Supporting Information

Wan *et al.* 10.1073/pnas.0805779105

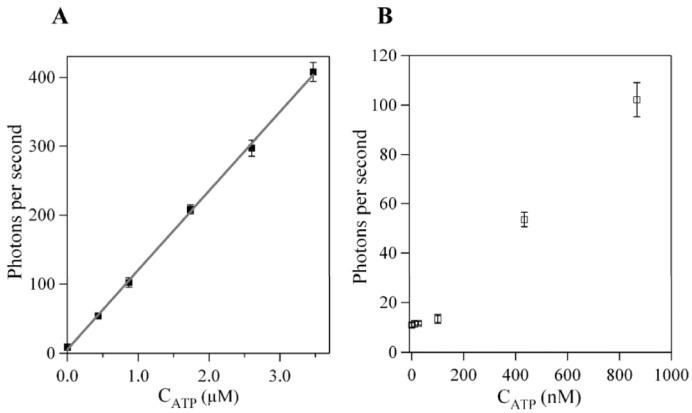

Fig. S1. Calibration curve of photons per second as a function of ATP concentration in microfluidic channels. (*A*) The gray line is the fitting curve with $r^2 = 0.99$. (*B*) The detection limit of ATP in our setup is ≈100 nM. The width and height of the channel are 100 μm and 38 μm, respectively.

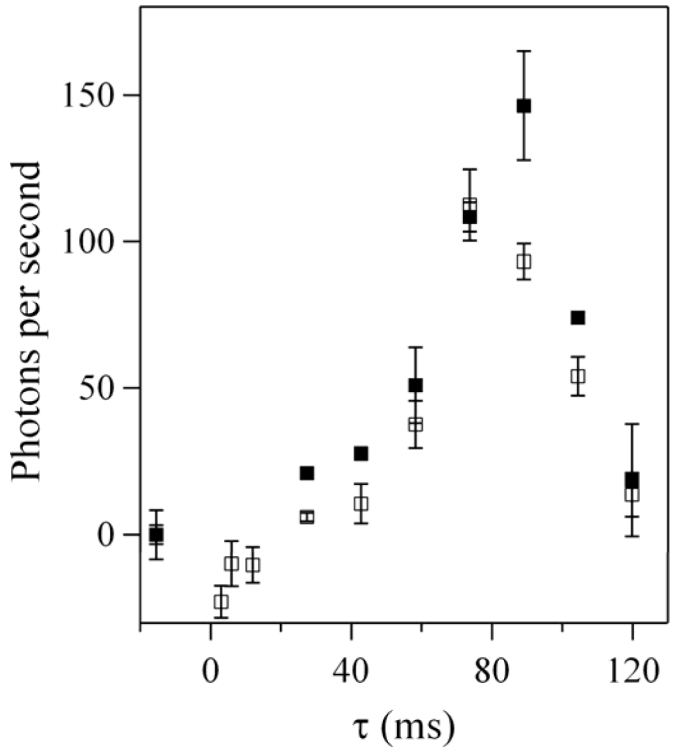

Fig. S2. The effect of luciferase concentration (□, 4 μM; ■, 0.2 μM) on detection of ATP release from RBCs in a channel with $w_c = 20$ μm and $\ell_c = 800$ μm. $x = 0$ is defined as the location where the constriction channel begins. All of the data were obtained by taking the measured photon rate and subtracting the intensity upstream of the constriction channel. The light intensity inside the constriction channel (times $\tau = 3$–12 ms) was smaller than the intensity outside the constriction channel because of the smaller area for light collection.

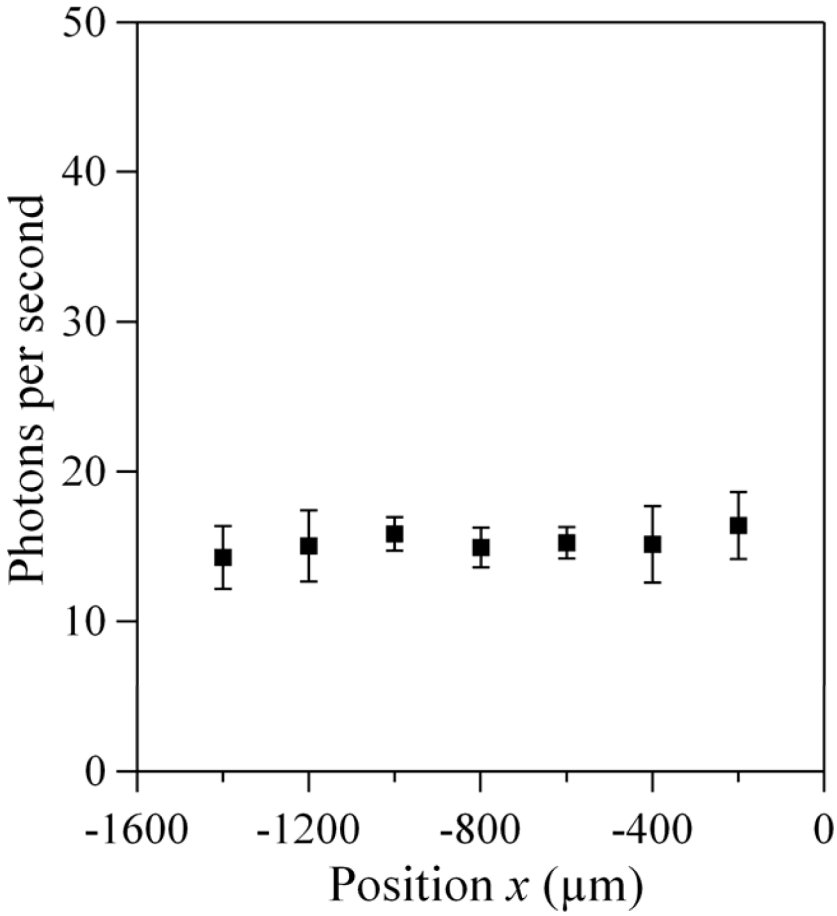

Fig. S3. The variation of photons per second as a function of position x before the RBCs pass constriction; $w_c = 20$ μm and $\ell_c = 800$ μm.

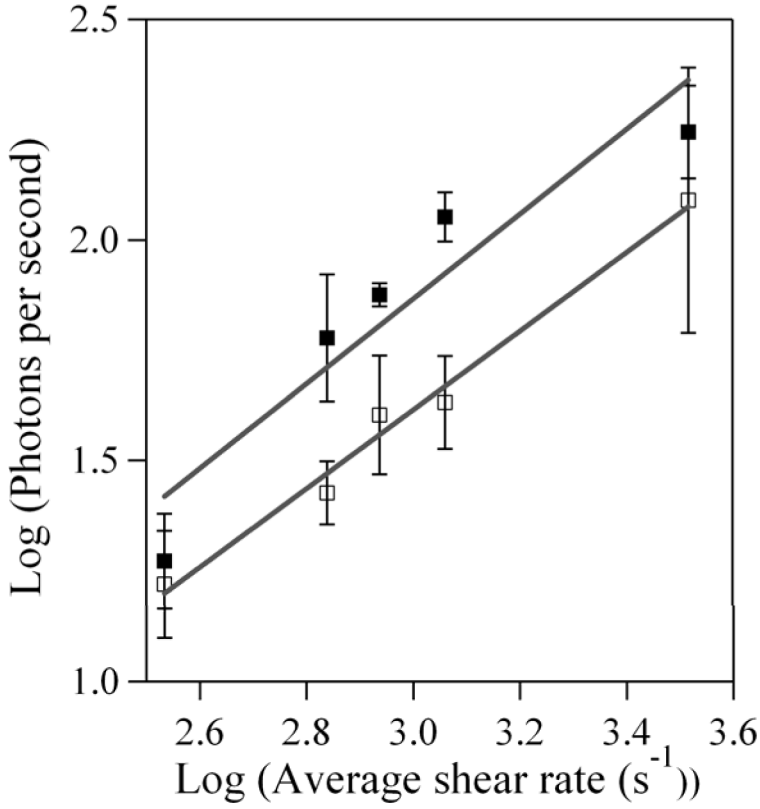

Fig. S4. Data from Fig. 3*D* replotted versus the average shear rate in the constriction. Note the logarithmic scale. ■, normal RBCs; □, diamide-treated RBCs.