Special Issue

Advances in Difficult Protein–Protein Interaction Determination

Message from the Guest Editors

The field of structural biology has recently seen tremendous advances in the identification and characterization of macromolecules, with breakthroughs in cryo-microscopy at the angstrom level and the high-fidelity, large-scale prediction of protein structures using deep-learning approaches, as demonstrated by AlphaFold2. With the COVID-19 pandemic outbreak, it became very obvious that for some proteins, even if it was possible to routinely detect and express them, it is still very challenging to resolve their atomic arrangement. Many proteins are membranous and require dimerization or even a higher order of organization. Although difficult to resolve experimentally, these proteins are essential to cell function, for mediating transient protein–protein interactions, triggering cell activation after cytokine stimulation, or determining cell fate via apoptosis activation. Many membrane proteins are also key targets for pharmaceutical purposes; for instance, half of the drugs approved by the FDA target a GPCR member. Although important scientific breakthroughs have recently been made, there is still a fundamental need for adding knowledge in protein interactions in membranous...

Guest Editors

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Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

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