

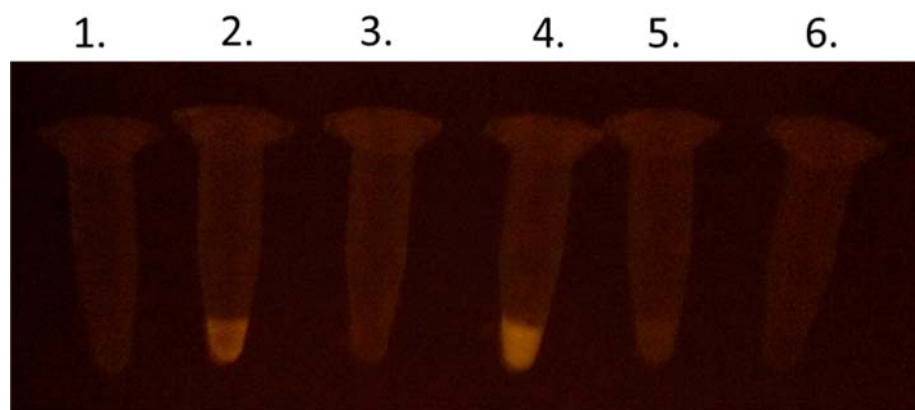
Electronic Supplementary Information (ESI)

Oligonucleotides as 'bio-solvent' for *in situ* extraction and functionalisation of carbon nanoparticles

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Additional results of the study are included in the following pages.



No.	Solvent conditions
1.	Plasmid pFN21K with GFP insert (linearisation by Sgf1 digestion, >5000 bps)
2.	ssDNA (45 bases) TATCGCGATCGCCTTCCAGTCGGGGATCACCTGAGTTTAAACCGG (random sequence)
3.	0.1 M NaCl (without oligonucleotides)
4.	ssDNA (30 bases) ATATATATATATATATATATATATATATATAT
5.	dsDNA (45 bps) TATCGCGATCGCCTTCCAGTCGGGGATCACCTGAGTTTAAACCGG (random sequence)
6.	ssDNA (30 bases) ATATATATATATATATATATATATATATATAT
* Each set of conditions (except for tube number 6) included acid treatment.	

Fig. S1 Purification of CNPs using different types of oligonucleotides (10 μ M in DI water). The green-yellow fluorescence directly detected by exciting the CNP solution using a blue-light (470 nm) illuminating box.

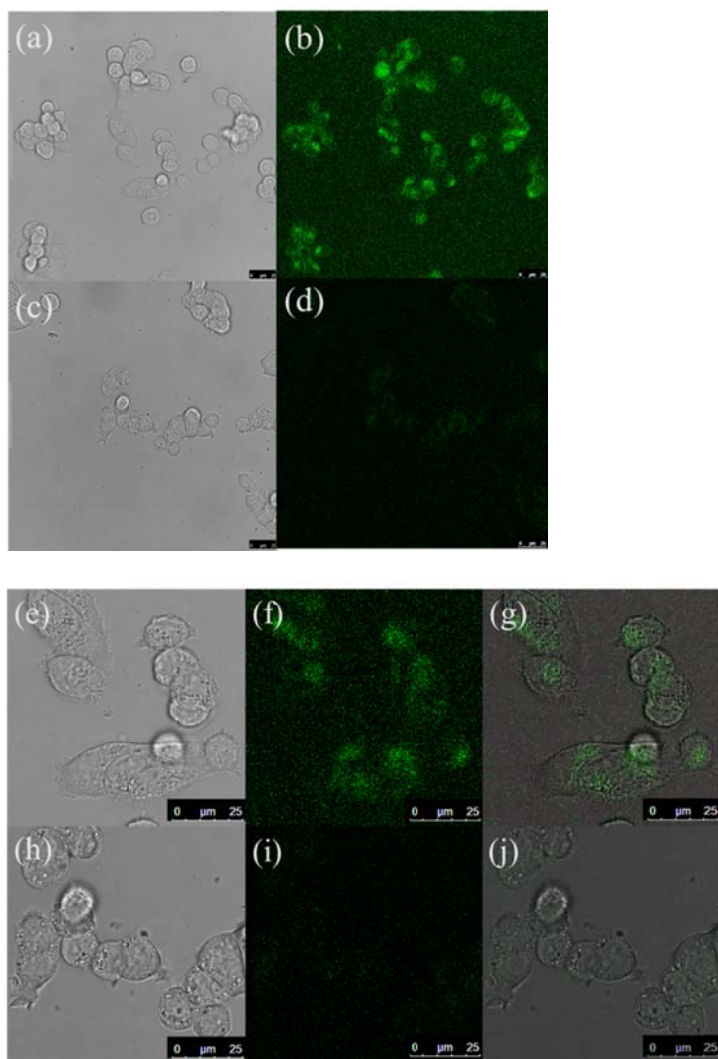


Fig. S2 Overnight incubation of cells with oligonucleotide-functionalised CNPs revealed no cytotoxicity and insignificant fluorescence decay. CLSM images under (a) bright field and (b) blue-light excitation (405 nm) of HCT116 cells that were treated with such CNPs for 24 hr. Images of untreated HCT116 cells under (c) bright field and (d) blue-light excitation. ((e), (f), (h) and (i) are 4x magnified images from (a), (b), (c) and (b) respectively; (g) is the overlay of (e) and (f); (j) is the overlay of (h) and (i); scale bar= 25 μm)

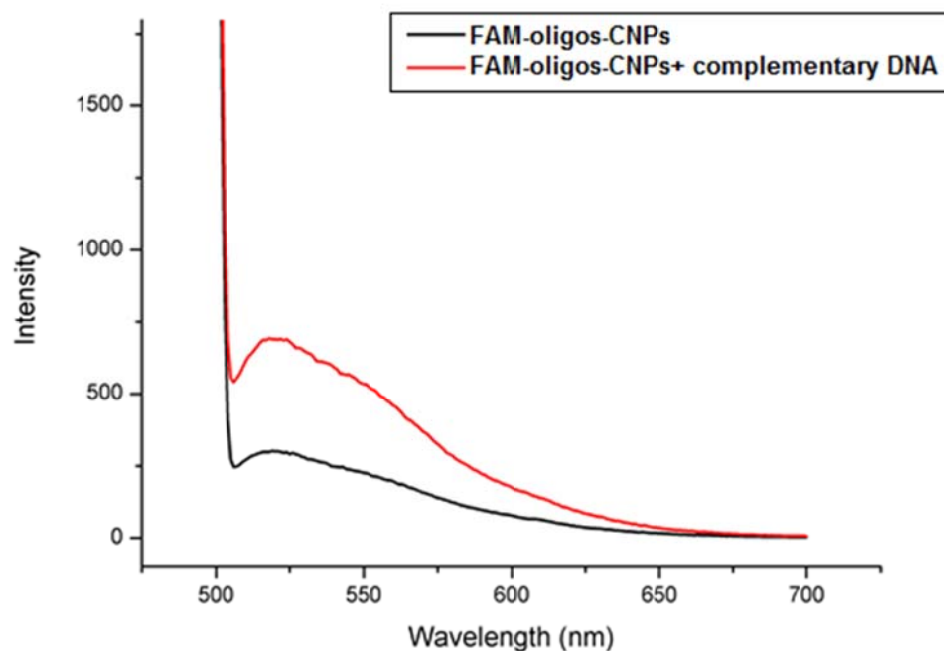


Fig. S3 Nucleotide-functionalised CNPs can serve as a ligand for biological applications. When CNPs functionalised with FAM-labelled oligonucleotides (FAM-oligos-CNPs) were incubated with the corresponding complementary strands (FAM-oligos-CNPs + complementary DNA), the quenched FAM fluorescence was restored, indicating the release of FAM-labelled oligonucleotide.

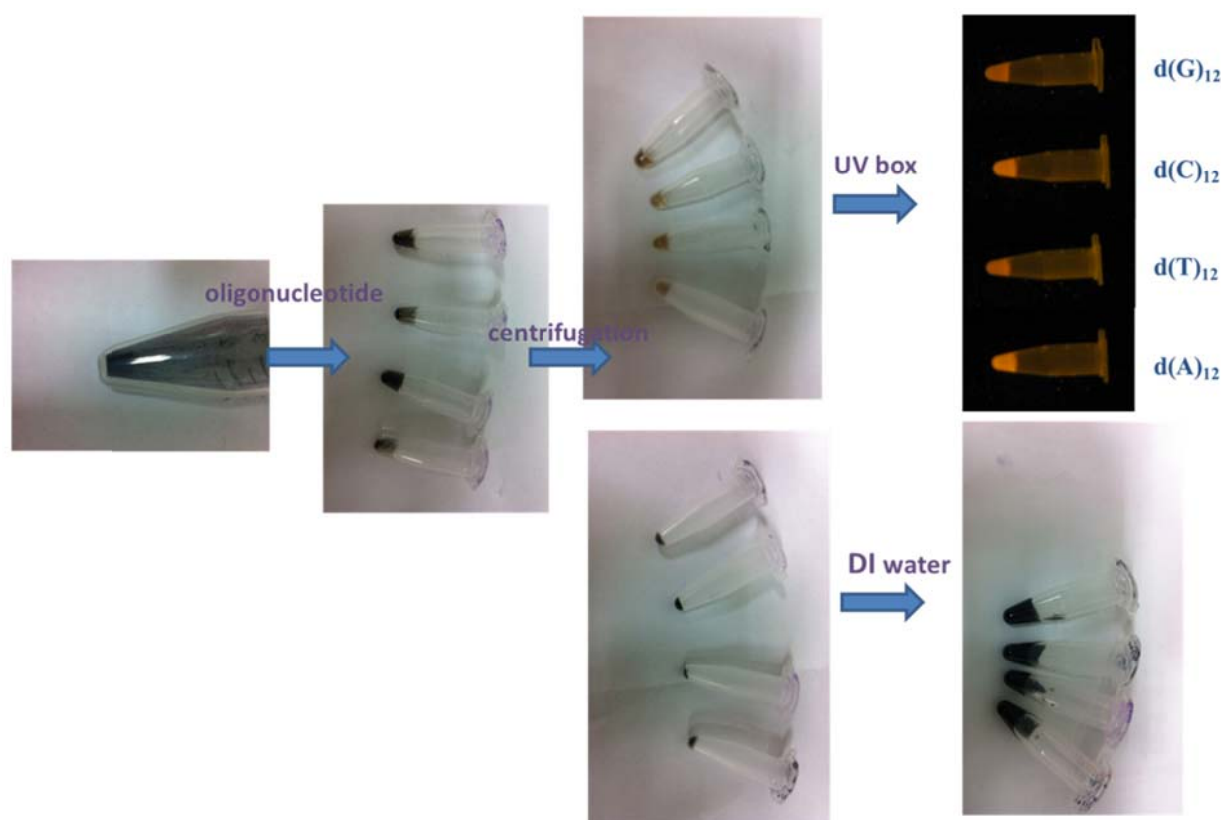
(a) Supernatant: CNPs**(b) Precipitate: SWCNTs**

Fig. S4 Simultaneous synthesis of two types of functionalised carbon nanomaterials. The fluorescence of CNPs was directly detected by exciting the CNP solution using a blue-light (470 nm) illuminating box. The precipitated SWCNTs were re-suspended in DI water without observable aggregation.