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General Physiology is the study of biological mechanisms through analytical investigations, which decipher the molecular and cellular mechanisms underlying biological function at all levels of organization.

The mission of *The Journal of General Physiology* is to publish articles that elucidate important biological, chemical, or physical mechanisms of broad physiological significance.

Research Articles

- 437 Two distinct voltage-sensing domains control voltage sensitivity and kinetics of current activation in $Ca_v1.1$ calcium channels. Petronel Tuluc, Bruno Benedetti, Pierre Coste de Bagneaux, Manfred Grabner, and Bernhard E. Flucher
- 451 The exceptionally high reactivity of Cys 621 is critical for electrophilic activation of the sensory nerve ion channel TRPA1. Parmvir K. Bahia, Thomas A. Parks, Katherine R. Stanford, David A. Mitchell, Sameer Varma, Stanley M. Stevens Jr., and Thomas E. Taylor-Clark
- 467 TRPM7 is a molecular substrate of ATP-evoked P2X7-like currents in tumor cells. Wolfgang Nörenberg, Tanja Plötz, Helga Sobottka, Vladimir Chubanov, Lorenz Mittermeier, Hermann Kalwa, Achim Aigner, and Michael Schaefer

Methods and Approaches

- 485 Electrophysiological characterization of the archaeal transporter NCX_Mj using solid supported membrane technology. Maria Barthmes, Jun Liao, Youxing Jiang, Andrea Brüggemann, and Christian Wahl-Schott

Communication

- 497 Polymodal activation of the TREK-2 K2P channel produces structurally distinct open states. Conor McClenaghan, Marcus Schewe, Prafulla Aryal, Elisabeth P. Carpenter, Thomas Baukowitz, and Stephen J. Tucker

Cover picture: Giant unilamellar liposomes (~1–30 μm) are generated by application of an alternating voltage to a solvent-free lipid film, a process called electroformation. These vesicles were used for reconstitution and direct electrophysiological characterization of a prokaryotic sodium–calcium exchanger with an approach utilizing solid supported membranes (see Methods and Approaches by Barthmes et al., 485–496).