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SUPPORTING INFORMATION

Synthesis of a deoxyguanosine monophosphate rich propyl methacrylate oligomer

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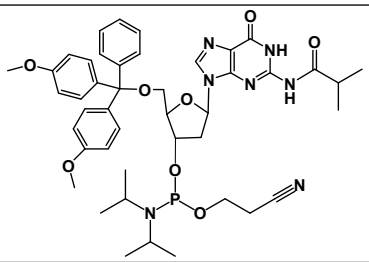
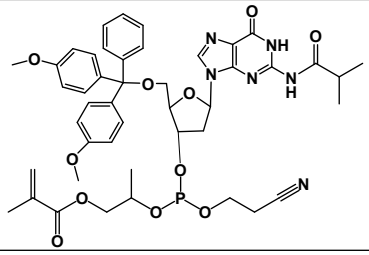
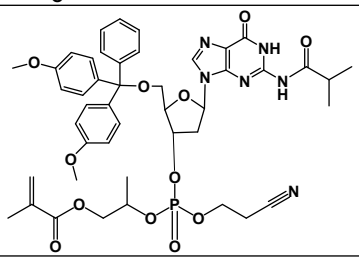
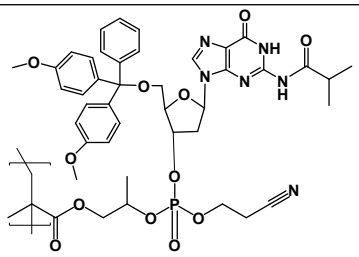
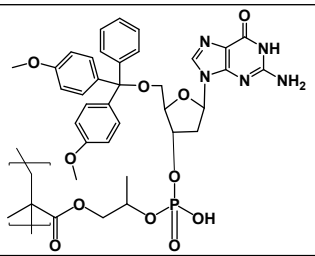
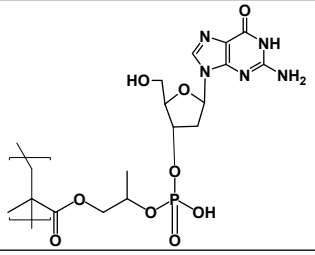
Table S1. Scientific names, abbreviations and structures.

Abbreviation	Chemical name	Structure
Starting material DMT-dG-CE phosphoramidite **(1)**	5′-dimethoxytrityl-*N*-isobutyryl-2′-deoxyguanosine, 3′-[(2-cyanoethyl)-(*N,N*-diisopropyl)]-phosphoramidite	
Coupled DMT-dG-CE-MP phosphite **(2)**	5′-dimethoxytrityl-*N*-isobutyryl-2'-deoxyguanosine, 3'-[(2-cyanoethyl)-(2-(methacryloyloxy)propyl]-monophosphite monomer	
Oxidised DMT-dG-CE-MP phosphate **(3)**	5′-dimethoxytrityl-*N*-isobutyryl-2'-deoxyguanosine, 3'-[(2-cyanoethyl)-2-(methacryloyloxy)propyl]-monophosphate	

Polymerised poly(DMT-dG-CE-P-PMA) **(4)**	poly-5′-dimethoxytrityl-*N*-isobutyryl-2′-deoxyguanosine, 3′-[(2-cyanoethyl)-(2-propyl methacrylate)]-phosphate	
Deprotected poly(DMT-dG-P-PMA) **(5)**	poly-5′-dimethoxytrityl-2′-deoxyguanosine, 3′-(2-propyl methacrylate)-phosphate	
Detritylated poly(dG-P-PMA) **(6)**	poly[2-(deoxyguanosine-3'-phospho)propyl methacrylate]	

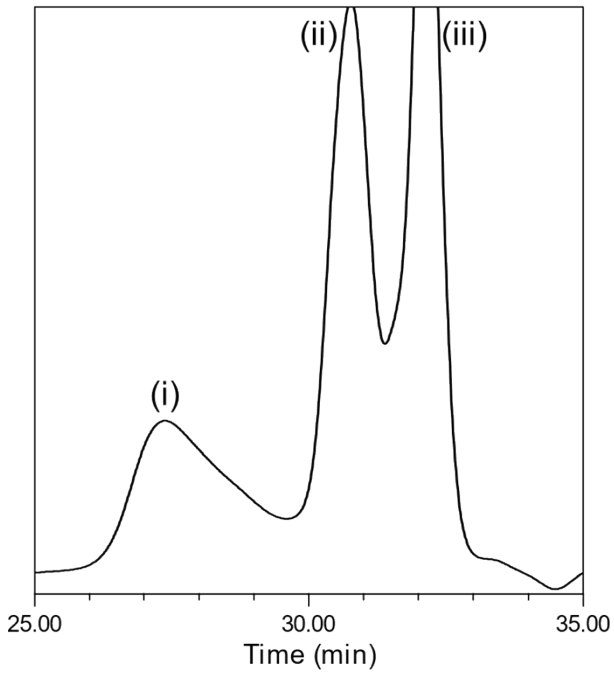


Figure S1. Size-exclusion chromatograph (SEC) of the bulk polymerisation with (i) poly(DMT-dG-CE-P-PMA) (polymer) **(4)**, (ii) DMT-dG-CE-PMA-monophosphate (monomer) **(3)** and (iii) DMT. The reason for the greater signal intensity of the DMT and residual monomer **(3)** is due to the higher refractive index compared to the polymer.

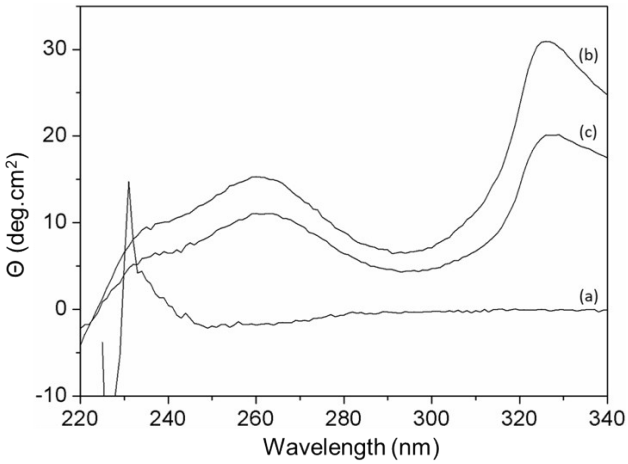


Figure S2. Raw circular dichroism data of (a) poly(HPMA), (b) poly(dG-P-PMA) **(6)** isolated with lithium acetate and (c) then doped with potassium acetate (25 mM).

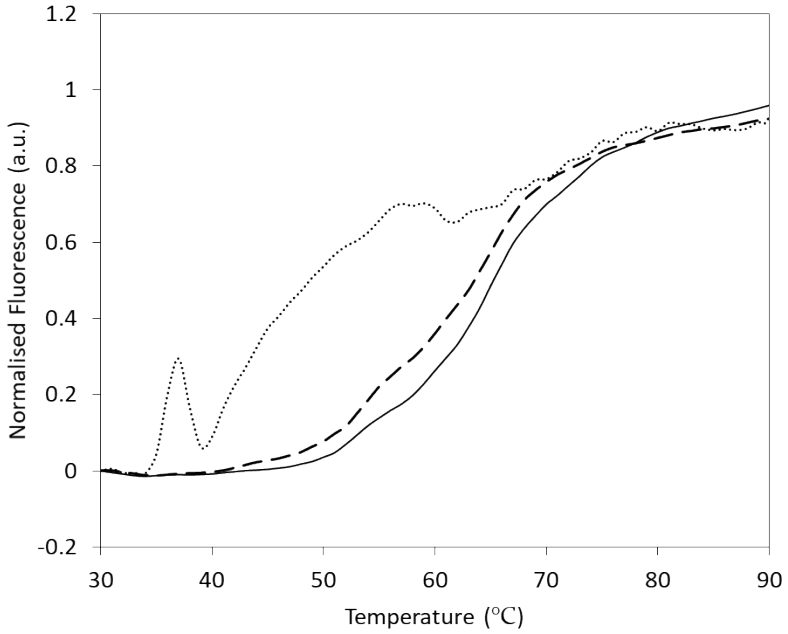


Figure S3. Normalised fluorescent measurements of ATTO 550 dye with Li^+ isolated poly(dG-P-PMA) (solid line), K^+ doped (dashed) and ssDNA G-quadruplex (dotted). ssDNA sequence, with intramolecular quadruplex regions underlined, TAT TGG GTT GGG TTG GGT TGG GTT GTC AAC TAC AGA CTA TCA ACT 21T 3AmMO.