

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.

EDITORIALS

- 1 The legacy of Olaf Sparre Andersen and future directions of the *Journal of General Physiology*. Edward N. Pugh Jr.

COMMENTARIES

- 5 PIP₂ PIP₂ hooray for maxi K⁺. Ann R. Rittenhouse
9 Fusion gains independence. Manfred Lindau

ARTICLES

- 13 Direct regulation of BK channels by phosphatidylinositol 4,5-bisphosphate as a novel signaling pathway. Thirumalini Vaithianathan, Anna Bukiya, Jianxi Liu, Penchong Liu, Maria Asuncion-Chin, Zheng Fan, and Alejandro Dopico
29 Massive Ca-induced membrane fusion and phospholipid changes triggered by reverse Na/Ca exchange in BHK fibroblasts. Alp Yaradanakul, Tzu-Ming Wang, Vincenzo Lariccia, Mei-Jung Lin, Chengcheng Shen, Xinran Liu, and Donald W. Hilgemann
51 Ca-dependent nonsecretory vesicle fusion in a secretory cell. Tzu-Ming Wang and Donald W. Hilgemann
67 Mechanosensitive channel MscS in the open state: modeling of the transition, explicit simulations, and experimental measurements of conductance. Andriy Anishkin, Kishore Kamaraju, and Sergei Sukharev
85 Amino acid substitutions in the pore helix of GluR6 control inhibition by membrane fatty acids. Timothy J. Wilding, Elisabeth Fulling, Yun Zhou, and James E. Huettner
101 Differential interactions of Na⁺ channel toxins with T-type Ca²⁺ channels. Hui Sun, Diego Varela, Denis Chartier, Peter C. Ruben, Stanley Nattel, Gerald W. Zamponi, and Normand Leblanc
115 Species-specific differences among KCNMB3 BK β3 auxiliary subunits: some β3 N-terminal variants may be primate-specific subunits. Xuhui Zeng, Xiao-Ming Xia, and Christopher J. Lingle
131 How ATP inhibits the open K_{ATP} channel. Tim J. Craig, Frances M. Ashcroft, and Peter Proks
145 A close association of RyRs with highly dense clusters of Ca²⁺-activated Cl⁻ channels underlies the activation of STICs by Ca²⁺ sparks in mouse airway smooth muscle. Rongfeng Bao, Lawrence M. Lifshitz, Richard A. Tuft, Karl Bellvé, Kevin E. Fogarty, and Ronghua ZhuGe
161 HCO₃⁻ secretion by murine nasal submucosal gland serous acinar cells during Ca²⁺-stimulated fluid secretion. Robert J. Lee, Janice M. Harlow, Maria P. Limberis, James M. Wilson, and J. Kevin Foskett
185 Intracellular proton regulation of CIC-0. Giovanni Zifarelli, Anna Rosa Murgia, Paolo Soliani, and Michael Pusch
1a Abstracts of papers at the Sixty-Second Annual Meeting of the Society of General Physiologists
29a Index to authors of abstracts

Cover picture: The transmembrane domain of the bacterial mechanosensitive channel MscS in MD-equilibrated closed (left panel) and open (center) states. In the closed state, the gate (yellow) is dehydrated; in the open state, which is 10 Å wider, the pore is hydrated and conductive. The hydration energy profiles are shown on the right (see article by Anishkin et al., 67–83).