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Supplementary Information for

Dendron conjugation to graphene oxide using *click* chemistry for efficient gene delivery

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1. Selected NMR data of PAMAM dendrimer

0.5G PAMAM: *[1]H NMR (CDCl$_3$):* 2.26 ppm (1H, s, $-C\equiv C\overline{H}$), 2.45 ppm (4H, t, $-C\overline{H}_2-COOCH_3$), 2.89 ppm (4H, t, $-N-C\overline{H}_2-CH_2-$), 3.32 ppm (2H, s, $CH\equiv C-C\overline{H}_2-$), 3.68 ppm (6H, s, $-COOC\overline{H}_3$).

[13]C NMR (CDCl$_3$): 73.84 ppm ($-C\equiv\overline{C}H$), 77.23 ppm ($-\overline{C}\equiv CH$), 32.57 ppm ($-\overline{C}H_2-COOCH_3$), 49.22 ppm, ($-N-\overline{C}H_2-CH_2-$), 41.25 ppm ($CH\equiv C-\overline{C}H_2-$), 172.94 ppm ($-\overline{C}OOCH_3$), 51.97 ppm ($-COO\overline{C}H_3$).

1.0G PAMAM: *[1]H NMR (D$_2$O):* 2.19 ppm (1H, s, $-C\equiv C\overline{H}$), 2.34 ppm (4H, t, $-C\overline{H}_2-CONH-$), 2.56 ppm (4H, t, $-N-C\overline{H}_2-CH_2-$), 2.61 ppm (4H, t, $-C\overline{H}_2-NH_2$), 3.26 ppm (4H, q, $-C\overline{H}_2-CH_2-NH_2$), 3.33 ppm (2H, s, $CH\equiv C-C\overline{H}_2-$), 7.12 ppm (2H, s, $-CO-N\overline{H}-$).

[13]C NMR (D$_2$O): 75.31 ppm ($-C\equiv\overline{C}H$), 77.19 ppm ($-\overline{C}\equiv CH$), 35.87 ppm ($-\overline{C}H_2-CONH-$), 37.99 ppm ($-\overline{C}H_2-NH_2$), 39.28 ppm ($-\overline{C}H_2-CH_2-NH_2$), 42.45 ppm ($CH\equiv C-\overline{C}H_2-$), 51.38 ppm ($-N-\overline{C}H_2-CH_2-$), 177.19 ppm ($-\overline{C}ONH-$).

1.5G PAMAM: Yield 91.6%; *[1]H NMR (CDCl$_3$)*: 2.18 ppm (1H, s, $-C\equiv C\overline{H}$), 2.24 ppm (8H, t, $-C\overline{H}_2-COOCH_3$), 2.42-2.49 ppm (4H, m, $-C\overline{H}_2-CONH-$), 2.51-2.57 ppm (12H, m, $-N-C\overline{H}_2-CH_2-$), 3.43 ppm (2H, s, $CH\equiv C-C\overline{H}_2-$), 3.68 ppm (12H, s, $-COOC\overline{H}_3$), 7.35 ppm (2H, s, $-CO-N\overline{H}-$).

^{13}C *NMR (CDCl$_3$)*: 71.63 ppm $(-C \equiv \overline{C}H)$, 73.39 ppm $(-\overline{C} \equiv CH)$, 32.88 ppm $(-\overline{C}H_2 - COOCH_3)$, 34.29 ppm $(-\overline{C}H_2 - CONH-)$, 38.04 ppm $(-CONH - \overline{C}H_2-)$, 41.87 ppm $(CH \equiv C - \overline{C}H_2-)$, 48.92 ppm $(-N - \overline{C}H_2 - CH_2-)$, 51.60 ppm $(-COO\overline{C}H_3)$.

2.0G PAMAM: Yield 89.5%; ^1H *NMR (D$_2$O)*: 2.17 ppm (1H, s, $-C \equiv C\overline{H}$), 2.20-2.49 ppm (12H, bm, $-C\overline{H}_2 - CONH-$), 2.50-2.56 ppm (12H, bm, $-N - C\overline{H}_2 - CH_2-$), 2.59-2.64 ppm (12H, bm, $-CONH - C\overline{H}_2-$), 3.14 ppm (8H, bm, $-C\overline{H}_2 - NH_2$), 3.24 ppm (2H, s, $CH \equiv C - C\overline{H}_2-$), 7.2 ppm (6H, s, $-CO - N\overline{H}-$).

^{13}C *NMR (D$_2$O):* 72.75 ppm $(-C \equiv \overline{C}H)$, 77.49 ppm $(-\overline{C} \equiv CH)$, 35.50 ppm $(-\overline{C}H_2 - CONH-)$, 37.87 ppm $(-\overline{C}H_2 - NH_2)$, 39.88 ppm $(-\overline{C}H_2 - CH_2 - NH_2)$, 42.89 ppm $(CH \equiv C - \overline{C}H_2-)$, 48.78 ppm $(-N - \overline{C}H_2 - CH_2 - CONH-)$, 174.82 ppm $(-\overline{C}ONH-)$.

3.0G PAMAM: Yield 85.7%; ^1H *NMR (D$_2$O)*: 2.18 ppm (1H, s, $-C \equiv C\overline{H}$), 2.25-2.51 ppm (24H, bm, $-C\overline{H}_2 - CONH-$), 2.52-2.58 ppm (24H, bm, $-N - C\overline{H}_2 - CH_2-$), 3.20 ppm (16H, bm, $-C\overline{H}_2 - NH_2$), 3.29 ppm (2H, s, $CH \equiv C - C\overline{H}_2-$), 7.28 ppm (12H, bs, $-CO - N\overline{H}-$).

^{13}C *NMR (D$_2$O):* 72.81 ppm $(-C \equiv \overline{C}H)$, 77.31 ppm $(-\overline{C} \equiv CH)$, 36.12 ppm $(-\overline{C}H_2 - CONH-)$, 38.21 ppm $(-\overline{C}H_2 - NH_2)$, 40.10 ppm $(-\overline{C}H_2 - CH_2 - NH_2)$, 43.17 ppm $(CH \equiv C - \overline{C}H_2-)$, 49.11 ppm $(-N - \overline{C}H_2 - CH_2 - CONH-)$, 175.93 ppm $(-\overline{C}ONH-)$.

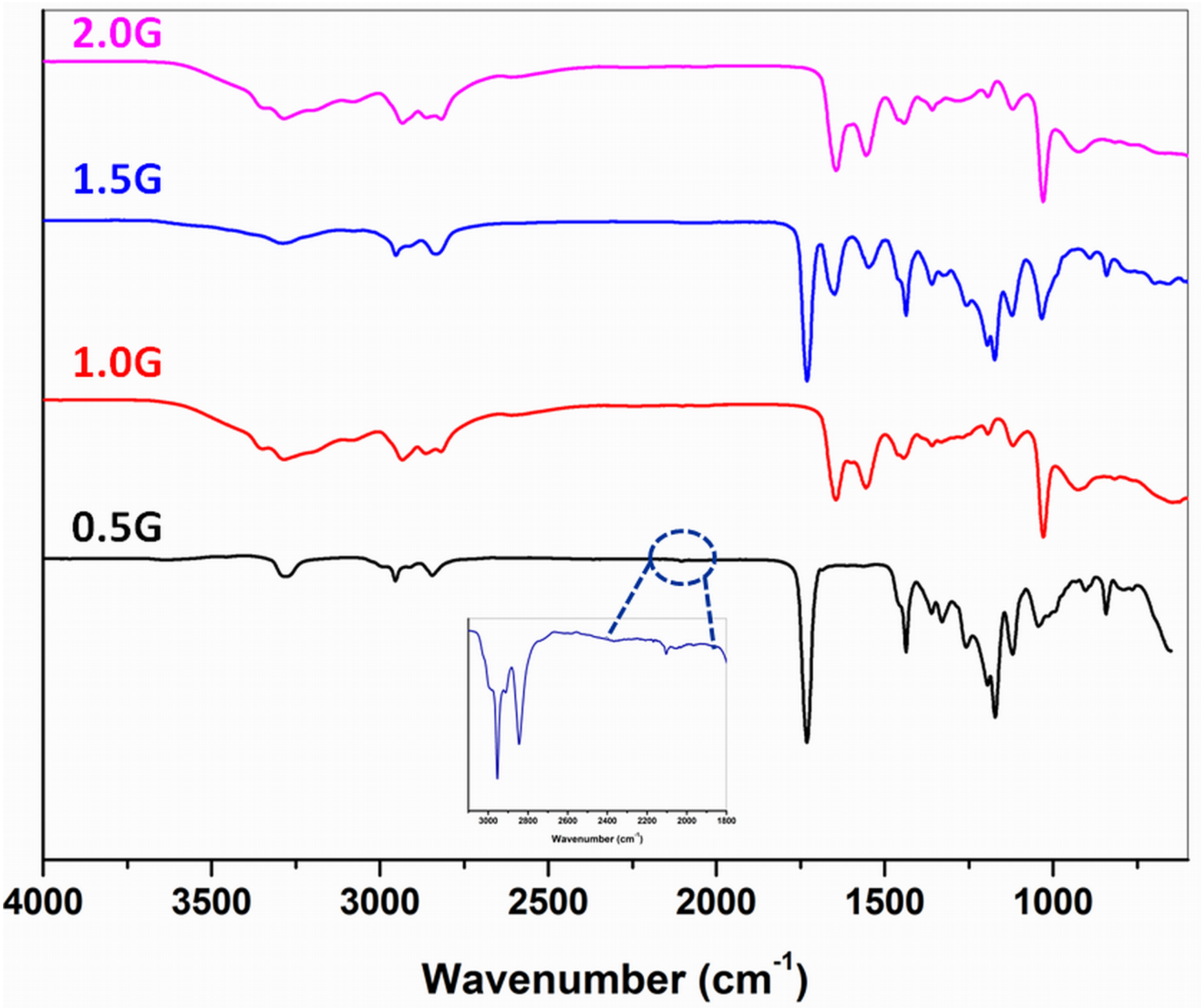

Figure S1. FTIR spectra of focal point PAMAM dendrimers of different generations (0.5, 1.0, 1.5 and 2.0G).

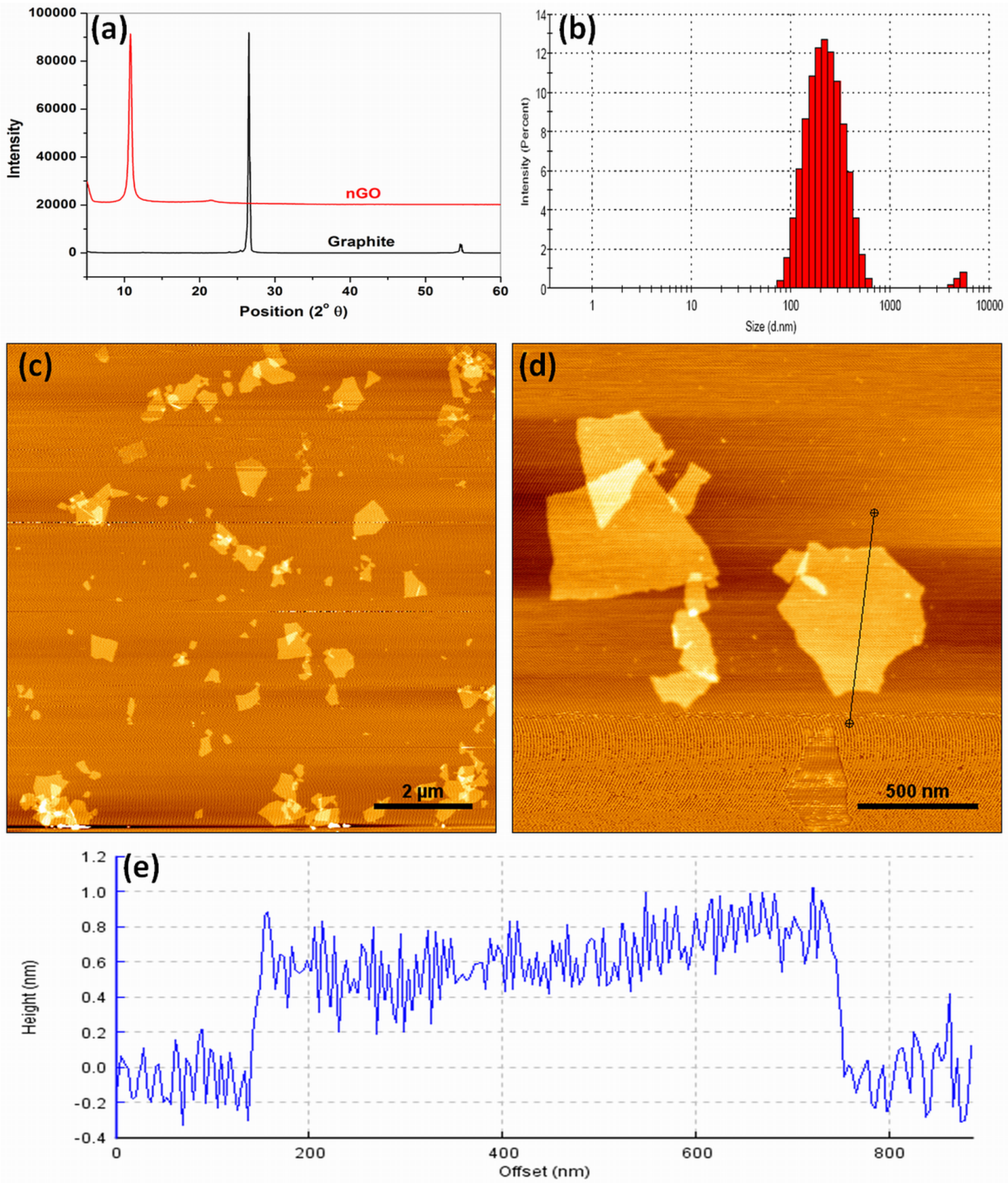

Figure S2. (a) X-ray diffraction pattern of pristine graphite and synthesized GO, (b) particle size distribution graph of synthesised nGO determined by DLS, atomic force micrograhs of nGO at (c) low magnification, (d) high magnification and (e) line graph of nGO indicating the thickness of single nGO flake.

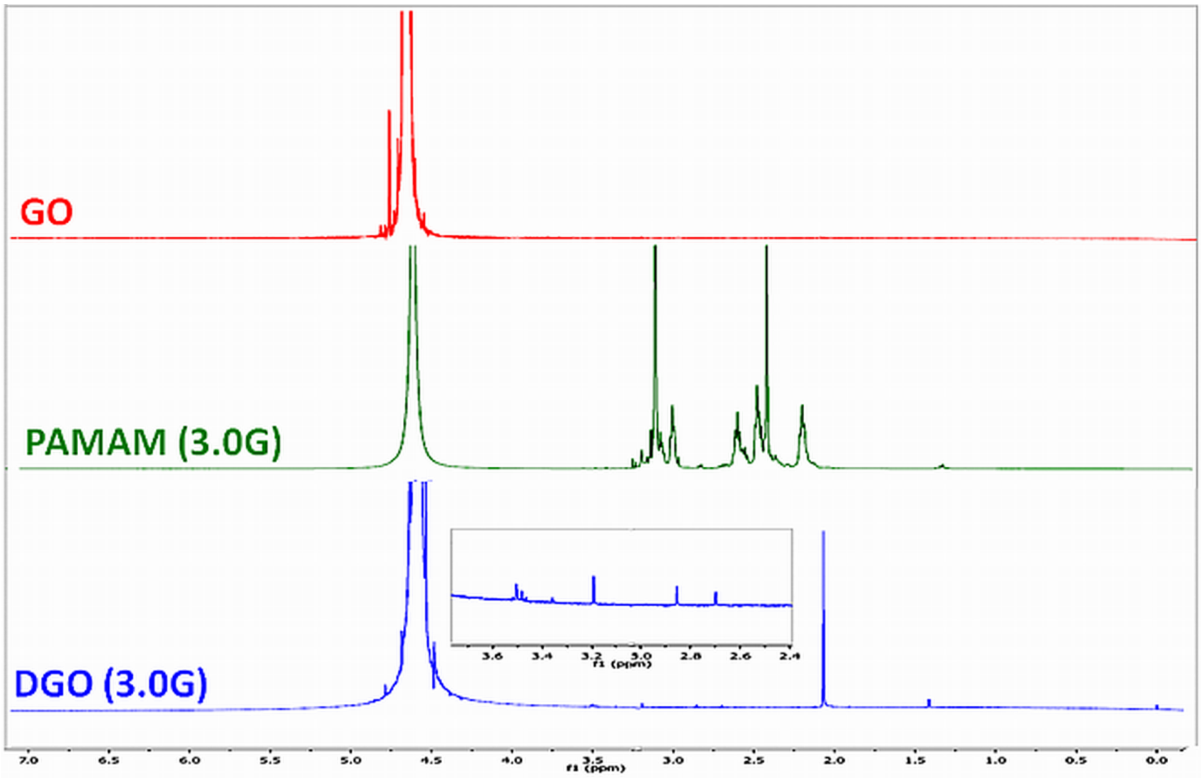

Figure S3. ^{1}H NMR spectra of nGO, PAMAM dendrimer (3.0G) and DGO (3.0G).

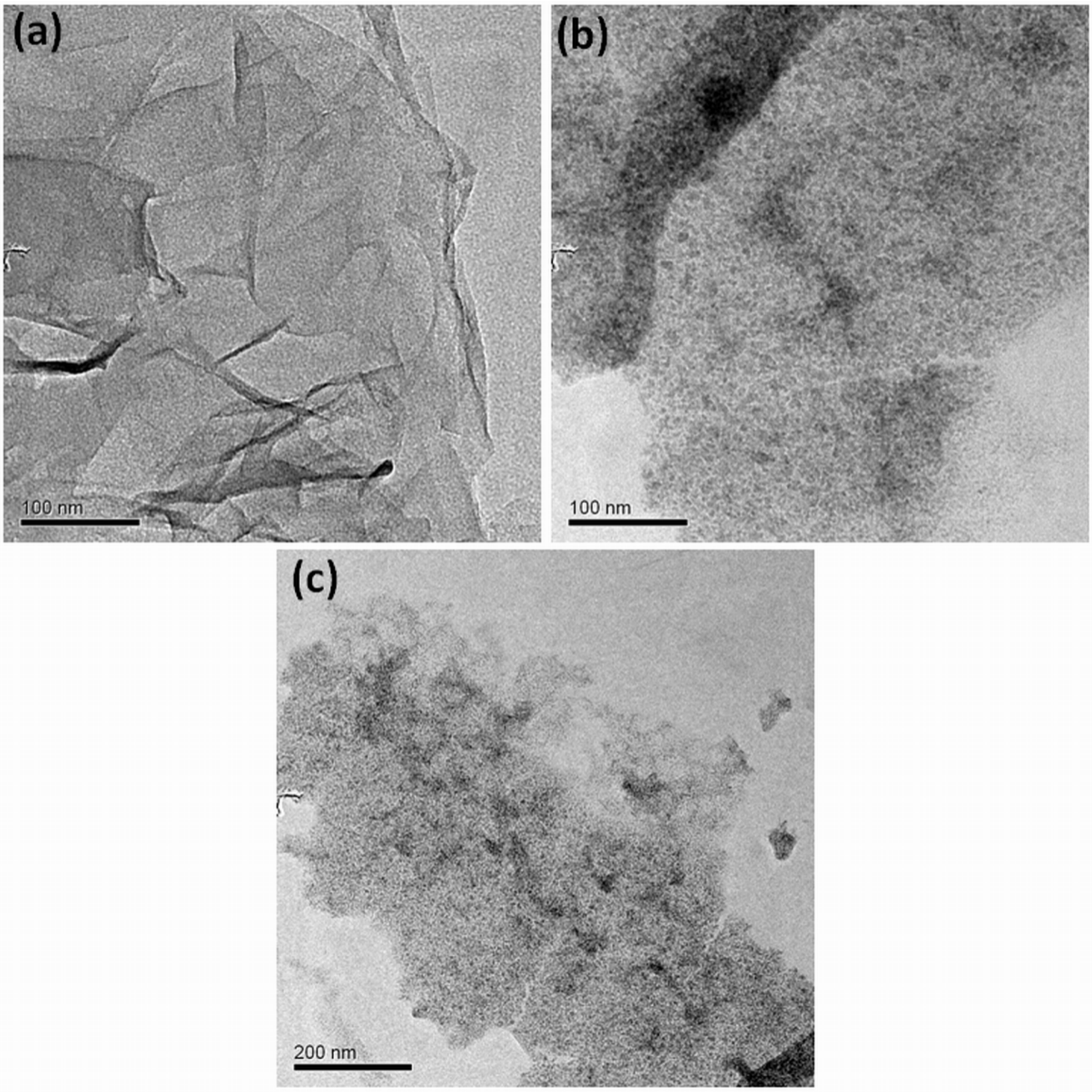

Figure S4. Transmission electron micrographs of (a) nGO, (b) DGO (1.0G) and (c) DGO (3.0G).