

Description of Additional Supplementary Files

File name: Supplementary Movie 1.

Description: **A single potassium permeation event.** Trajectory of a permeating K⁺ ion during 24 ns simulation under -500 mV voltage. The backbone of the Piezo1 cap and pore domain is shown in orange. The DEED residues are shown in licorice with the atom color code (red oxygen, blue nitrogen, cyan carbon).

File name: **Supplementary Data 1.**

Description: Source data for Figure 2-6 and Supporting tables in Excel format. Source data in Figure 1 is provided in the python code.