

Supplementary Material

A rapid fluorescence detecting platform: applicable to sense carnitine and chloramphenicol in food samples

Ming-Hui Wang¹, Jiun-An Gu¹, Veerappan Mani¹, Yung-Chao Wu², Yu-Jen Lin¹, Yu-Ming Chia¹, Sheng-Tung Huang^{1,2*}

¹Institute of Chemical Engineering, National Taipei University of Technology, Taipei 10608, Taiwan (R.O.C.)

²Institute of Biochemical and Biomedical Engineering, National Taipei University of Technology, Taipei 10608, Taiwan (R.O.C.)

*Corresponding author. Tel.: +886 2771-2171 2525, *E-mail: ws75624@ntut.edu.tw

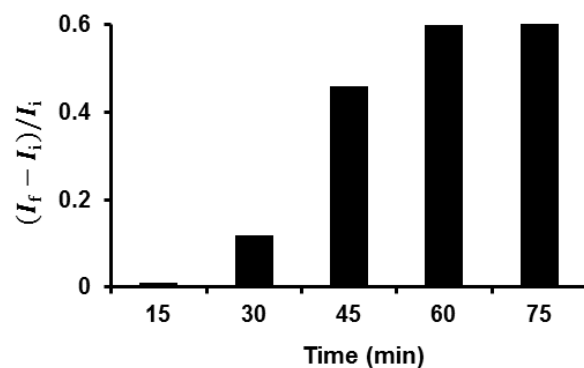


Fig. S1 Optimization of incubation time: $(I_f - I_i)/I_i$ vs. time (s). The experiments were carried out in 10% [v/v] DMSO in phosphate buffer (pH 7.8) containing 5 μ M BCC and 5 μ M CoA.

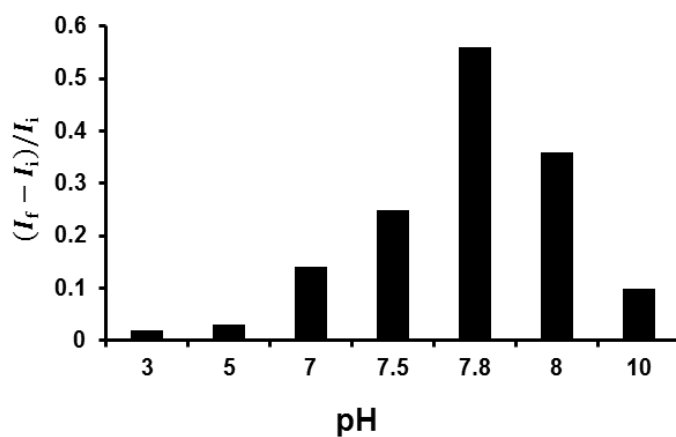


Fig. S2. pH Optimization plot: $(I_f - I_i)/I_i$ versus pH. The experiments were carried out in 10% [v/v] DMSO in phosphate buffer containing 5 μ M BCC and 5 μ M CoA.

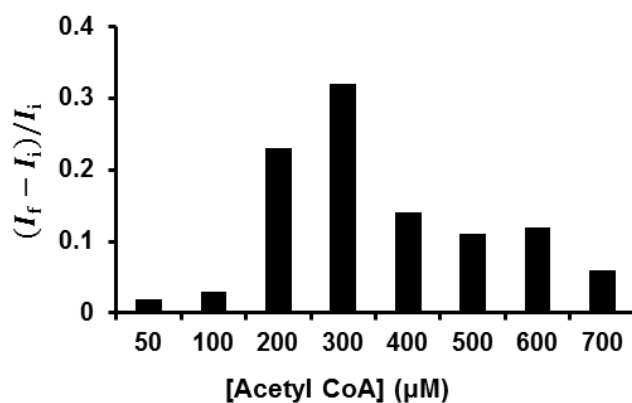


Fig. S3. Concentration of acetyl CoA optimization plot: $(I_f - I_i)/I_i$ vs. [acetyl CoA] (μM). The experiments were carried out in 10% [v/v] DMSO, phosphate buffer solution (pH 7.8) containing 5 μM BCC, enzyme (0.1 unit of CrAT or 1 unit of CAT) and 5 μM of substrate (carnitine or chloramphenicol).

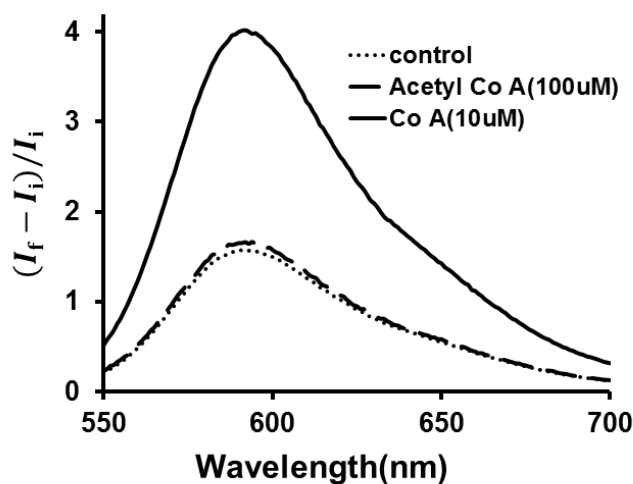


Fig. S4. Fluorescence spectra changes ($\lambda_{\text{ex}} = 500 \text{ nm}$, $\lambda_{\text{em}} = 595 \text{ nm}$) of BCC (5 μM) with CoA (10 μM), acetyl Co A and control sample. The experiments were carried out in 10% DMSO PBS (pH 7.8) (v/v).

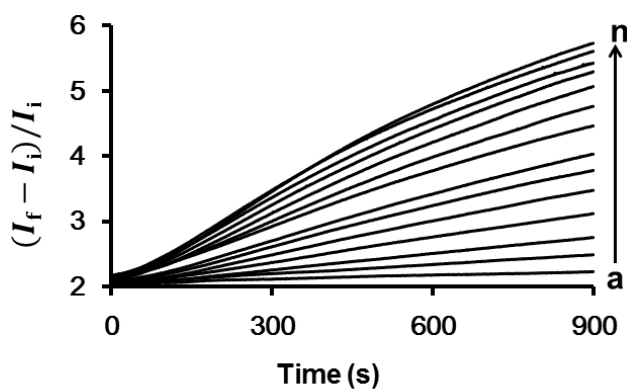


Fig. S5. Kinetic plots for carnitine: $(I_f - I_i)/I_i$ vs. time (0 – 600 μM ; a=0, b=10, c=20, d=40, e= 60, f=80, g= 100, h=150, i= 200, j= 250, k= 300, l= 400, m= 500, n= 600 μM). The experiments were carried out in 10% DMSO PBS (pH 7.8) (v/v) containing 300 μM of acetyl CoA and 1 unit of CAT.

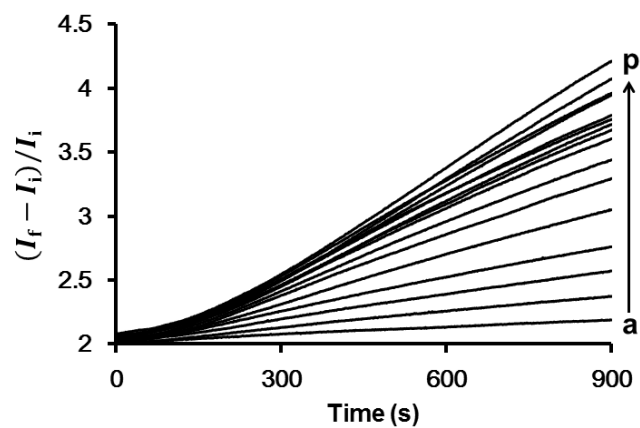


Fig. S6. Kinetic plots for chloramphenicol: $(I_f - I_i)/I_i$ vs. time (0 – 100 μM ; a= 0, b= 5, c= 10, d= 20, e= 30, f= 35, g= 40, h= 45, i= 50, j= 55, k= 60, l= 65, m= 70, n= 80, o= 90, p= 100 μM). The experiments were carried out in 10% DMSO PBS (pH 7.8) (v/v) containing 300 μM of acetyl CoA and 0.1 unit of CrAT.