

Supplementary information

Potassium-sensitive G-quadruplex DNA for sensitive visible potassium detection

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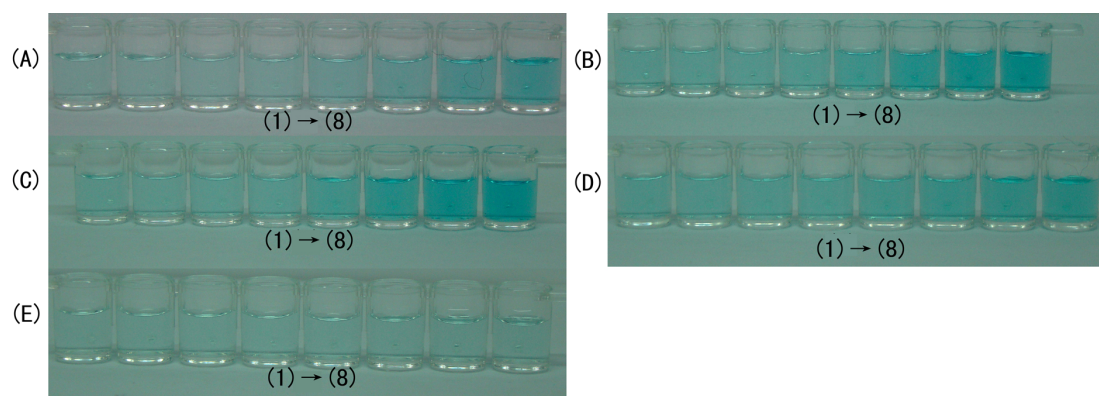


Fig. S1 Photographs of the TMB-H₂O₂ reaction system catalyzed by hemin-PS5.M DNAzyme in the presence of Tris-MES buffer (25 mM MES) of different pH. Conditions: (1) blank, (2) 250 nM K⁺, (3) 1.25 μM K⁺, (4) 2.5 μM K⁺, (5) 5 μM K⁺, (6) 12.5 μM K⁺, (7) 25 μM K⁺, (8) 50 μM K⁺; (A) pH = 3.20, (B) pH = 4.50, (C) pH = 5.10, (D) pH = 5.90, (E) pH = 6.80; TMB, 266 μM in Tris-MES buffer; H₂O₂, 794 μM; DNA, 500 nM; hemin, 500 nM.

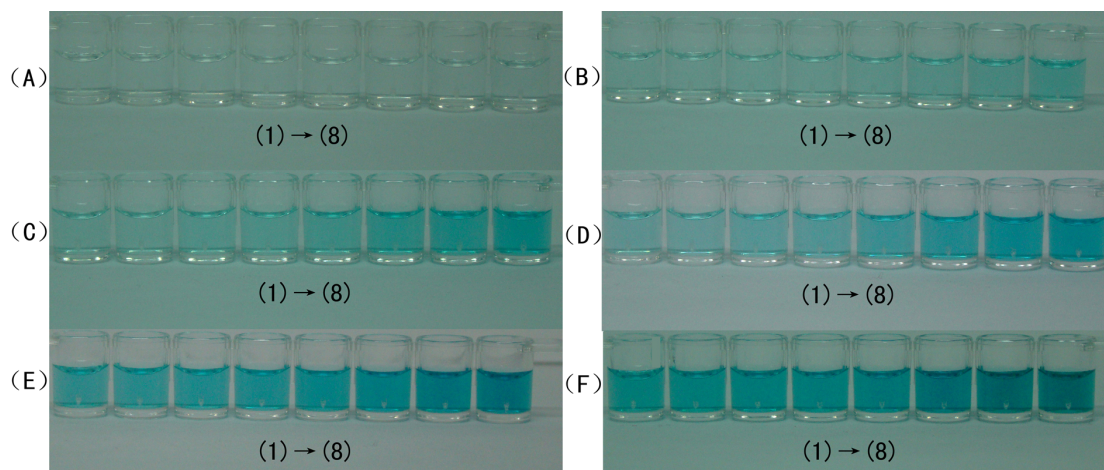


Fig. S2 Photographs of the TMB-H₂O₂ reaction system catalyzed by hemin-PS5.M DNAzyme in the presence of different concentrations of hemin. Conditions: (1) blank, (2) 250 nM K⁺, (3) 1.25 μM K⁺, (4) 2.5 μM K⁺, (5) 5 μM K⁺, (6) 12.5 μM K⁺, (7) 25 μM K⁺, (8) 50 μM K⁺; (A) 50 nM hemin, (B) 100 nM hemin, (C) 250 nM hemin, (D) 500 nM hemin, (E) 1 μM hemin, (F) 2.5 μM hemin; TMB, 266 μM in Tris-MES buffer (25 mM MES, pH = 5.10); H₂O₂, 794 μM; DNA, 500 nM.

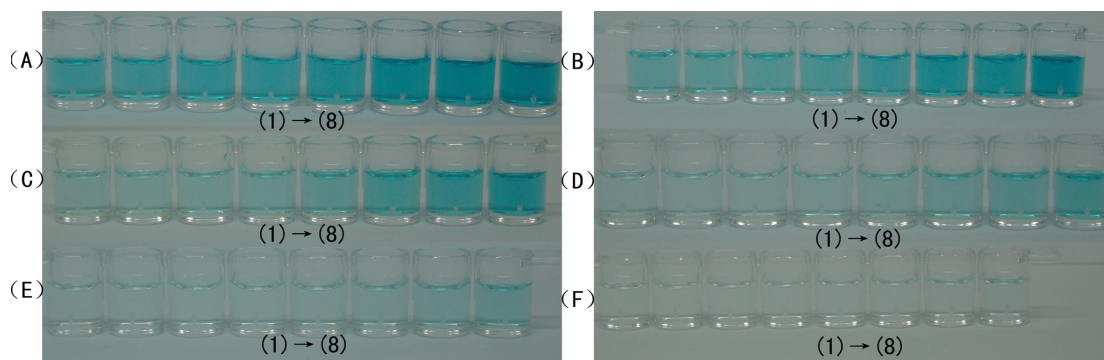


Fig. S3 Photographs of the TMB- H_2O_2 reaction mixture catalyzed by hemin-PS5.M DNAzyme in the presence of different concentrations of H_2O_2 . Conditions: (1) blank, (2) 250 nM K^+ , (3) 1.25 μM K^+ , (4) 2.5 μM K^+ , (5) 5 μM K^+ , (6) 12.5 μM K^+ , (7) 25 μM K^+ , (8) 50 μM K^+ ; (A) 7.94 mM H_2O_2 , (B) 3.97 mM H_2O_2 , (C) 1.59 mM H_2O_2 , (D) 794 μM H_2O_2 , (E) 397 μM H_2O_2 , (F) 79.4 μM H_2O_2 ; TMB, 266 μM in Tris-MES buffer (25 mM MES, pH = 5.10); hemin, 500 nM; DNA, 500 nM.