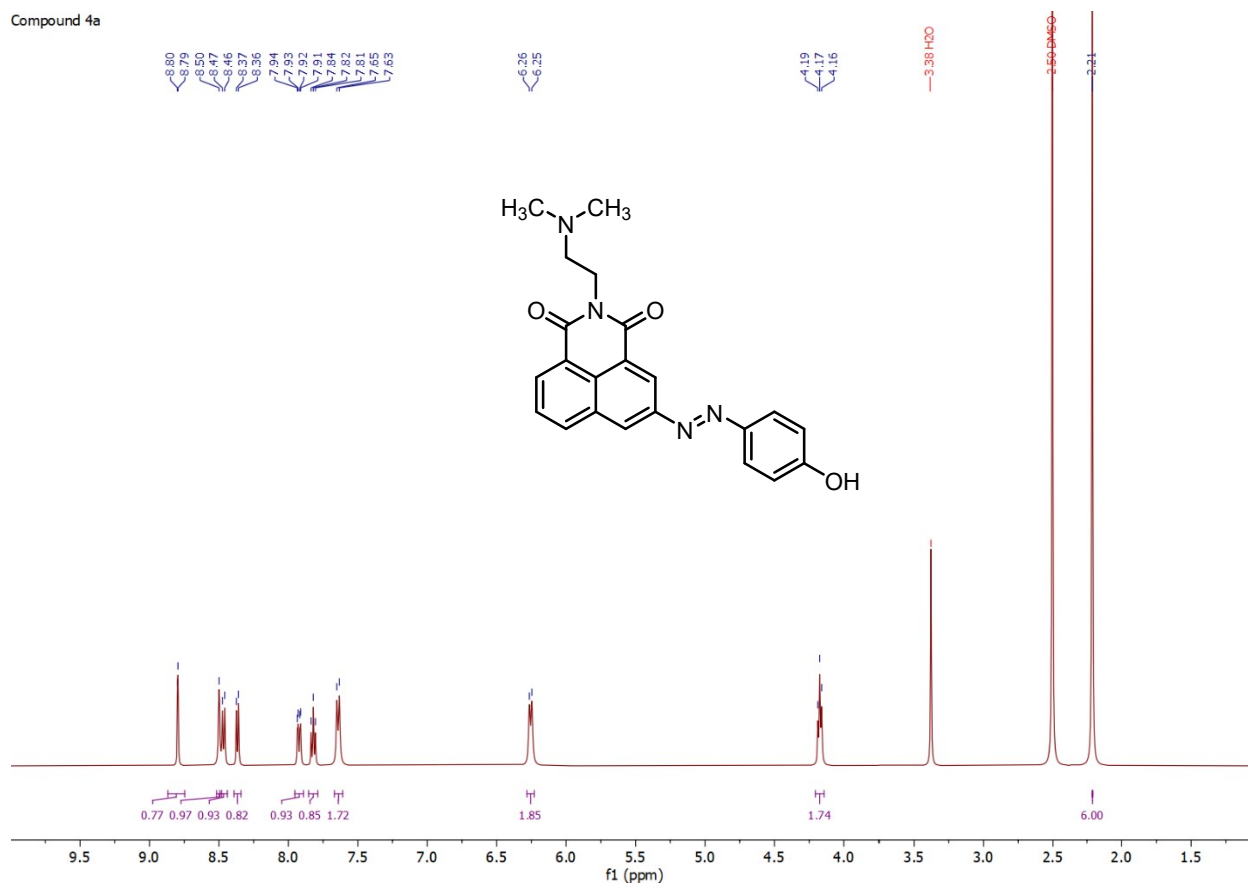**Fig. S 3.** ¹H NMR (500 MHz, DMSO) of Amonafide (Compound 3)

Compound 4a

Fig. S 4. ^{1}H NMR (500 MHz, DMSO) of (E)-2-(2-(dimethylamino)ethyl)-5-((4-hydroxyphenyl)diazenyl)-1H-benzo[de]isoquinoline-
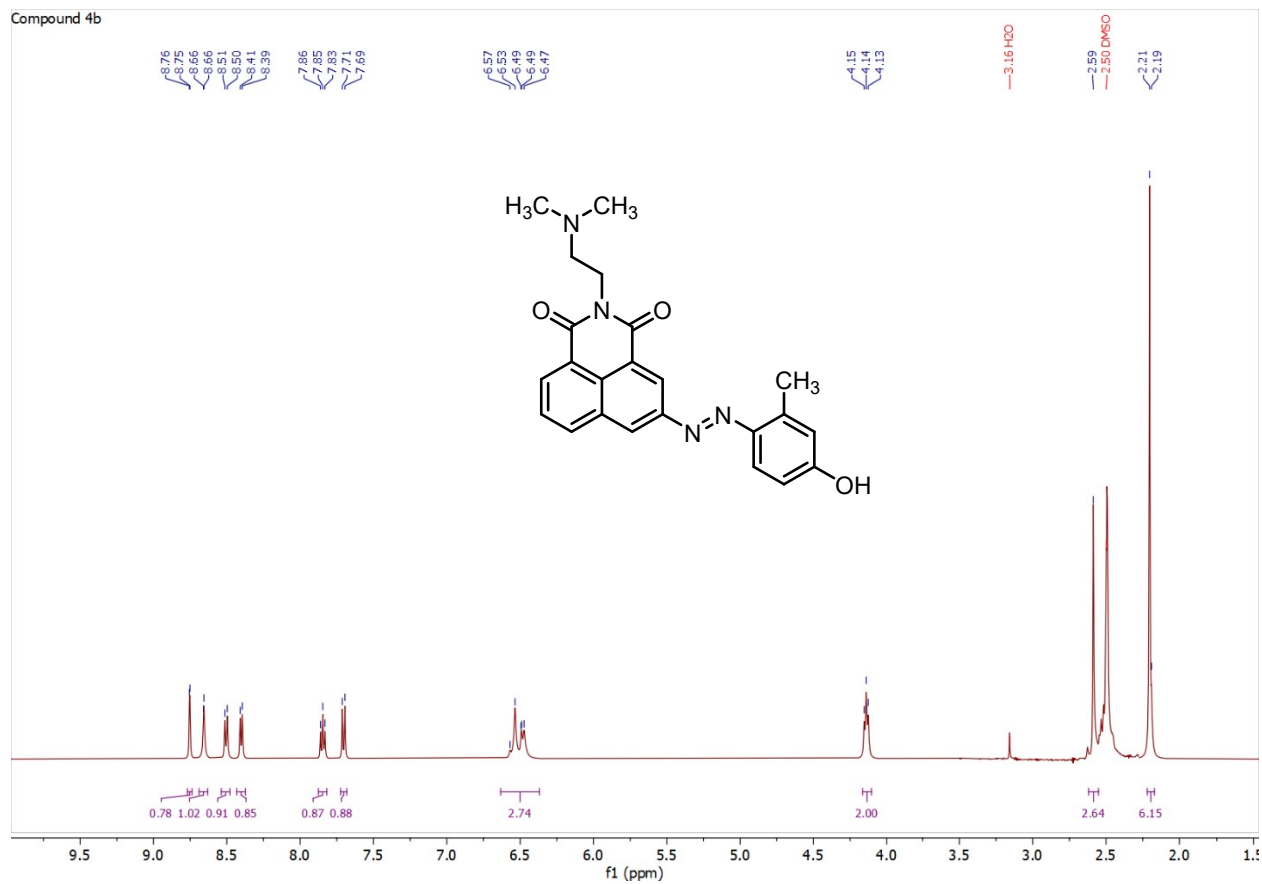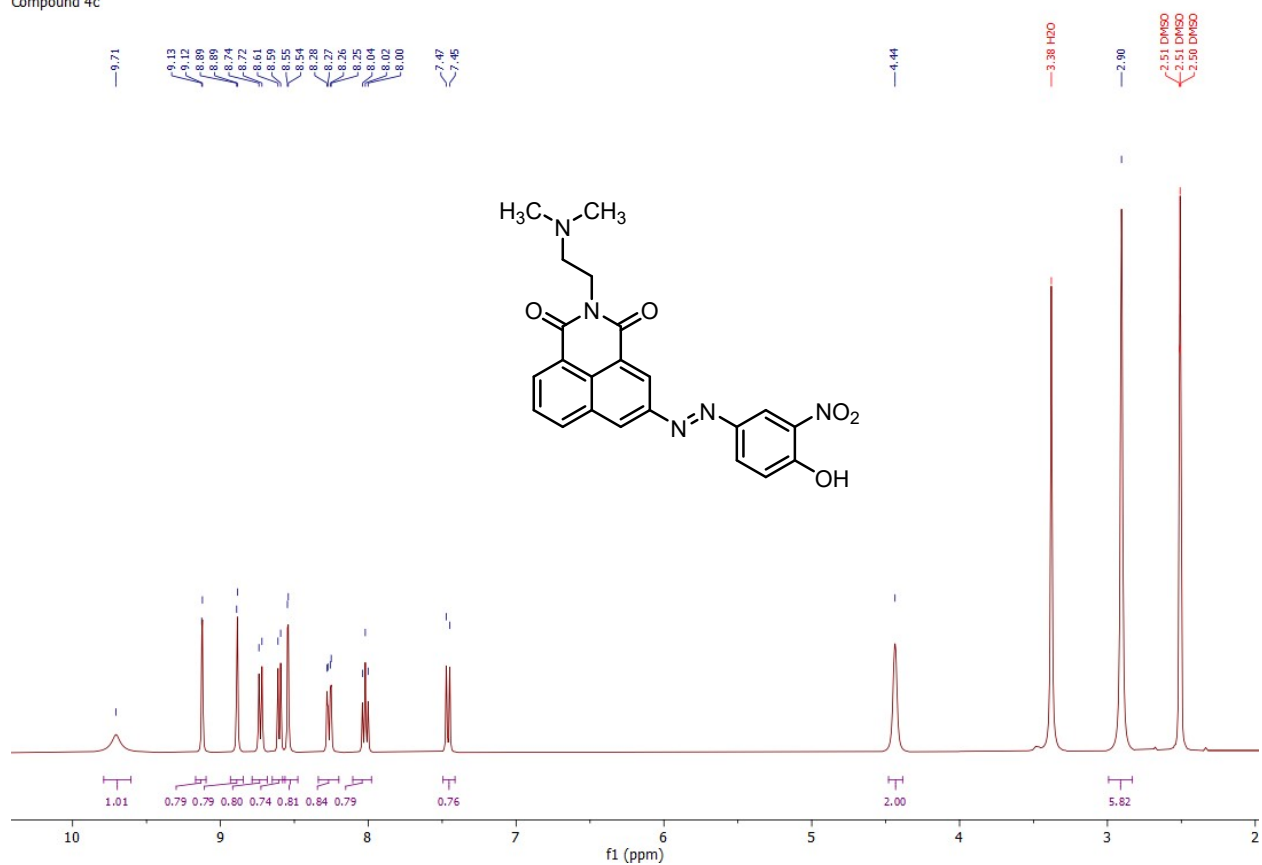
1,3(2H)-dione (Compound 4a)

Fig. S 5. ^{1}H NMR (500 MHz, DMSO) of (E)-2-(2-(dimethylamino)ethyl)-5-((4-hydroxy-2-methylphenyl)diazenyl)-1H-

benzo[de]isoquinoline-1,3(2H)-dione (Compound 4b)

Compound 4c

Fig. S 6. ^{1}H NMR (400 MHz, DMSO) of 3 (E)-2-(2-(dimethylamino)ethyl)-5-((4-hydroxy-3-nitrophenyl)diazenyl)-1H-
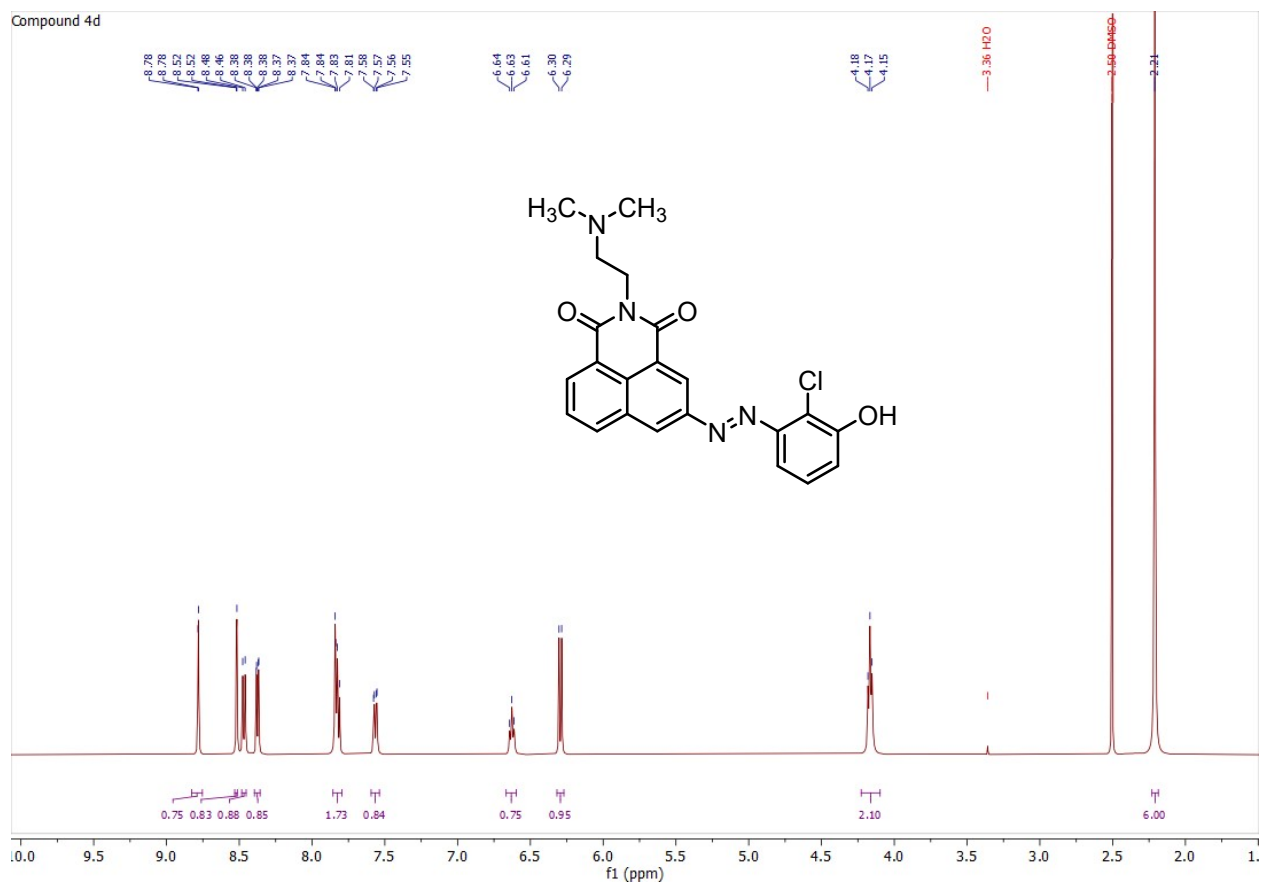
benzo[de]isoquinoline-1,3(2H)-dione (Compound 4c)

Fig. S 7. ^{1}H NMR (500 MHz, DMSO) of (E)-5-((3-chloro-4-hydroxyphenyl)diazenyl)-2-(2-(dimethylamino)ethyl)-1H-

benzo[de]isoquinoline-1,3(2H)-dione (Compound 4d)

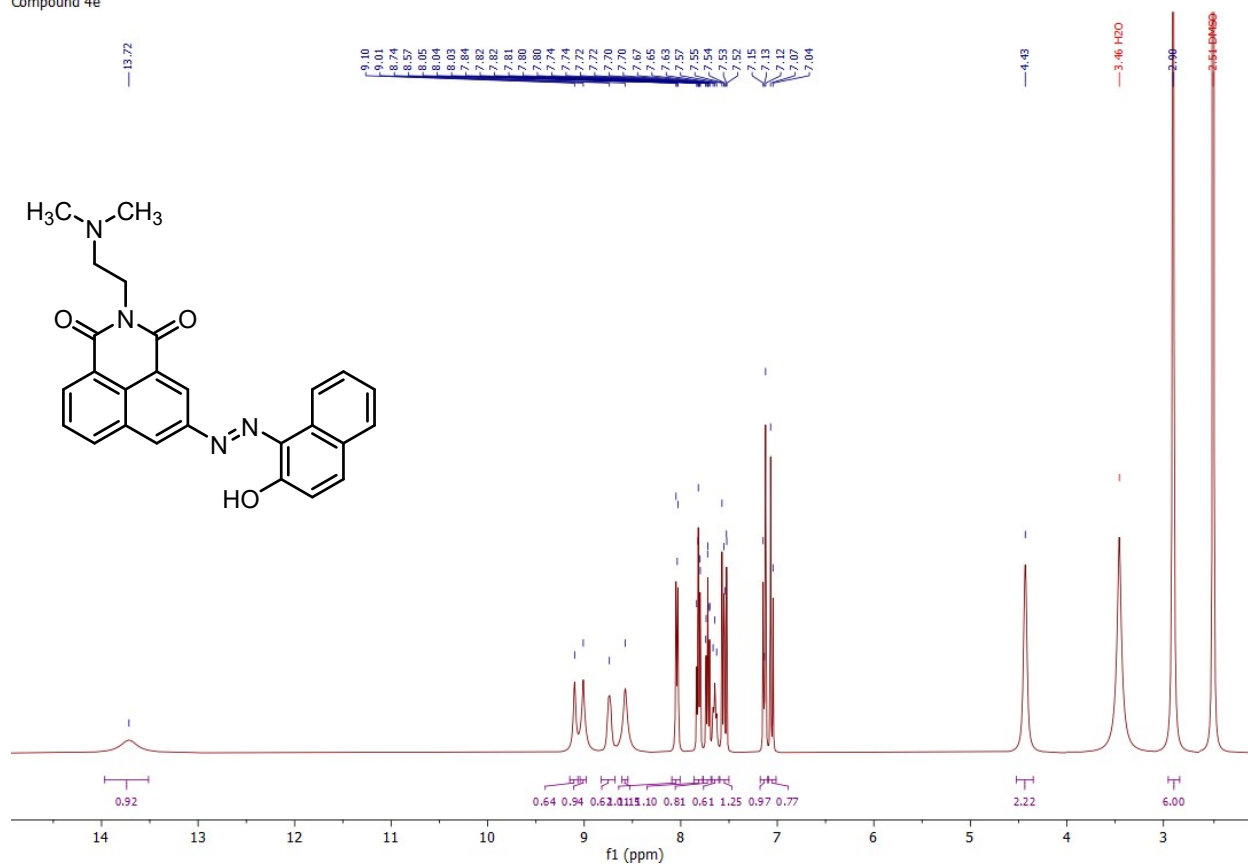**Fig. S 8.** ^{1}H NMR (400 MHz, DMSO) of (E)-2-(2-(dimethylamino)ethyl)-5-((4-hydroxynaphthalen-2-yl)diazenyl)-1H-benzo[de]isoquinoline-1,3(2H)-dione (Compound 4e)
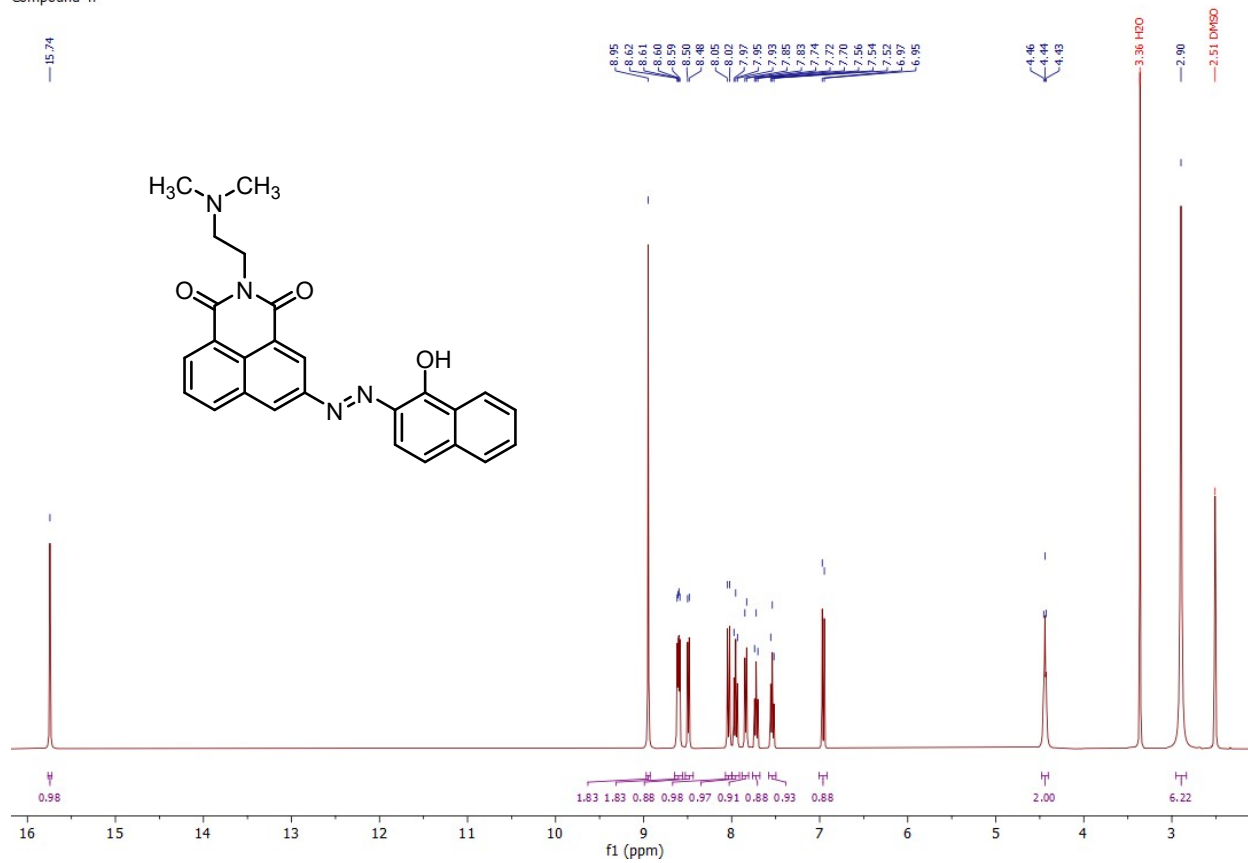
Compound 4f

Fig. S 9. ^{1}H NMR (400 MHz, DMSO) of (E)-2-(2-(dimethylamino)ethyl)-5-((3-hydroxynaphthalen-1-yl)diazenyl)-1H-
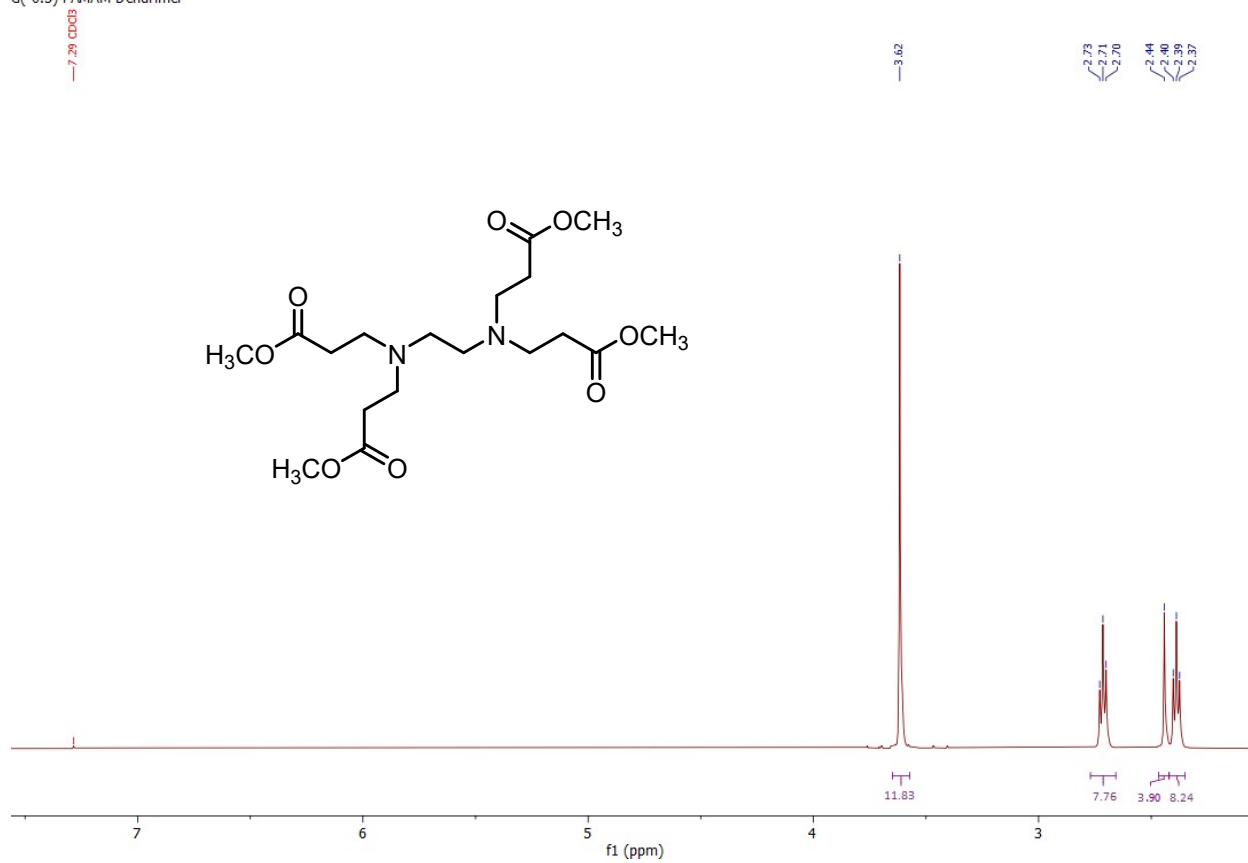
benzo[de]isoquinoline-1,3(2H)-dione (Compound 4f)

Fig. S 10. ^{1}H NMR (500 MHz, CDCl$_3$) of G(-0.5) PAMAM Dendrimer
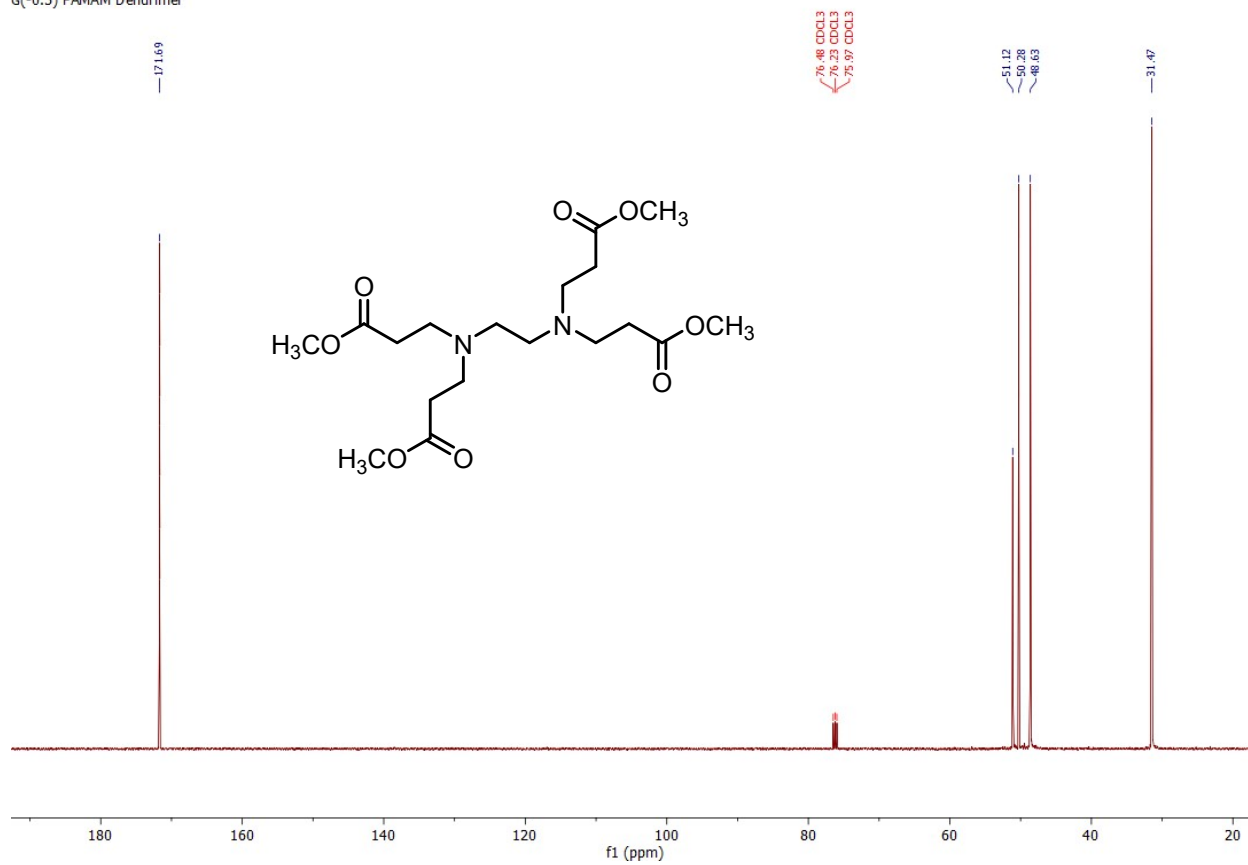
G(-0.5) PAMAM Dendrimer

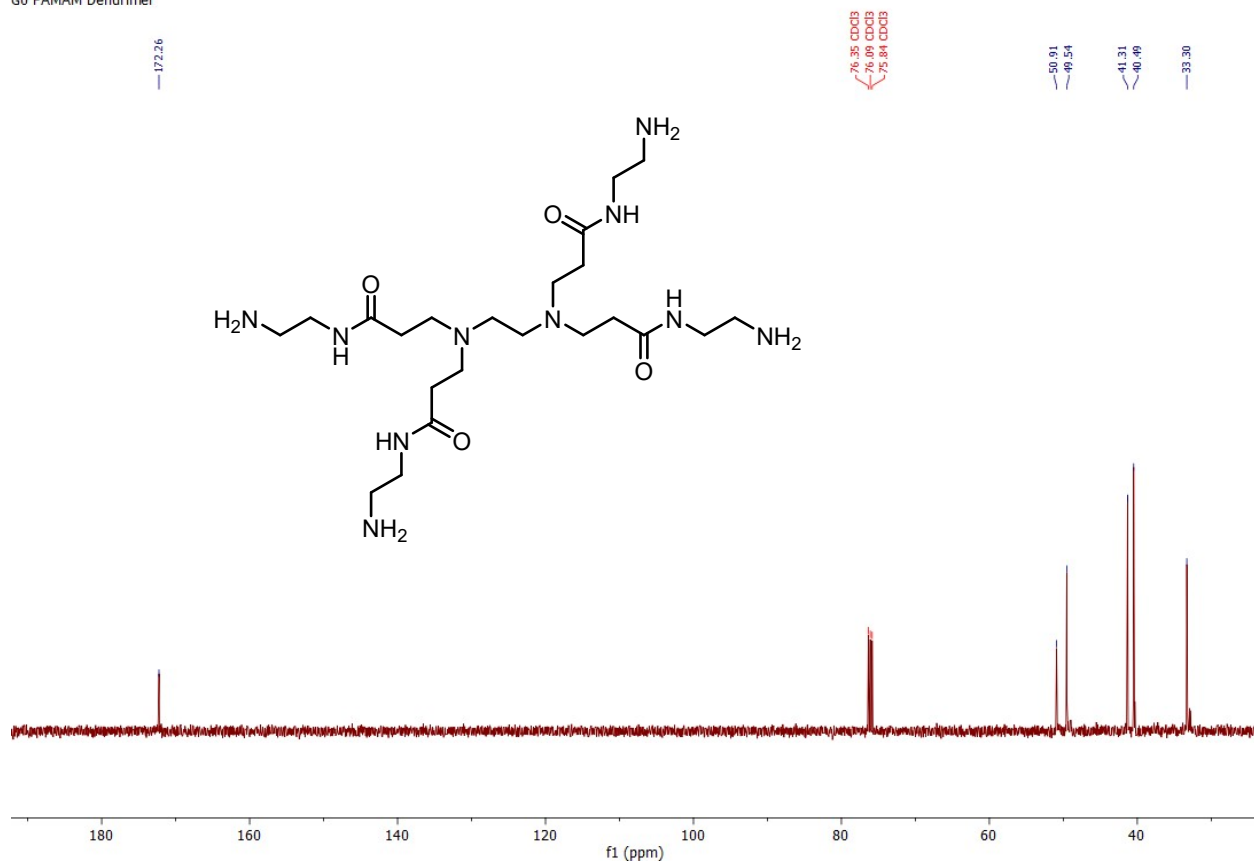**Fig. S 11.** ^{13}C NMR (500 MHz, CDCl$_3$) of G(-0.5) PAMAM Dendrimer

Fig. S 12. ^{1}H NMR (500 MHz, CDCl$_3$) of G(0) PAMAM Dendrimer

Fig. S 13. ^{13}C NMR (500 MHz, CDCl$_3$) of G(0) PAMAM Dendrimer

Fig. S 14. ^{1}H NMR (500 MHz, CDCl$_3$) of G(0.5) PAMAM Dendrimer

Fig. S 15. ^{13}C NMR (500 MHz, CDCl$_3$) of G(0.5) PAMAM Dendrimer