# **Supporting Information**

#### Investigating the Modulatory Effects of Pu-erh Tea on Gut Microbiota in Ameliorating

#### Hyperuricemia Induced by Circadian Rhythm Disruption

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Fig S1. The alpha diversity of gut microbes in each group mice.

Fig S2. The heatmap and evolutionary analysis of gut microbes in genus-level.

#### **Supporting Figure 1**



Figure S1. The alpha diversity of gut microbes in each group mice.

(A) The Shannon index of gut microbes in mice before CRD treatment. (B) The Simpson index of gut microbes in mice before CRD treatment. (C) The Shannon index of gut microbes in mice after CRD treatment. (D) The Simpson index of gut microbes in mice after CRD treatment. Data presented as mean  $\pm$  SEM. \* 0.01 <  $p \le 0.05$ , \*\* 0.001 <  $p \le 0.01$ , \*\*\*  $p \le 0.001$ .



Figure S2. The heatmap and evolutionary analysis of gut microbes in genus level.

(A) The heatmap of gut microbes in genus level before CRD treatment. (B) The heatmap of gut microbes in genus level after CRD treatment. (C) The evolutionary analysis of gut microbes in genus level before CRD treatment (D) The evolutionary analysis of gut microbes in genus level after CRD treatment. Data presented as mean  $\pm$  SEM. \* 0.01 <  $p \le 0.05$ , \*\* 0.001 <  $p \le 0.01$ , \*\*\*  $p \le 0.001$ .

### **Supporting Figure 3**



Figure S3. The comparison of uric acid and related key enzymes between CRD and CRD+ABx mice. (A) The UA level in serum. (B)The xanthine level in serum. (C) The XOD in serum (D) The ADA in serum. N=5 per group. Data presented as mean  $\pm$  SEM. \* 0.01 <  $p \le 0.05$ , \*\* 0.001 <  $p \le$ 

 $0.01, *** p \le 0.001.$ 

## **Supporting Figure 4**



Figure S4. The inhibition of XOD activity experiments of Pu-erh tea at all stages of digestion.