

## Electronic Supplementary Information (ESI)

### **A convenient label free colorimetric assay for pyrophosphatase activity based on pyrophosphate-inhibited $\text{Cu}^{2+}$ -ABTS- $\text{H}_2\text{O}_2$ reaction**

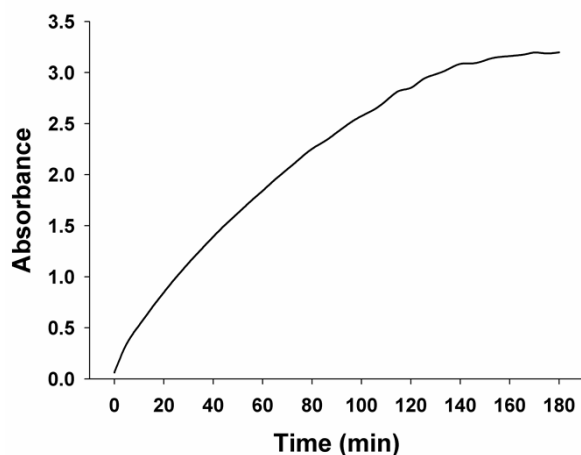
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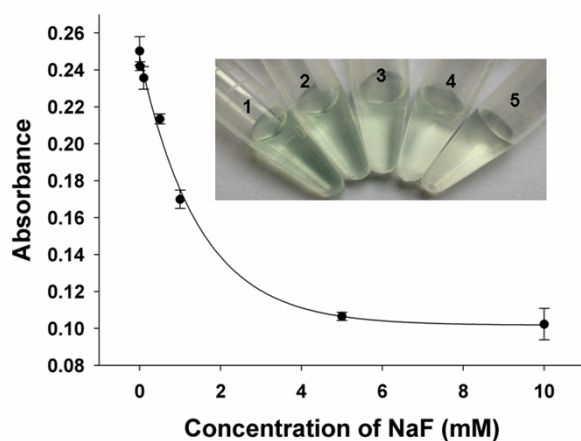
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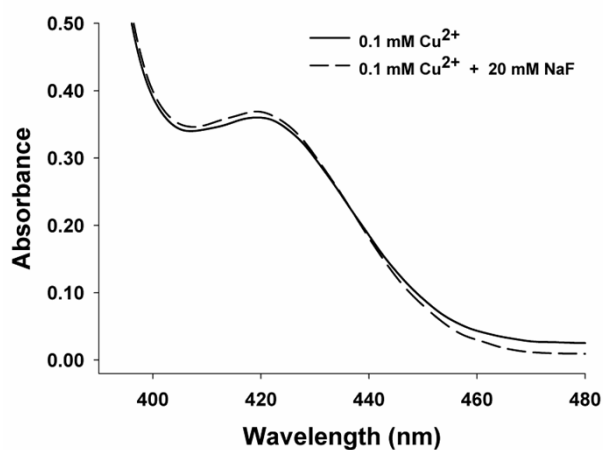
## 1. Supplementary Figures



**Fig. S1** Real-time curve of absorbance at 418 nm after the addition of  $\text{Cu}^{2+}$  into ABTS/ $\text{H}_2\text{O}_2$  mixture. The concentrations of  $\text{H}_2\text{O}_2$ , ABTS and  $\text{Cu}^{2+}$  were 2 mM, 2 mM and 100  $\mu\text{M}$ , respectively.



**Fig. S2** The inhibition effect of NaF on PPase activity. Inset: photographs of color changes in the presence of NaF with various concentrations. From 1 to 5, the NaF concentrations were 100  $\mu\text{M}$ , 500  $\mu\text{M}$ , 1 mM, 5 mM and 10 mM, respectively. The concentration of PPase was 0.15 U/mL. Error bars were estimated from three replicate measurements.



**Fig. S3** The effect of NaF on Cu<sup>2+</sup>-catalyzed ABTS-H<sub>2</sub>O<sub>2</sub> reaction.

## 2. Supplementary Table

**Table S1** Recovery experiments of PPase in serum samples

Samples	Added PPase (U/mL)	Detected PPase <sup>a</sup> (U/mL)	Recovery (%)
1	0.000	<0.03	-
2	0.200	0.196 ± 0.008	98.0
3	0.250	0.242 ± 0.006	96.8
4	0.350	0.347 ± 0.011	99.1
5	0.400	0.419 ± 0.022	104.8

<sup>a</sup> Average of three determinations ± standard deviation.