1. Record Nr. UNINA9910298454803321

Titolo	Electrophysiology of Unconventional Channels and Pores / / edited by Anne H. Delcour
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015
ISBN	3-319-20149-2
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (387 p.)
Collana	Springer Series in Biophysics, , 1868-2561 ; ; 18
Disciplina	612.813
Soggetti	Biological transport Cell membranes Proteins Biophysics Biology - Technique Membrane Trafficking Biological Techniques
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Part I Mitochondria -- Function and regulation of mitochondrial voltage-dependent anion channel -- Mitochondrial Protein Import Channels -- Electrophysiology of the mitochondrial apoptosis-induced channel, MAC -- Ceramide Channels -- Part II Bacteria and viruses -- Bacterial Porins -- Electrophysiology of Bacterial Translocons -- Viroporins -- Part III Toxins and antimicrobial peptides -- Pore-forming colicins- unusual ion channels -unusually regulated -- Anthrax Toxin Protective Antigen Forms an Unusual Channel that Unfolds and Translocates Proteins Across Membranes -- Staphylococcal b-barrel Pore-forming Toxins: Mushrooms That Breach the Greasy Barrier -- Properties of pores formed by cholesterol-dependent cytolysins and actinoporins -- Part IV Other unconventional channels -- Perforins -- Gap Junction Channels: The electrical conduit of the intercellular world -- Amyloid Peptide Channels -- From phototaxis to biomedical applications: Investigating the molecular mechanism of

channelrhodopsins.

Sommario/riassunto

This book is dedicated to the channels and pores that belong to an eclectic and ubiquitous class of unconventional - perhaps at times strange - pore-forming molecules, which nevertheless play fundamental roles in various organisms. These non-canonical channels may take on various and sometimes complex architectures, such as large beta-barrels or lipid-containing pores. They may originate from bacteria, viruses or intracellular organelles. For some of them, the physiologically relevant substrate may indeed be ions, and for others folded polypeptides. Some are released by cells in a soluble form that has the ability to insert into biological membranes to exert its permeabilizing effect. Many of these unconventional pores have been investigated by electrophysiology, which, by its virtue of focusing on a few or even a single unit, has provided invaluable insight into the mechanisms and structure-function relationships of these remarkable membrane entities. The chapters of this book highlight a representative set of these interesting investigations.