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Supporting information for

A ratiometric fluorescent composite nanomaterial for RNA detection based on graphene quantum dots and molecular probe

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Calculation of RNA concentration[1]

RNA concentration was calculated by bellow equation. The ultraviolet absorption intensity standed for size of the electron energy level transition probability and abide by the lambert beer's law (1).

$$A = -log\frac{I}{I_0} = \varepsilon cl \quad (1)$$

A is absorbancy; *ε* is extinction coefficient, extinction coefficient of RNA is 7700; *c* is molar concentration; *l* is length of sample pool; I_0 and *I* stand for the intensity of the incident light and transmission light, respectively.

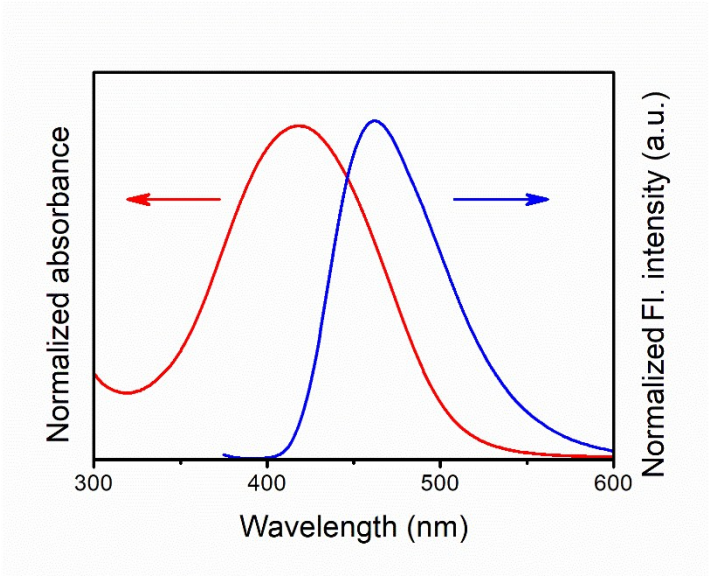

Figure S1. The overlap between the normalized excitation spectrum of HVC-6 and the normalized emission spectrum of GQDs (λ_{ex} = 365 nm).

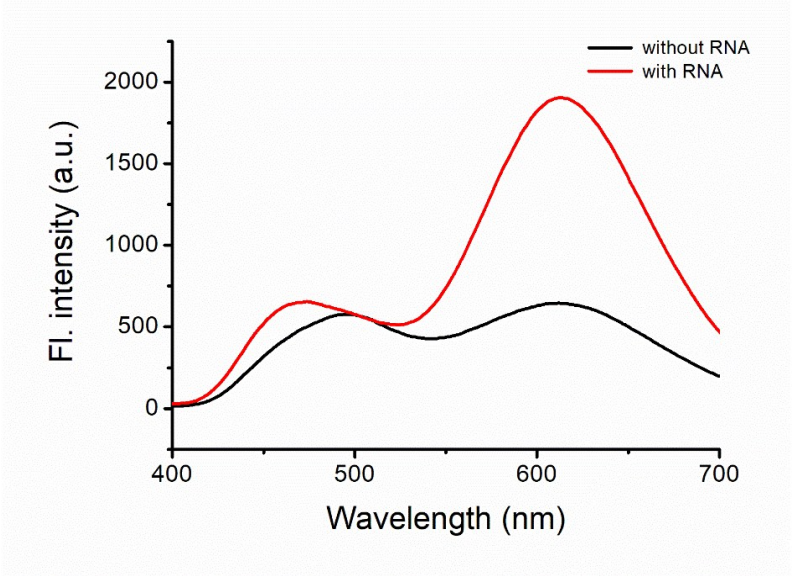

Figure S2. Fluorescence emission spectra of HVC-6@GQDs with and without RNA (100 μM), λ_{ex} = 365 nm.

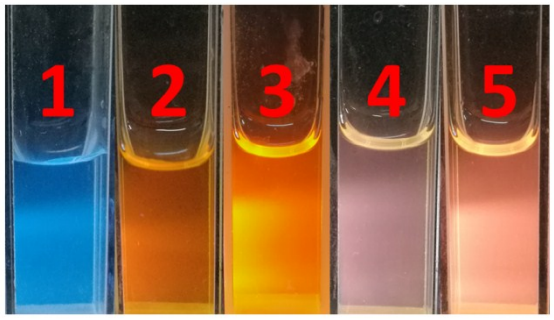

Figure S3. Visual fluorescence emission color changes of GQDs (1), HVC-6 (2), HVC-6 with RNA (3), HVC-6@GQDs (4) and HVC-6@GQDs with RNA (5), λ_{ex} = 365 nm.

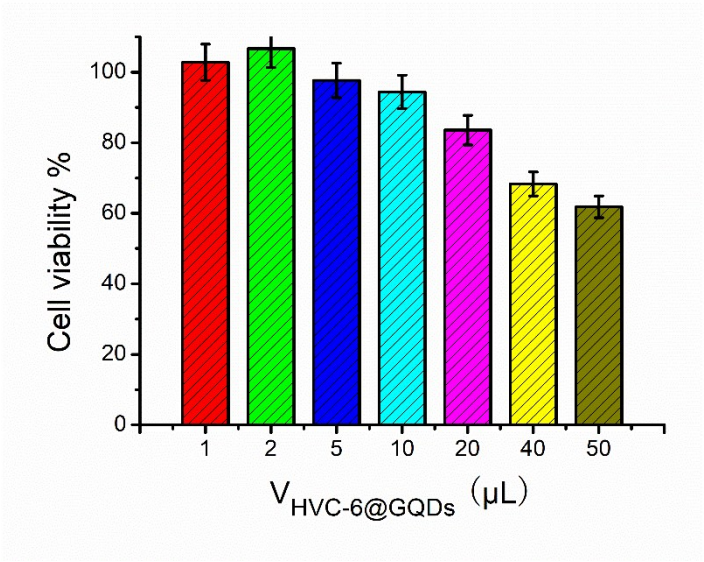

Figure S4. Viability of the HeLa cells treated with HVC-6@GQDs stock solution at varying volume (0-50 μL).

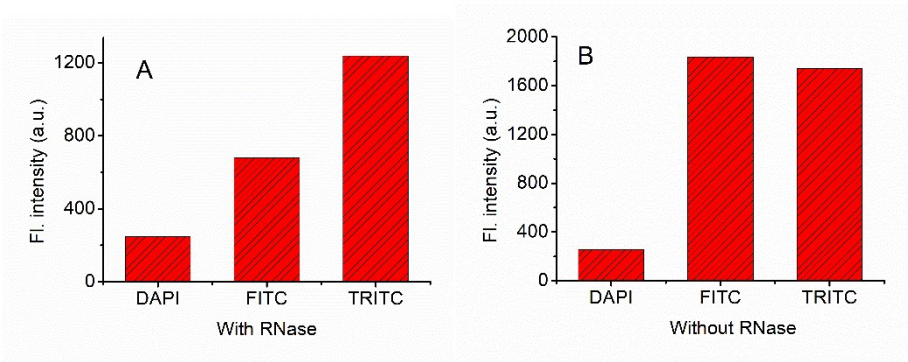

Figure S5. (A) Mean fluorescence intensity of each channel of fixed HeLa cells pre-treated with RNase. (B) Mean fluorescence intensity of each channel of fixed HeLa cells pre-treated without RNase.

References

1. G. Song, Y. Sun, Y. Liu, X. Wang, M. Chen, F. Miao, W. Zhang, X. Yu and J. Jin, Biomaterials, 2014, 35, 2103.