

Special Issue

Membrane Channels in Health and Diseases

Message from the Guest Editors

Ion channels are integral membrane proteins that play essential physiological roles. These specialized membrane proteins are responsible for the ions fluxes across the plasma membrane of all mammalian cells. Channels form functional oligomeric complexes by association with ancillary proteins, contributing to the cellular homeostasis and maintenance of health.

Numerous cellular events control and are controlled by channel gating and kinetics. Membrane channels, with different ion selectivity, regulate membrane potential and excitability, shape the action potential, and elicit muscle contraction, among other cellular processes. Due to their contribution to the pathophysiology of various human diseases, these proteins are targets of many drugs, from antiepileptics to analgesics.

Therefore, ion channel dysfunction at the onset of several human ailments are known as channelopathies, which include autoimmune, metabolic, neural, and cardiovascular diseases. The responsible abnormal behavior can be triggered by an altered function, impaired cell biology, genetic alterations, or drug-acquired response, among other events.

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