

Foreword

Synthetic ion channels

Ion channels allow the passive transport of ions through a phospholipid bilayer. The driving force for the channel transport can be a concentration gradient or an electric potential. Ion channels are key molecules for cellular regulation and communication. In nature, they couple biomolecular events to electric signals. The progress in the structural understanding of biological ion channels has been highlighted in 2003 by the Nobel Prize given to Roderick MacKinnon (K-channels) and Peter Agre (aquaporines).

A growing number of bioorganic chemists with a background in synthetic, peptide and supramolecular chemistry work in the area of synthetic ion channels. It was therefore a positive decision from the editors of *Bioorganic & Medicinal Chemistry* to support the idea of a Symposium-in-Print on this subject. Topics of interest

are ion-channel design, synthesis and purification, structural analysis, functional analysis, channel gating, charge/ion selectivity and membrane selectivity. Furthermore, the application of synthetic channels as molecular devices and sensors as well as the implantation of synthetic channels into cells for medicinal purposes are important. The following contributions summarize the state of the art on synthetic ion channels. I thank all the authors for their valuable contributions and Elsevier for their support of this Symposium-in-Print.

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