

EDITORIAL

- 169 **Looking in the rear-view mirror as we anticipate another 100 years**
Sharona E. Gordon

RESEARCH NEWS

- 175 **Up all night: BK channels' circadian dance with different calcium sources**
Caitlin Sedwick

ESSAY

- 177 **Influences: Growing up in Yale Physiology**
Richard W. Aldrich

COMMENTARIES

- 181 **Taking deterministic control of membrane protein monomer-dimer measurements**
Karen G. Fleming
- 185 **A role for P2X₄ receptors in lysosome function**
Ruth D. Murrell-Lagnado

MILESTONES IN PHYSIOLOGY

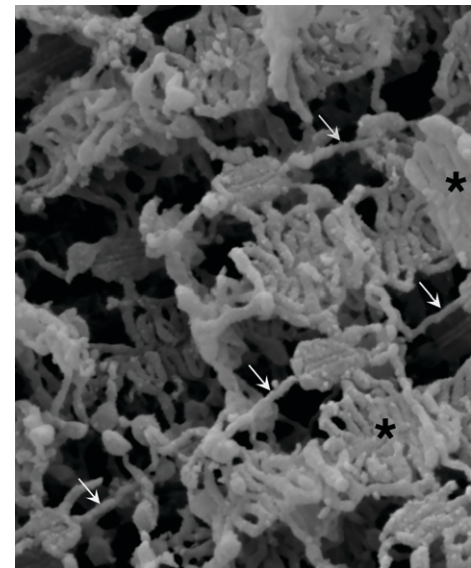
- 189 **The relationship between form and function throughout the history of excitation-contraction coupling**
Clara Franzini-Armstrong
- 211 **Lipid signaling to membrane proteins: From second messengers to membrane domains and adapter-free endocytosis**
Donald W. Hilgemann, Gucan Dai, Anthony Collins, Vincenzo Larricia, Simona Magi, Christine Deisl, and Michael Fine

REVIEW

- 225 **Structural insights into the mechanisms of CNBD channel function**
Zachary M. James and William N. Zagotta

RESEARCH ARTICLES

- 245 **Molecular determinants of pH regulation in the cardiac Na⁺-Ca²⁺ exchanger**
Scott John, Brian Kim, Riccardo Olcese, Joshua I. Goldhaber, and Michela Ottolia
- 259 **Differential contribution of Ca²⁺ sources to day and night BK current activation in the circadian clock**
Joshua P. Whitt, Beth A. McNally, and Andrea L. Meredith
- 277 **ATP is stored in lamellar bodies to activate vesicular P2X₄ in an autocrine fashion upon exocytosis**
Giorgio Fois, Veronika Eva Winkelmann, Lara Bareis, Laura Staudenmaier, Elena Hecht, Charlotte Ziller, Konstantin Ehinger, Jürgen Schymeinsky, Christine Kranz, and Manfred Frick
- 293 **Junctional trafficking and restoration of retrograde signaling by the cytoplasmic RyR1 domain**
Alexander Polster, Stefano Perni, Dilyana Filipova, Ong Moua, Joshua D. Ohrtman, Hicham Bichraoui, Kurt G. Beam, and Symeon Papadopoulos



ON THE COVER

Sarcoplasmic reticulum and transverse tubules imaged by scanning electron microscopy after extraction of myofibrils. In this slow type fiber, T tubules (arrows) are continuous, but junctional SR cisternae at triads (SR/T/ SR) are segmented. Between triads, the SR forms extensive fenestrated collars (asterisks). Notice the abundance of SR membranes relative to those of T tubules. Image © 2018 Lav-orato. See page 189.

- 307 **Nonsensing residues in S3–S4 linker’s C terminus affect the voltage sensor set point in K⁺ channels**

Joao L. Carvalho-de-Souza and Francisco Bezanilla

- 323 **Estimating kinetic mechanisms with prior knowledge I: Linear parameter constraints**

Autoosa Salari, Marco A. Navarro, Mirela Milescu, and Lorin S. Milescu

- 339 **Estimating kinetic mechanisms with prior knowledge II: Behavioral constraints and numerical tests**

Marco A. Navarro, Autoosa Salari, Mirela Milescu, and Lorin S. Milescu

COMMUNICATION

- 355 **A model-free method for measuring dimerization free energies of CLC-ec1 in lipid bilayers**

Rahul Chadda, Lucy Cliff, Marley Brimberry, and Janice L. Robertson

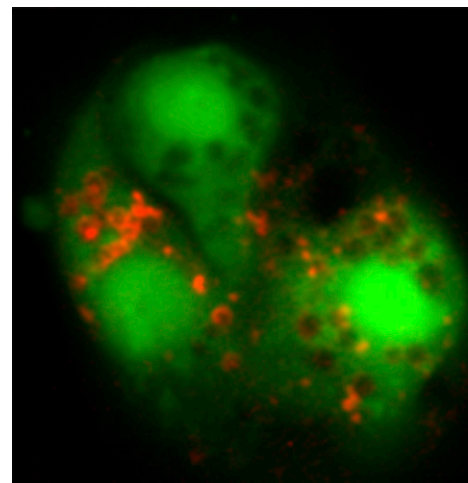
CORRECTIONS

- 367 **Correction: Lipid signaling to membrane proteins: From second messengers to membrane domains and adapter-free endocytosis**

Donald W. Hilgemann, Gucan Dai, Anthony Collins, Vincenzo Lariccia, Simona Magi, Christine Deisl, and Michael Fine

- 369 **Correction: The relationship between form and function throughout the history of excitation–contraction coupling**

Clara Franzini-Armstrong



ATP within lamellar bodies facilitates secretion. See page 277.