Purinergic Signalling

Purinergic control of lysenin's transport and voltage-gating properties

Sheenah Bryant[1,2], Nisha Shrestha[1,2], Paul Carnig[1], Samuel Kosydar[1], Philip Belzeski[1], Charles Hanna[1,2], Daniel Fologea[1,2,*]

[1]Department of Physics, Boise State University, Boise, ID 83725, United States
[2]Biomolecular Sciences PhD Program, Boise State University, Boise, ID 83725, United States

Corresponding Author
*Email: DanielFologea@boisestate.edu, Phone: +1 208 426 2664, Fax: +1 208 426 4330

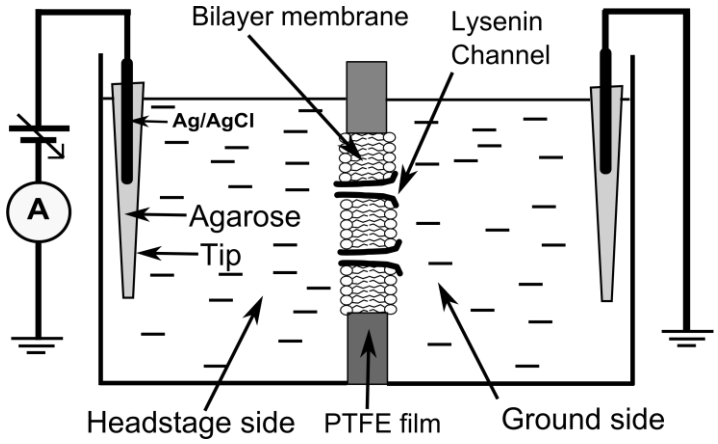

Fig. 1 The experimental setup consisted of a custom-made planar bilayer lipid membrane chamber, which was comprised of two PTFE reservoirs, each capable of accommodating ~1 mL electrolyte solution. The two reservoirs were separated by a thin PTFE film (~120 µm thickness) in which a small central hole of ~60 µm diameter was produced by an electric spark. The agarose/Ag/AgCl electrodes immersed into the electrolyte solutions were connected through flexible wires to the electrophysiology amplifier

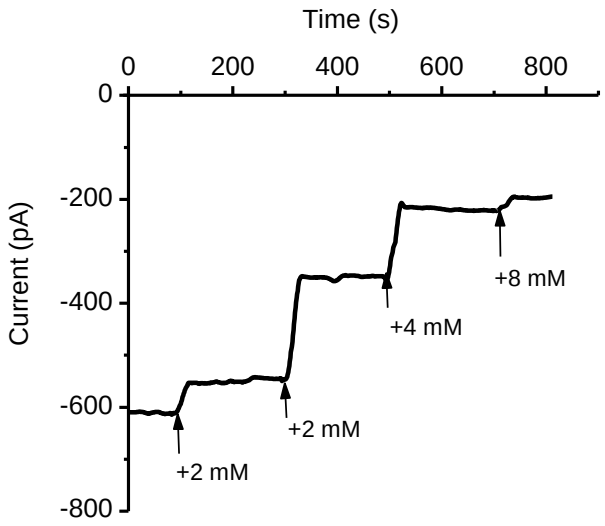

Fig. 2 ATP inhibits the macroscopic currents through lysenin channels inserted into planar lipid membranes irrespective of the addition side. Addition of ATP to the headstage-wired solution yielded a significant decrease of the ionic currents in a concentration-dependent manner, similar to what was observed after ATP addition to the ground side (see the main text). The experiment was recorded at -60 mV transmembrane potential at a sampling rate of 1s, with a 1 kHz hardware filter and a 0.1 kHz software filter. Each ATP addition (indicated by arrows) increased the ATP concentration by the amount indicated in the figure