TABLE

Table S1 Comparison of Current MMP-9 Assay Methods

Sensing platform	Method	Detection range (ng/mL)	LOD (pg/mL)	Ref.
Fc-CMCS/DEX-ALD	EC	50-10^3	7.3×10^4	1
Apt-9/Apt-2/PDANS	FL	0.024-0.6	9.6	2
Apt/Au@BNNT/PCB	EC	0.1-10^4	21.8	3
cAb-MBs/SPCE	EC	8×10^{-3}-10	2.4	4
Ir-peptide/MCH/AuNPs/Nafion/GCE	ECL	1-50	500	5
NGQDs@NH_2-VMSF/ITO	ECL	10^{-3}-100	0.1	This work

Fc-CMCS, ferrocene-modified MMP-9 cleavage peptide modified carboxymethyl chitosan; DEX-ALD, dextran-aldehyde; EC, Electrochemistry; PDANS, polydopamine nanosphere; FL, fluorescence; AuNPs, gold nanoparticles; Au@BNNTs, Au-decorated boron nitride nanotubes; PCB, printed circuit board; cAb, capture antibody; MBs, magnetic microbeads; SPCE, screen-printed carbon electrode; Ir-peptide, the peptide labelled with the Ir; MCH, 6-mercapto-1-hexanol; GCE, glassy carbon electrode; ECL, electrochemiluminescence.

Table S2 Detection of MMP-9 in fetal bovine serum (FBS) with the constructed aptasensor.

Sample	Added (ng/mL)	Found (ng/mL)	Recovery (%)	RSD (%, n = 3)
FBS	0.00100	0.00104	104	1.2
	0.100	0.102	102	1.1
	10.0	10.3	103	1.8

FIGURE

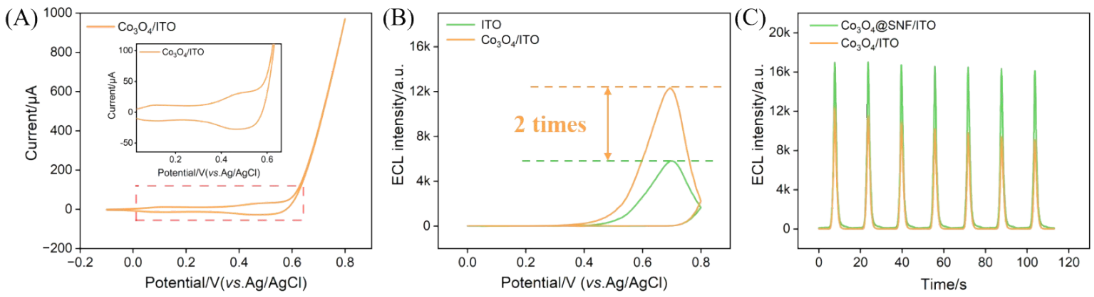

Figure S1 (A) CV curve of Co_3O_4/ITO in 1 M NaOH at 50 mV s^{-1}. Inset: magnified view of the red dashed region. (B) ECL responses of Co_3O_4/ITO and bare ITO in PBS (0.01 M, pH 7.4) with 100 μM luminol and 100 μM H_2O_2. (C) ECL signals of Co_3O_4@SNF/ITO and Co_3O_4/ITO during continuous cycling.

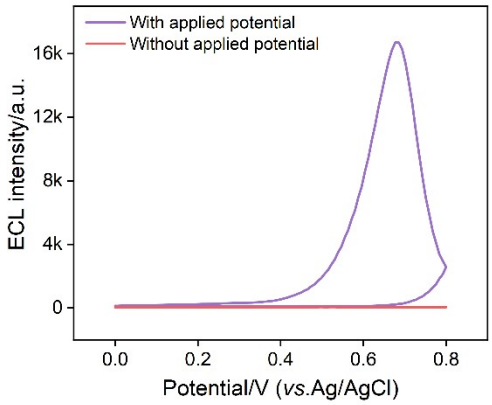

Figure S2 ECL signals of the electrode in PBS (0.01 M, pH 7.4) containing 100 μM luminol and 100 μM H_2O_2, recorded with and without an applied potential.

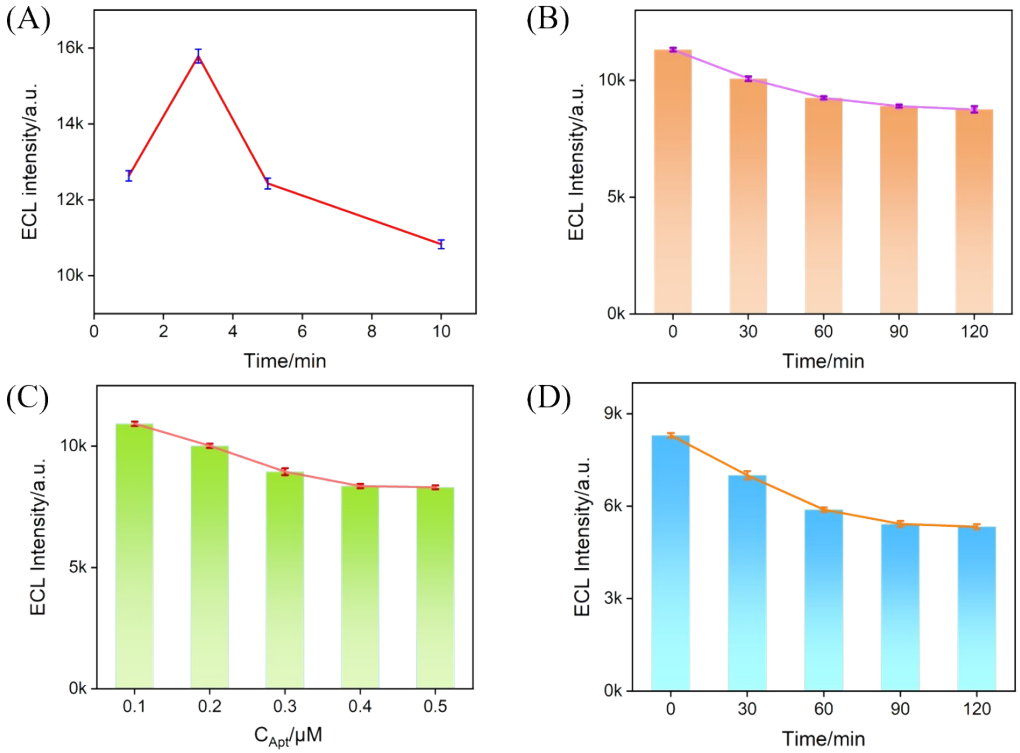

Figure S3 (A) ECL signals obtained on the Co_3O_4@SNF/ITO electrode after deposition for varying times in PBS (0.01 M, pH 7.4) containing 100 μM luminol and 100 μM H_2O_2. (B) ECL signals obtained after incubating the aptamer on the Co_3O_4@o-SNF/ITO electrode for different time. (C) ECL signals acquired on the Co_3O_4@O-SNF/ITO electrode fabricated with varying concentrations of the incubated aptamer in PBS (0.01 M, pH 7.4) containing 100 μM luminol and 100 μM H_2O_2. (D) ECL signals obtained when the BSA/Apt/Co_3O_4@O-SNF/ITO electrode was incubated with 1 ng/mL MMP-9 for different time.

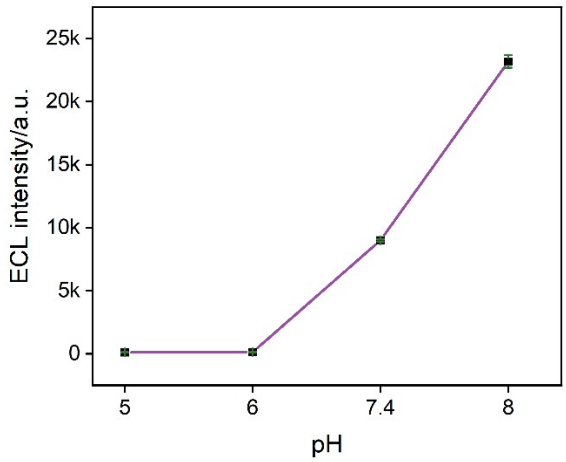

Figure S4 ECL intensity of Co_3O_4@SNF/ITO in 0.01 M PBS (100 μM luminol, 100 μM H_2O_2) at different pH values. A PMT voltage of 650 V was employed to avoid signal overflow at high pH.

References

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