

## Supporting Information

### **DNA Adsorption on Nanoscale Zeolitic Imidazolate Framework-8 Enabling Rational Design of DNA-based Nanoprobe for Gene Detection and Regulation in Living Cells**

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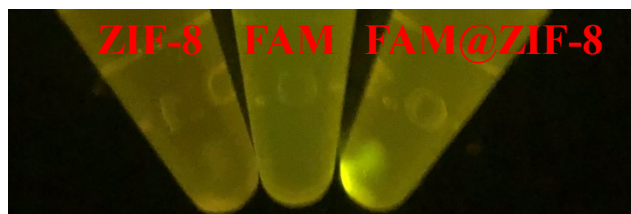
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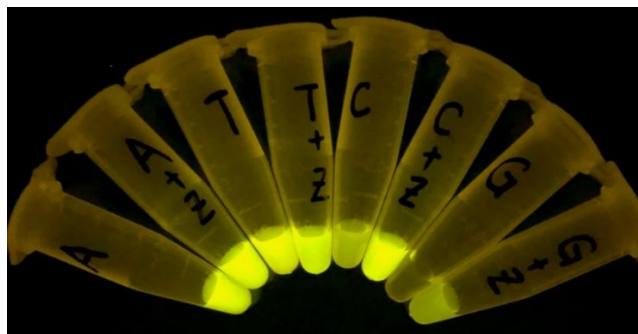


**Table S1 Oligonucleotide sequences and modifications used in this work**

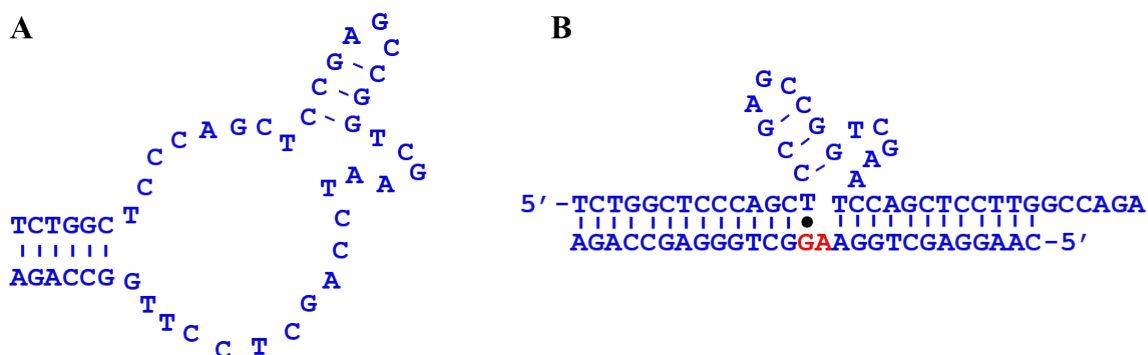
DNA names	Sequences and modifications (from 5' to 3')
DMB sensor	6-FAM- TCTGGCTCCCAGCTCCGAGCCGGTTCGAATCCAGCTCCTTGGCCAGA- BHQ-1
Target DNA ( <i>Survivin</i> )	CAAGGAGCTGGAAGGCTGGGAGCCAGA
Mis 1	CAAGAAGCTGGAAGGCTGGGAGCCAGA
Mis 3	CAAGAAGCTGGAAGGCTAGGCGCCAGA
DMB-FAM	6-FAM- TCTGGCTCCCAGCTCCGAGCCGGTTCGAATCCAGCTCCTTGGCCAGA
DMB	TCTGGCTCCCAGCTCCGAGCCGGTTCGAATCCAGCTCCTTGGCCAGA
DMB-Sub-FAM	6-FAM-CAAGGAGCTGGA/rA/GGCTGGGAGCCAGA
A15-FAM	6-FAM-AAAAAAAAAAAAAAAAA
A15	AAAAAAAAAAAAAAAAA
T15-FAM	6-FAM-TTTTTTTTTTTTTTTT
T15	TTTTTTTTTTTTTTTTT
C15-FAM	6-FAM-CCCCCCCCCCCCCCC
C15	CCCCCCCCCCCCCCC
G15-FAM	6-FAM-GGGGGGGGGGGGGGG
G15	GGGGGGGGGGGGGGG
<i>Survivin</i> forward primer	ATGGGTGCCCCGACGTTG
<i>Survivin</i> reverse primer	AGAGGCCTCAATCCATGG
<i>GAPDH</i> forward primer	GAACGGGAAGCTCACTGG
<i>GAPDH</i> reverse primer	GCCTGCTTCACCACCTTCT



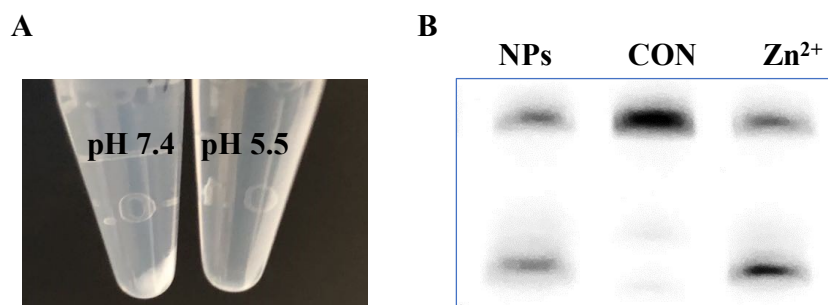
**Fig. S1** The fluorescence photograph showing adsorption of free FAM fluorophore without fluorescence quench as indicated by the strong fluorescence in precipitant. The ZIF-8 and FAM solution were also presented as controls.



**Fig. S2** The fluorescence photograph showing FAM-labeled homo-DNAs mixed with or without ZIF-8.



**Fig. S3** The secondary structures of (A) DMB and (B) DMB+cDNA.



**Fig. S4** (A) The image of ZIF-8 NPs dissolving in neutral (pH 7.4) and acid conditions (pH 5.5) for 24 h. (B) Gel image indicating the cleavage activity of DMB triggered by ZIF-8 NPs (the supernatant of the ZIF-8 after pretreatment of acidic pH), CON (no Zn<sup>2+</sup>), and Zn<sup>2+</sup>.