Nano-lantern on paper for smartphone-based ATP detection

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Supplementary Materials

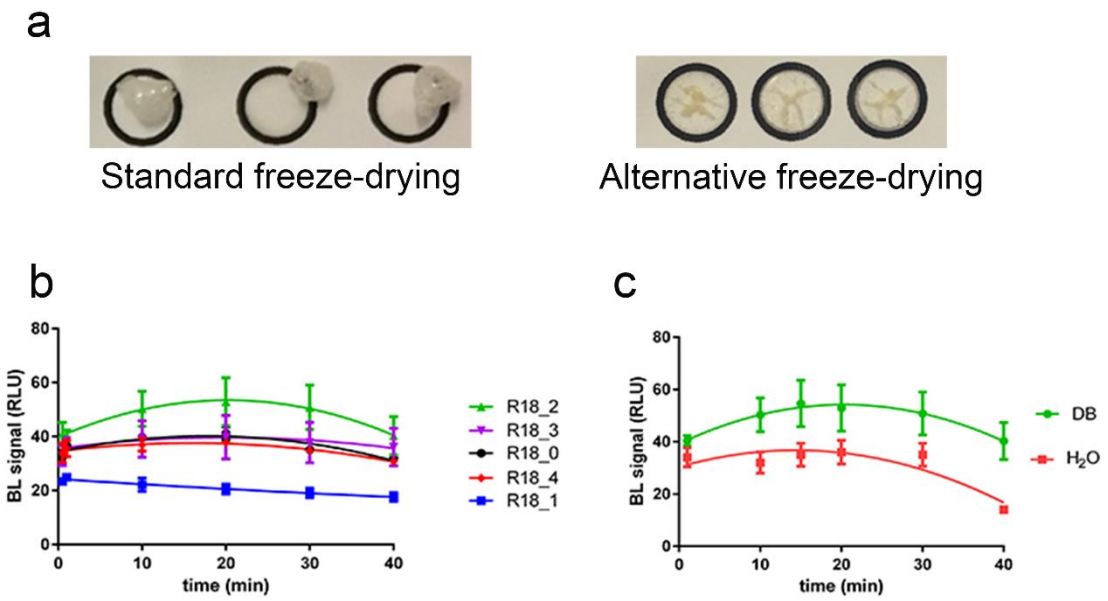

Fig. S1: (a) Pictures of the lyophilized luciferase reagents on paper at the end of the standard freeze-drying procedure (left) and with alternative freeze-drying procedure (right) after overnight storage at -20°C. (b) Kinetic measurements of ATP sensing papers achieved lyophilizing LR on paper with different volumes of cryoprotectant R18 medium (0,1,2,3 and 4 µL). BL acquisitions are obtained with Samsung Galaxy S7 (10 sec at ISO 800) after the reconstitution of LR with 8 µL DB and the addition of 2 µL ATP solution 1.65 mM. (c) Kinetic measurements obtained after the reconstitution of ATP sensing paper with 8 µl of DB or sterilized bi-distilled water and the addition of 2 µL ATP solution 1.65 mM. BL images are acquired with Samsung Galaxy S7 (10s at ISO 800) and elaborated with Image J Software.

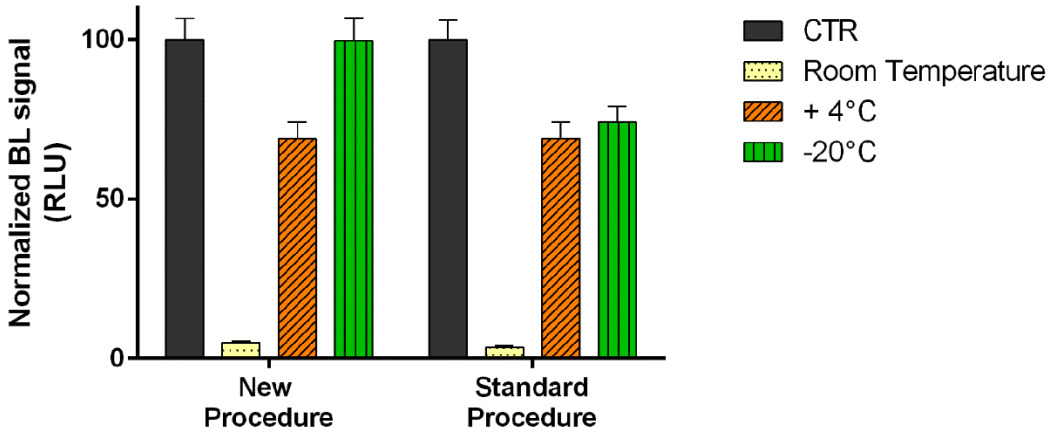

Fig. S2: Evaluation of ATP-sensing papers stability obtained with alternative procedure (AP) and standard procedure (SP) and stored at room temperature, +4°C and -20°C. After 48 h, ATP sensing papers are reconstituted with 8 µL of DB and incubated for about 10 min with 2 µL of ATP solution 1.65 mM. BL intensities are acquired with Samsung Galaxy S7 (10 s at ISO 800) and analyzed with ImageJ software.

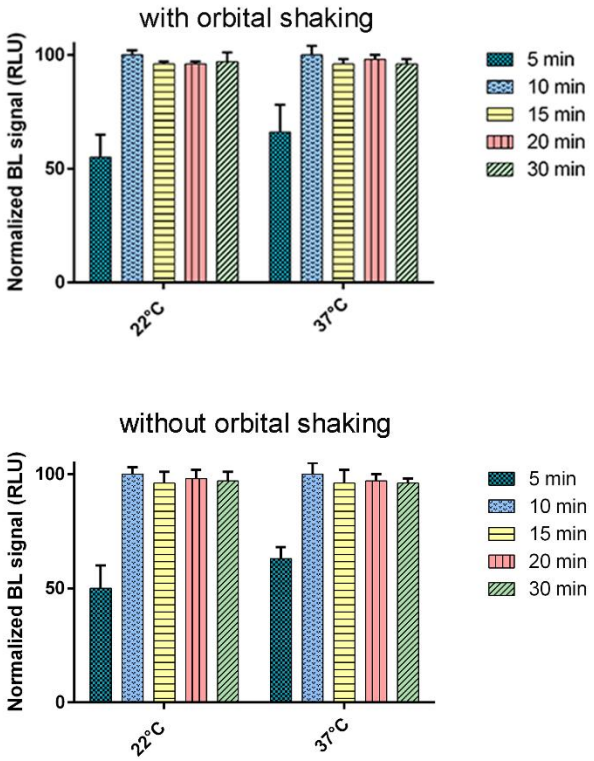

Fig. S3: Evaluation of ATP content of a spiked urine sample containing 10^5 CFU/mL E. Coli with ATP sensing paper after lysing bacteria with Bper lysis buffer using different incubation time (5, 10, 15, 20 and 30 min) and different temperatures (22°C and 37°C) and with or without orbital shaking. BL signals were measured with Varioskan Flash multimode reader.