

Cobalt oxyhydroxide nanoflakes based fluorescent sensing platform for label-free detection of DNA

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Table S1 Oligonucleotides designed in the present study (mismatch underlined).

Name		Sequence(5' to 3')
FAM-labeled DNA (P1)		FAM-AGT CAG TGT GGA AAA TCT CTA GC
Complementary target (T1)		GCT AGA GAT TTT CCA CAC TGA CT
One-base mismatched target	(T2)	GCT AGA GAT <u>T</u> GT CCA CAC TGA CT
	(T3)	GCT AGA GAT T <u>C</u> T CCA CAC TGA CT
	(T4)	GCT AGA GAT T <u>A</u> T CCA CAC TGA CT
Two-base mismatched target (T5)		GCT AGA GAT <u>TGC</u> CCA CAC TGA CT
Noncomplementary target (T6)		TTT TTT TTT TTT TTT TTT TTT TT

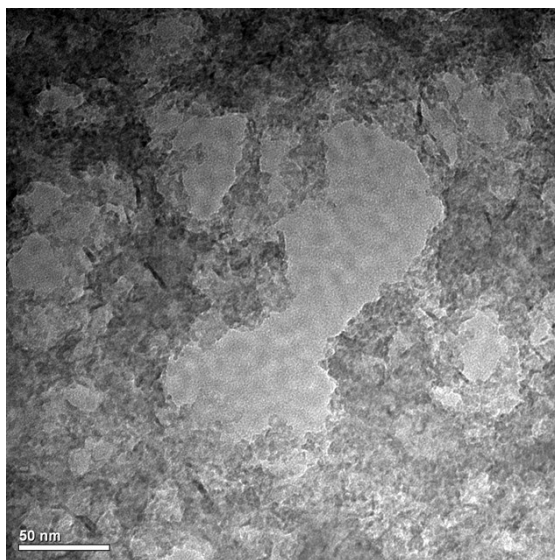


Fig. S1 TEM image of the CoOOH.

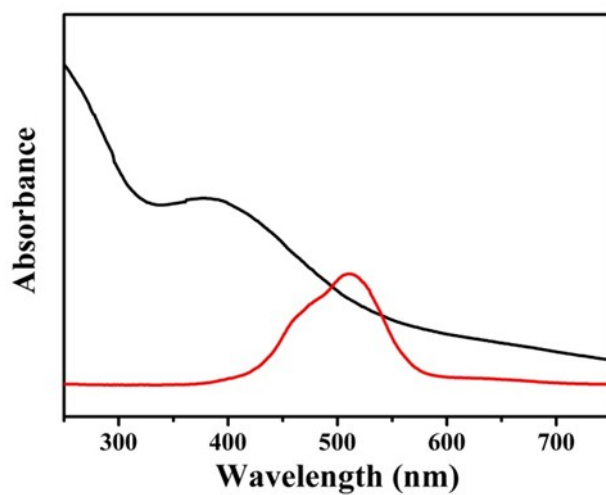


Fig. S2 UV-vis absorption spectra of aqueous solutions of CoCl_2 (red line) and CoOOH (black line).

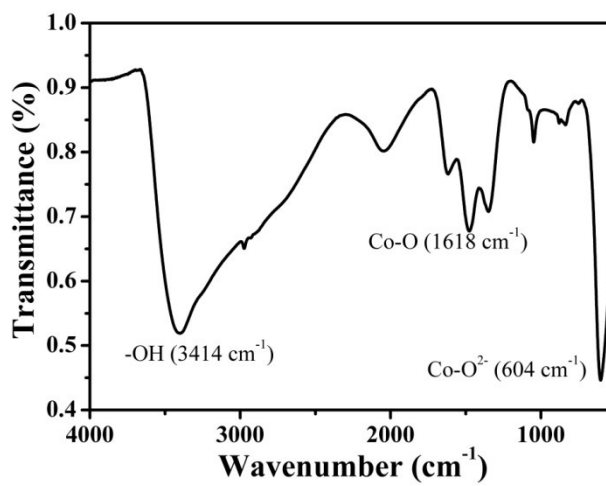


Fig. S3 FT-IR spectrum of CoOOH .

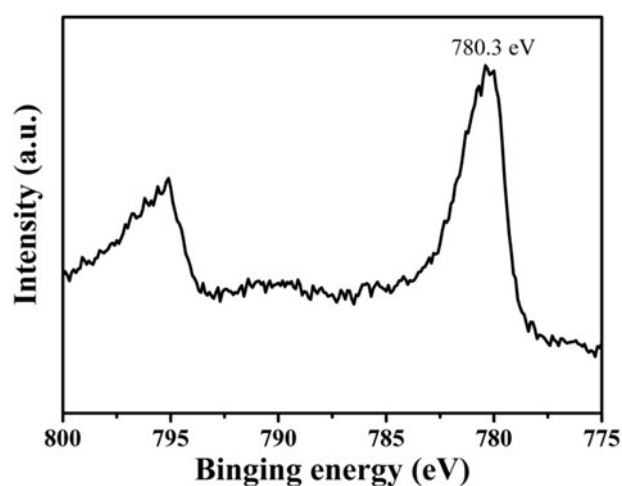


Fig. S4 XPS spectra of Co (2p) regions for CoOOH.

Table S2 Comparison of sensing performance of CoOOH nanoflake for fluorescent DNA detection with other nanoquenchers.

Quencher	Detection time (min)	Quenching efficiency (%)	Ref.
gold nanoparticle	15	-	1
CNT	185-190	98	2
CNP	60	82	3
GO	35	97	4
Cu(H ₂ dtoa)	240	84.53	5
polydopamine nanospheres	70	97	6
WS ₂	90	42	7
CoOOH	15	98	This work

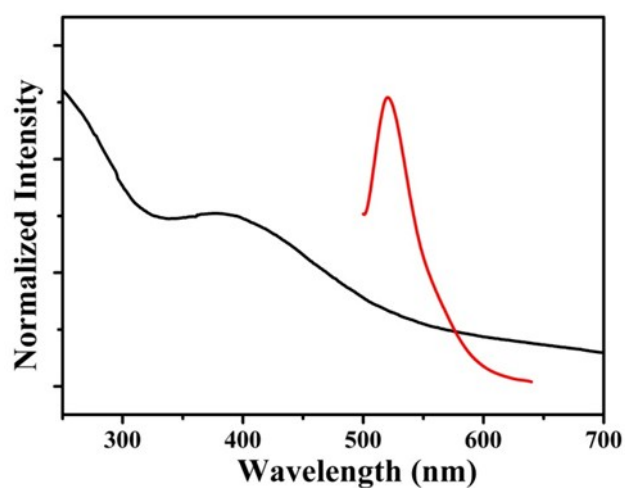


Fig. S5 UV-vis absorption of aqueous solutions of CoOOH (black line) and the fluorescence emission spectrum of the FAM-labeled DNA (red line).

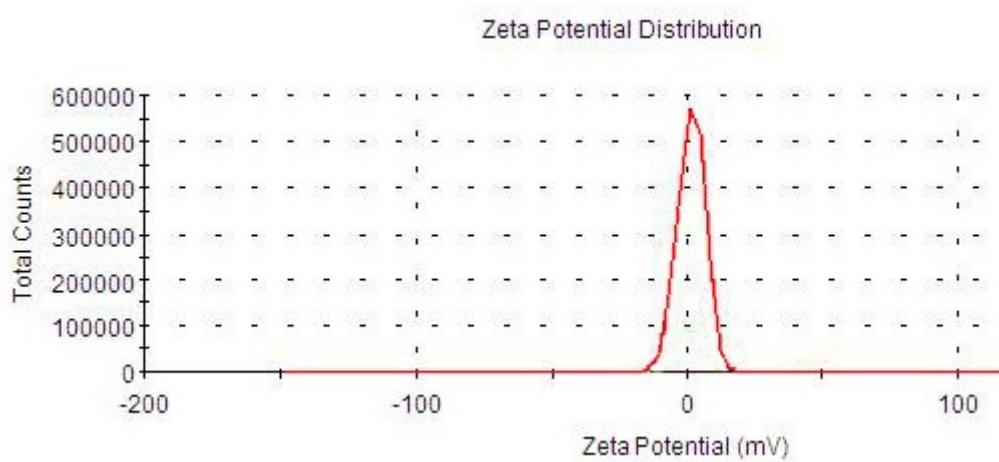


Fig. S6 Values of the zeta potential of CoOOH nanoflakes.

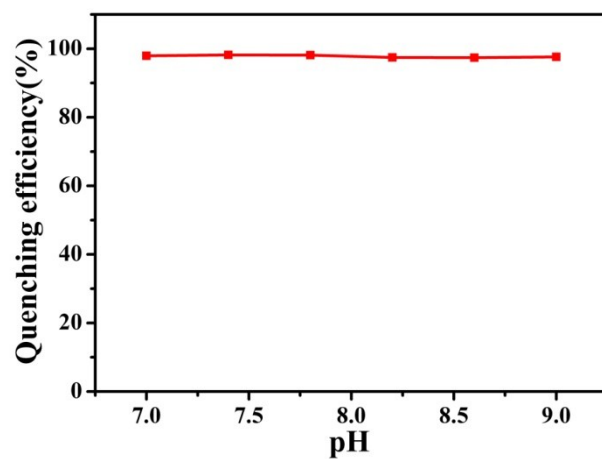


Fig. S7 Fluorescence quenching efficiency as a function of pH of the buffer. The concentration of CoOOH was 100 $\mu\text{g/mL}$ and P1 is 50 nM.

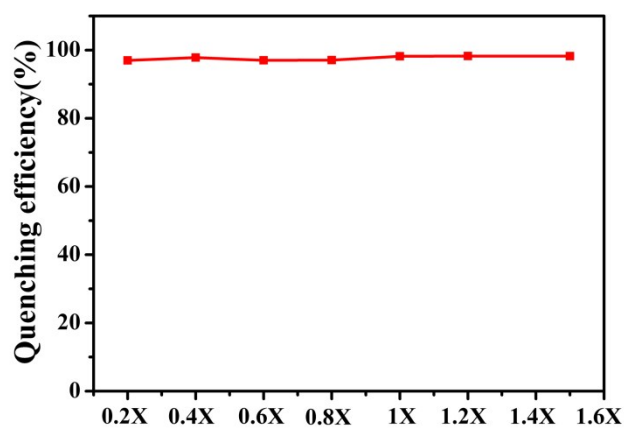


Fig. S8 Fluorescence quenching efficiency as a function of ionic concentration of the buffer. The concentration of CoOOH was 100 $\mu\text{g/mL}$ and P1 is 50 nM.

References

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