Supporting Information

Dual-mode colorimetric and fluorescent detection of BRCA1 based on a CRISPR-Cas12a system

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Table S1. Sequences of the oligonucleotides used in this work.

Oligonucleotides	Sequence (from 5' to 3')
crRNA	UAAUUUCUACUAAGUGUAGAU UGAUUUUCUUCCUUUUGUUC
BRCA1	GAACAAAAGGAAGAAAATCA
SM-BRCA1	GAACAAAAGGAATAAAATCA
DM-BRCA1	GAACAAAACGAATAAAATCA
TM-BRCA1	CAACAAAACGAATAAAATCA
Random	CCTTGTTGGACTCCCTTCTA

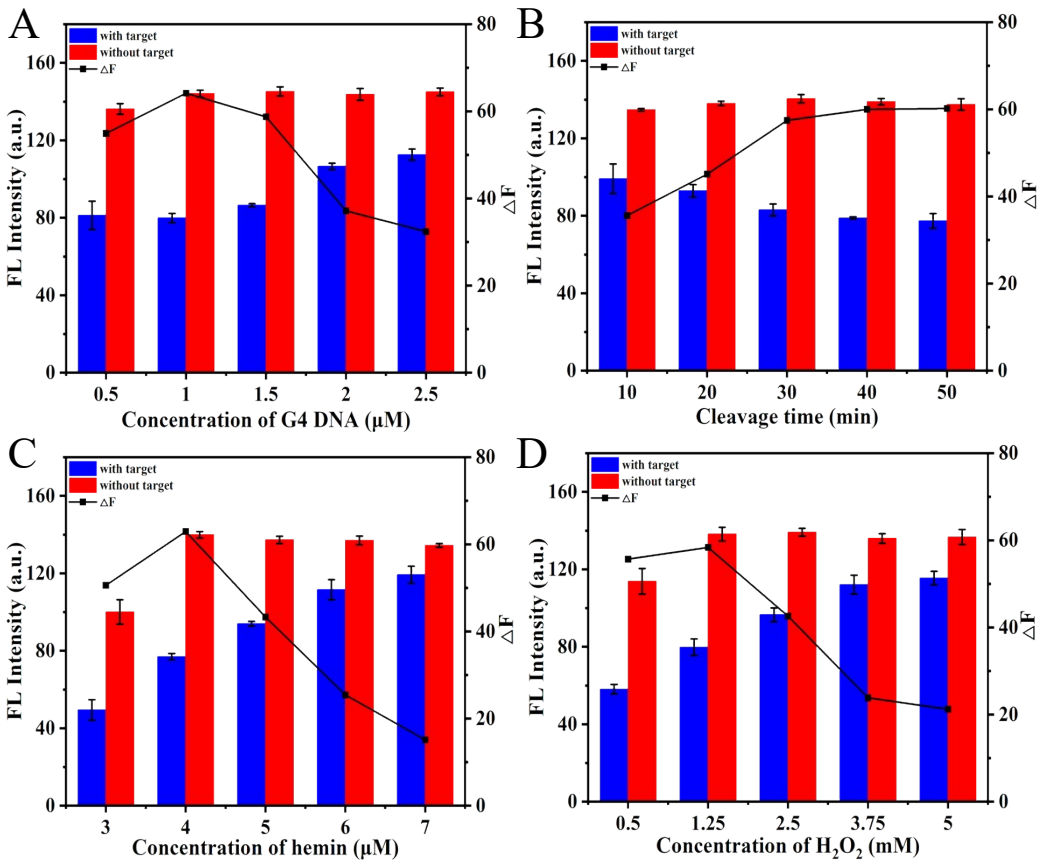

Fig. S1 Optimization of **(A)** the concentration of G4 DNA, **(B)** the cleavage time, **(C)** the concentration of hemin and **(D)** the concentration of H_2O_2. $\Delta F = F_0 - F$, where F_0 and F were the fluorescence intensity of the system without and with BRCA1, respectively. The error bars represented the standard deviation for three replicate measurements.

Table S2. Determination of BRCA1 in human serum samples diluted at different multiples (n=3)

Readout modes	Serum dilution ratio	Spiked (nM)	Found (nM)	Recovery (%)	RSD (%)
Fluorimetry	buffer	5	5.138	102.8	0.50
	5		3.547	70.9	2.69
	50		4.700	94.0	2.39
	100		5.080	101.6	3.91
Colorimetry	buffer	5	4.958	99.2	4.02
	5		2.286	45.72	3.23
	50		4.733	94.7	4.84
	100		4.990	99.8	1.39