Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Supplementary Information for

DNA-based nanocomposite as electrochemical chiral sensing platform for the enantioselective interaction with quinine and quinidine

Qing Zhang, Yihan Huang, Liju Guo, Dongmei Guo, Ya Chen, Cui Chen, Yingzi Fu*

Key Laboratory on Luminescence and Real-Time Analysis, Ministry of Education, College of Chemistry and Chemical Engineering, Southwest University, Chongqing 400715, PR China

* Corresponding author. Tel.: +86-023-68252360 ; fax:+86-023-68253195.

E-mail address: fyzc@swu.edu.cn

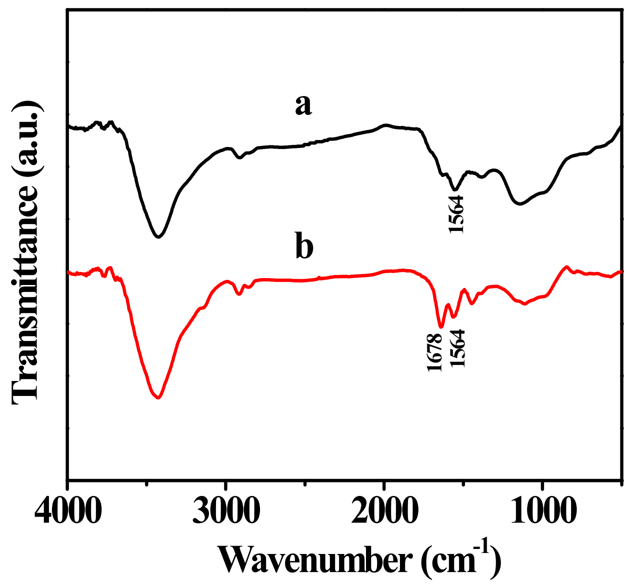

Fig. *S*1 The FT-IR spectrums of nanotudes (a) pristine and (b) acid-MWNTs

FT-IR spectrum and acid-base titration for the acid-treated MWNTs

Fig.*S*1 showed the FTIR spectra of (a) the pristine MWNTs and (b) the acid-treated MWNTs has been presented in Fig.*S*1. The peak at 1564 cm^{-1} were in correspondence to C=C stretching sssociated with sidewalls of MWNTs. After the acid treatment, an additional peak was observed at 1678 cm^{-1}, which indicated the existence of carboxyl groups in the treated MWNTs.

The carboxylic groups of the acid-treated MWNs has been determined by acid-base titration methods.[1,2] Briefly, the acid-treated MWNTs (30.0 mg) was sonicated in $NaHCO_3$ aqueous solution (25.0 mL, 0.05M) for 2 h. After $NaHCO_3$ has specifically interacted with the carboxylic groups of acid-MWNTs, the mixture was filtered through a membrane, and the MWNTs were washed with double-distilled water to remove the excess of $NaHCO_3$. Afterwards, HCl (25.0 mL, 0.05M) were added to the combined filtrate and washings solution and kept stirring under nitrogen gas flow for 12 h. After boiled for 20 min to degas the CO_2 from the solution and cooled to room temperature, the excess HCl in the solution can be determined by titration with 0.1M NaOH solution by a pH meter. By calculation, the amount of MWNTs-COOH groups in the MWNTs was 2.28 mmol/g.

References

[1] H. Hu, P. Bhowmik, B. Zhao, M. A. Hamom, M. E. Itkis and R. C. Haddon, *Chem. Phys. Lett.*, 2001, **345**, 25.

[2] A. B. González-Guerrero, E. Mendoza, E. Pellicer, F. Alsina, C. Fernández-Sánchez and L. M. Lechuga, *Chem. Phys. Lett.*, 2008, **462**, 256.

Table S1. Peak current for proportion for QD (QD %) at different concentrations.

	Peak current ($I_{1.0mM,}$ μA) [a]								
Sample	1	2	3	4	5	6	7	Average	%RSD
0%	68.94	67.37	68.63	68.29	69.18	67.55	68.88	68.41	0.70
20%	67.44	67.19	67.87	68.14	68.38	67.77	67.03	67.69	0.49
40%	63.84	63.77	62.99	63.89	64.38	63.96	63.56	63.77	0.42
60%	60.64	61.57	59.26	59.89	60.25	61.46	58.98	60.19	0.87
80%	55.26	55.86	56.48	54.78	55.25	56.84	55.78	55.75	0.73
100%	51.60	51.81	52.26	52.41	50.87	51.89	51.24	51.73	0.54
	Peak current ($I_{0.1mM,}$ μA) [b]								
Sample	1	2	3	4	5	6	7	Average	%RSD
0%	72.58	72.68	72.19	71.83	72.89	73.02	72.11	72.47	0.44
20%	70.61	70.49	70.18	71.48	72.37	71.13	70.24	70.93	0.79
40%	67.75	66.29	67.58	67.49	67.99	68.12	67.37	67.51	0.60
60%	64.08	64.78	63.47	64.13	63.43	63.59	64.99	64.07	0.63
80%	60.58	59.88	58.49	59.36	60.89	61.59	60.44	60.12	0.94
100%	58.08	58.78	59.34	57.48	58.86	57.89	57.37	58.26	0.75

[a] The concentration of QN and QD at 1.0 mM;
[b] The concentration of QN and QD at 0.1 mM.