Electronic Supplementary Material (ESI) for Analytical Methods.

Supporting Information

Nitrogen-doped carbon nanocages modulated turn-on fluorescent probes for ATP detection and its imaging in living cell

Xianjiu Liao[1], Jing Wu[1], Yan Du[1], Wei Peng, Yao Yao, Jeremiah Ong'achwa Machuki, Deqin Geng*, and Fenglei Gao*

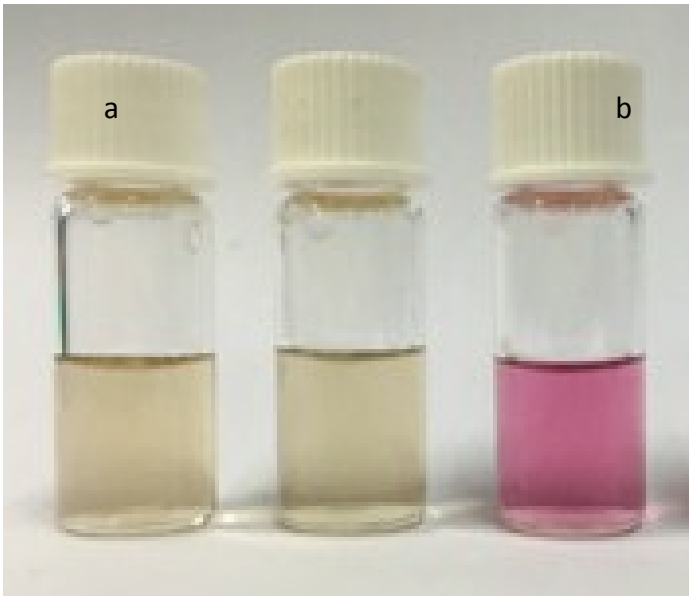

Fig. S1 N-CNCs probes in different media for 3 days (from a to c: pure water, PBS, MEM medium).

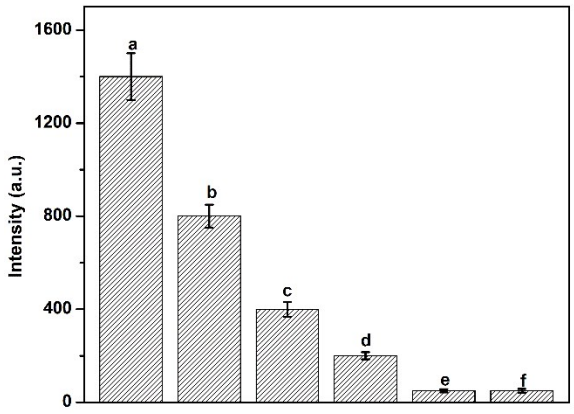

Fig. S2 Fluorescence intensity histogram of FAM-DNA + N-CNCs in the presence of (a) 0, (b) 25, (c) 50, (d) 75, (e) 100 and (f) 125 μg mL^{-1} N-CNCs.

It was found that the amount of N-CNCs used has a large influence on the fluorescence quenching. Fig.S2 represents the fluorescence of six samples measured in the presence of 0, 25,

50, 75, 100 and 125 μg mL^{-1} N-CNCs, respectively. The increased amount of N-CNCs leads to an increase in quenching efficiency but a decrease in fluorescence maintenance. Such observations can be explained as follows. When the FAM-DNA probes are mixed with N-CNCs, they adsorb onto the N-CNCs surface. It is obvious that the use of more N-CNCs leads to more efficient adsorption of FAM-DNA, increasing the quenching efficiency.

Fig. S3 FI after mixing N-CNCs nanoprobe with (a) lysozyme (20 mM), (b) mRNA, (c) telomerase, (d) glucose, (e) ascorbic acid, (f) uric acid, (g) dopamine hydrochloride and (h) ATP (2 mM).

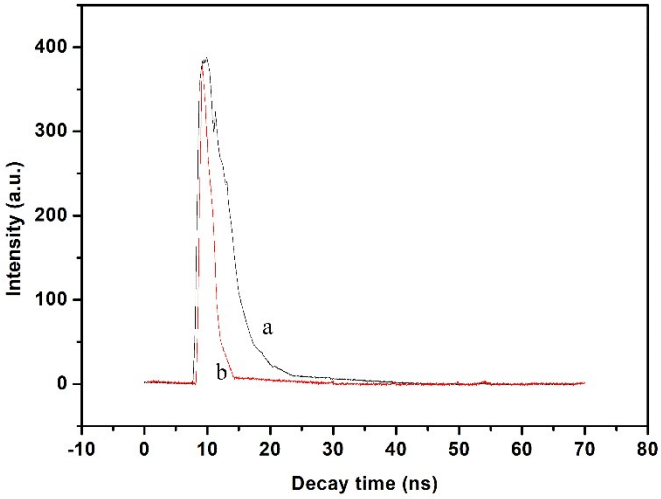

Fig. S4 Fluorescence decay of a FAM-DNA (a) in a Tris−HCl buffer solution (25 mM, pH 7.4) upon incubation with N-CNCs (b).