Pulmonary Surfactant Pathophysiology: Current Models and Open Questions
Jesus Perez-Gil and Timothy E. Weaver
This review summarizes our current understanding of and highlights important knowledge gaps in surfactant homeostatic mechanisms.

Exploring Transmembrane Diffusion Pathways With Molecular Dynamics
Yi Wang, Saheer A. Shaikh, and Emad Tajekhorshid
This review discusses some of the recent simulation studies investigating the role of lipid- and protein-mediated mechanisms in permeation of water and gas molecules across the membrane.

Physiological Roles of the TRPM4 Channel Extracted from Background Currents
Romain Guinamard, Marie Demion, and Pierre Launay
The calcium-activated nonselective cationic channel TRPM4 modulates immune response, insulin secretion, artery constriction, respiratory rhythm, and cardiac conduction.

Calcium Signaling Through CatSper Channels in Mammalian Fertilization
Dejian Ren and Jingsheng Xia
This article reviews the function of a sperm-specific ion channel, CatSper.

PPAR Modulation of Kinase-Linked Receptor Signaling in Physiology and Disease
Nicolas Rotman and Walter Wahli
This review discusses mapping out connections between PPARs and kinase-linked receptor signaling, which is central to better understand physiological and pathophysiological processes and to better define therapeutic strategies.

The Giant Protein Titin as an Integrator of Myocyte Signaling Pathways
Wolfgang A. Linke and Martina Krüger
Emerging evidence suggests the giant protein titin is an integrator of multiple signaling pathways in myocytes.