Special Issue

Membranes: Where Chemistry and Physics Converge for Biology

Message from the Guest Editors

Biological membranes, specifically lipid bilayers, serve as hubs for cellular communication. The remarkable diversity in molecular composition, including phospholipids, cholesterol, sphingolipids, and integral membrane proteins, governs the physicochemical properties of these membranes, such as mechanical stiffness, spontaneous curvature, and electrostatic characteristics. Emerging studies are unraveling the crucial role of such mechanochemical features and the collective behavior of membranes in cellular functions. With the success of mRNA vaccines against COVID-19, drug delivery platforms such as liposomes, and particularly their membranes, are once again at the centre of global attention. Liposomes are effective carriers for mRNA in COVID-19 vaccines, but they lack tissue specificity, thereby resulting in off-target effects that harm healthy cells. Next-generation drug delivery particles should therefore be able to overcome these challenges. Significant attention is given to naturally derived membrane-based drug delivery particles and innovative biomimetic platforms with precisely controlled membrane mechanical properties and functionally engineered surfaces.

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Message from the Editor-in-Chief

You are cordially invited to contribute a research article or a comprehensive review for consideration and publication in *Membranes* (ISSN 2077-0375). *Membranes* is an international, peer-reviewed open accessjournal of membrane technology published monthly online by MDPI. The journal covers the broad aspects of the science and technology of both biological and non-biological membranes, including membrane dynamics and the preparation and characterization of membranes and their applications in water, environment, energy, and food industries. Articles contributing to better understanding of transport processes in all types of membranes are also welcome. The scientific community and the general public have unlimited and free access to the content as soon as it is published. We would be pleased to welcome you as one of our authors.

Editor-in-Chief

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