Special Issue

Connexins, Pannexins, and Homologous Channel-Forming Proteins

Message from the Guest Editors

Intercellular communication plays essential roles in several physiological and pathological processes. One of the most important mechanisms for intercellular communication in mammalian cells is the one mediated by Connexin or Pannexins. Those proteins constitute families of transmembrane proteins, which form gap junction channels and/or hemichannels, which communicate the cytoplasm of contacting cells or allow the sharing of small molecules such as ATP and glutamate between the cytoplasm of contacting cells or between the intra the extracellular milieu, respectively. Under physiological conditions gap junctions coordinate metabolic and electrical cell responses, whereas hemichannels present low activity under resting conditions and present transient increases upon specific changes in the microenvironment. In contrast, under pathological conditions, the activity of gap junction is drastically diminished and that of hemichannels is augmented. Functional homologous channels have been found in insects (innexins) and unicellular organisms such as Trypanosoma cruzi (Unnexins).

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