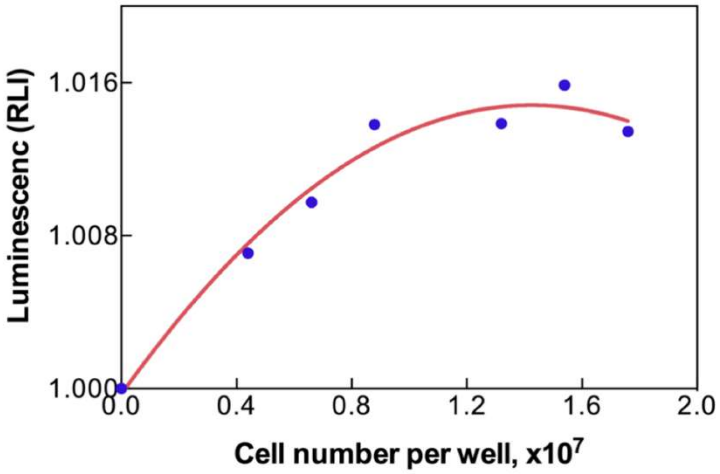

Figure S1. Optimization of bacteria cell density for LCS detection. Luminescence from different concentrations of bacteria, ranging from 8×10^8 to 3.2×10^9 CFU/mL (4.4×10^6 to 1.76×10^7 cells per well), stimulated with 16 ng/mL of CIP for 180 min.

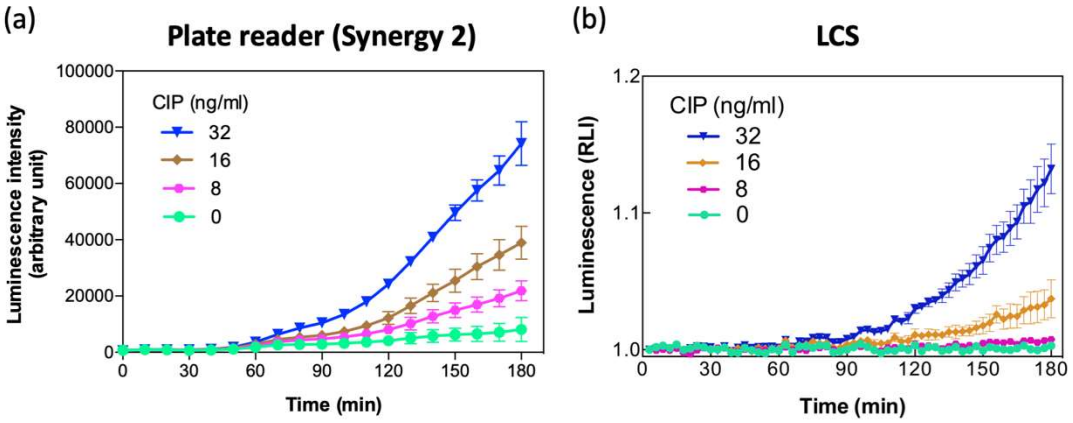

Figure S2. Luminescence of immobilized bacteria (1.32 x 10^7 cells per well of 96-well plate) stimulated with 0, 8, 16, or 32 ng/mL of CIP in LB was determined by commercially plate reader Synergy 2 (**a**) or the LCS system (**b**).

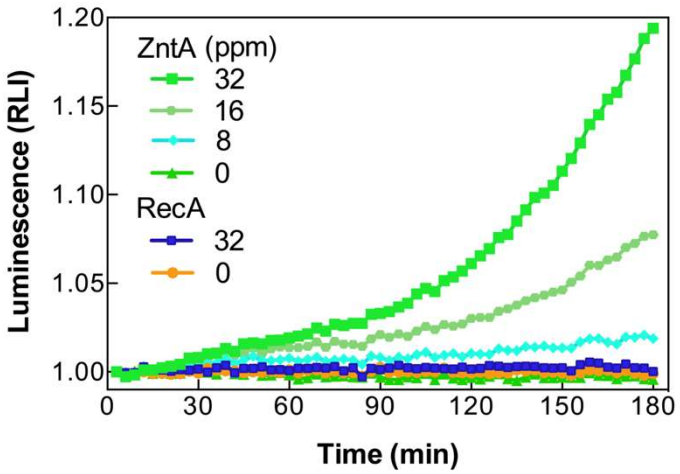

Figure S3. Time-lapse luminescence of immobilized bacteria (1.32×10^7 cells per well) stimulated with 0, 8, 16, 32 ppm of cadmium chloride. ZntA: bacteria harboring *ZntA promoter::luxCDABE*; RecA: bacteria harboring *RecA promoter::luxCDABE*.

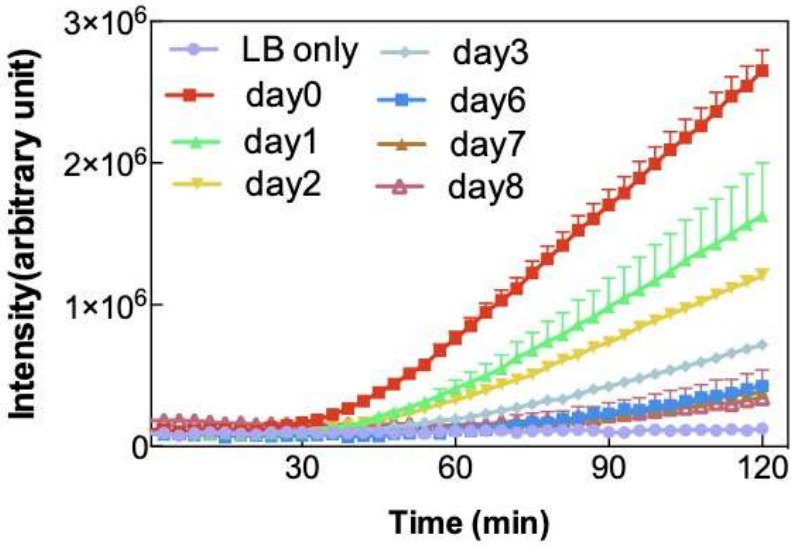

Figure S4. Time-lapse luminescence of immobilized bacteria in chip stored at 4 °C for the designated time. The test has been carried out in our previous LumiSense system.