Advances in Experimental Medicine and Biology

Protein Reviews

Volume 1051

Subseries Editor

M. Zouhair Atassi

More information about this series at <http://www.springer.com/series/14330>

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Protein Reviews

Volume 19

Springer

Editor

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ISSN 0065-2598 ISSN 2214-8019 (electronic)
Advances in Experimental Medicine and Biology
ISSN 2520-1891 ISSN 2520-1905 (electronic)
Protein Reviews
ISBN 978-981-10-7610-7 ISBN 978-981-10-7611-4 (eBook)
<https://doi.org/10.1007/978-981-10-7611-4>

Library of Congress Control Number: 2017938742

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Printed on acid-free paper

This Springer imprint is published by Springer Nature

The registered company is Springer Nature Singapore Pte Ltd.

The registered company address is: 152 Beach Road, #21-01/04 Gateway East, Singapore 189721, Singapore

Preface

Protein Reviews is a book series, which has been published by Springer since 2005. It has published 18 printed volumes to date (to see previous volumes, please go to <http://www.springer.com/series/6876>). To speed up the publication process and enhance accessibility, all articles will appear online before they are published in a printed book. The book series appears as a subseries of *Advances in Experimental Medicine and Biology* (<http://www.springer.com/series/14330>). They are published in volumes, each of which will focus on a theme, or in volumes that contain reviews of an assortment of topics, in order to stay up-to-date and to publish timely reviews in an efficient manner.

The aim of the *Protein Reviews* is to serve as a publication vehicle for reviews that focus on crucial contemporary and vital aspects of protein structure, function, evolution, and genetics. Publications will be selected based on their importance to the understanding of biological systems, their relevance to the unraveling of issues associated with health and disease, or their impact on scientific or technological advances and developments. Proteins linked to diseases or to the appearance and progress of diseases will obviously provide essential topics that may be covered in this series. Moreover, proteins that are, or can be, used as potential biomarkers or as candidates for treatment and/or for the design of distinctive, new therapeutics will receive high attention in this book series.

The issues may include biochemistry, biophysics, immunology, structural and molecular biology, genetics, molecular and cellular mechanisms of action, clinical studies, and new pioneering therapies. A given volume may be focused on a particular theme or may contain a selected assortment of different current topics.

The authors of the articles are selected from leading basic or medical scientists in academic or industrial organizations. The invited authors are nominated by the editorial board or by experts in the scientific community. However, interested individuals may suggest a topic for review and/or may propose a person to review a current important topic. Colleagues interested in writing a review or in guest-editing a special thematic issue are encouraged to submit their proposals and list of authors of the suggested chapter/topics to the editor before submitting a manuscript.

It should be emphasized that *Protein Reviews* will publish within 6 weeks accepted review articles online before they appear in print. And there will be no page or color charges and no page or color image limitations.

Volume 19 focuses on purinergic receptors, also termed purinoceptors. They are [plasma membrane](#) proteins that are present in nearly all mammalian tissues. They participate in a number of cell functions that include [proliferation](#) and migration of [neural stem cells](#), vascular reactivity, [apoptosis](#), and [cytokine](#) secretion and have been associated with learning and memory, feeding conduct, movement, and sleep. They facilitate relaxation of smooth muscle of the gut in response to [adenosine](#) (P1 receptors) or ATP (P2 receptors). The latter has five subclasses: P2X, P2Y, P2Z, P2U, and P2T.

The chapters in this volume are authored by experts in the field. They deal with aspects of structure and biological activity of selected receptor proteins. The first chapter is an introduction to this special issue on purinergic receptors. Chapter 2 deals with ATP-gated P2X3 receptors as specialized sensors of the extracellular environment. Chapter 3 describes the P2X7 receptor, and Chap. 4 deals with the activation of P2X receptor. Chapter 5 deals with properties and functional activities of P2Y₁ receptors. This is followed by Chap. 6 that reviews P2Y₂ receptor functions in cancer: with a special perspective in the context of colorectal cancer. Chapter 7 discusses properties, distribution, and functions of P2Y₁₁ receptors. It is followed by Chap. 8 which discusses the structure, pharmacology, and roles in physiology of the P2Y₁₂ receptor. Chapter 9 presents an update on signaling and function of P2Y₁₃ receptor. It is followed by Chap. 10 on the pharmacological properties and biological functions of the GPR17 receptor and discusses it as a potential target for neuro-regenerative medicine. Chapter 11 handles the biochemical and pharmacological role of A₁ adenosine receptors and their modulation as novel therapeutic strategy, and, finally, Chap. 12 treats the molecular mechanism of plant recognition of extracellular ATP. The volume is intended for research scientists, clinicians, physicians, and graduate students in the fields of biochemistry, cell biology, molecular biology, immunology, and genetics.

I hope that this volume of *Protein Reviews* will continue to serve the scientific community as a valuable vehicle for dissemination of vital and essential contemporary discoveries on protein molecules and their immensely versatile biological activities.

M. Zouhair Atassi
Editor in Chief

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