

# BIOMOLECULAR CONCEPTS

**EXECUTIVE EDITOR-IN-CHIEF**

*Pierre Jolles, Paris, France*

**EDITOR-IN-CHIEF**

*Isabelle Mansuy, Zurich, Switzerland*

**EDITORIAL BOARD**

*Jesús Avila, Madrid, Spain*

*Mathieu Bollen, Leuven, Belgium*

*Valentina Bonetto, Milan, Italy*

*Enrico Di Cera, St Louis, USA*

*Hans Jönrvall, Stockholm, Sweden*

*Eric Jorgensen, Salt Lake City, USA*

*Eric Lagasse, Pittsburgh, USA*

*Robert I. Norman, Leicester, United Kingdom*

*Lorenzo A. Pinna, Padua, Italy*

*K. Vijay Raghavan, Bangalore, India*

*Pál Venetianer, Szeged, Hungary*

*Walter Wahli, Lausanne, Switzerland*

The publisher, together with the authors and editors, has taken great pains to ensure that all information presented in this work (programs, applications, amounts, dosages, etc.) reflects the standard of knowledge at the time of publication. Despite careful manuscript preparation and proof correction, errors can nevertheless occur. Authors, editors and publisher disclaim all responsibility for any errors or omissions or liability for the results obtained from use of the information, or parts thereof, contained in this work.

The citation of registered names, trade names, trademarks, etc. in this work does not imply, even in the absence of a specific statement, that such names are exempt from laws and regulations protecting trademarks etc. and therefore free for general use.

ISSN 1868-5021· e-ISSN 1868-503X· CODEN BCIOB8

All information regarding notes for contributors, subscriptions, Open access, back volumes and orders is available online at <http://www.degruyter.com/biomolcon>.

**RESPONSIBLE EDITORS** Professor Dr. Pierre Jolles, Museum National d'Histoire Naturelle, MCAM, CP54, 63, rue Buffon, F-75005 Paris, France, Email: [Pierre.jolles@wanadoo.fr](mailto:Pierre.jolles@wanadoo.fr); [jolles.pierre@bluewin.ch](mailto:jolles.pierre@bluewin.ch)  
Professor Dr. Isabelle Mansuy, Brain Research Institute, University of Zürich, Swiss Federal Institute of Technology Zürich, Winterthurerstrasse 190, CH-8057 Zürich, Switzerland, Email: [mansuy@hifo.uzh.ch](mailto:mansuy@hifo.uzh.ch)

**JOURNAL MANAGER** Dr. Torsten Krüger, De Gruyter, Genthiner Straße 13, 10785 Berlin, Germany, Tel.: +49 (0)30 260 05 – 176, Fax: +49 (0)30 260 05 – 298, Email: [biomol.concepts.editorial@degruyter.com](mailto:biomol.concepts.editorial@degruyter.com)

**RESPONSIBLE FOR ADVERTISEMENTS** Panagiota Herbrand, De Gruyter, Mies-van-der-Rohe-Straße 1, 80807 München, Germany, Tel.: +49 (0)89 769 02 - 394, Fax: +49 (0)89 769 02 - 350, Email: [panagiota.herbrand@degruyter.com](mailto:panagiota.herbrand@degruyter.com)

© 2012 Walter de Gruyter GmbH & Co. KG, Berlin/Boston

**TYPESETTING** Compuscript Ltd., Shannon, Ireland

**PRINTING** Franz X. Stückle Druck und Verlag e.K., Ettenheim  
Printed in Germany

#### COVER ILLUSTRATION

Scavenger receptors play a major role in the initiation and progression of atherogenesis via uptake of modified lipoproteins. At sites of vascular damage, oxidative stress induces the conversion of native LDL to OxLDL. Binding of OxLDL to mainly CD36 results in activation of monocytes and platelets, triggering foam cell formation and platelet clumping which finally leads to atherosclerotic plaque formation at the subendothelial surface. For further information on the roles of scavenger receptors in physiological and pathological processes see the review article by Ashraf and Sahu on pp. 371–380 in this issue.

Graphics design by Ms. Neha Gupta, Defence Institute of Physiology & Allied Sciences, Timarpur, Delhi, India.



# CONTENTS

BIOMOLECULAR CONCEPTS  
2012 · VOLUME 3 · NUMBER 4

## REVIEWS

- Pat1 proteins: regulating mRNAs from birth to death?**  
*Nancy Standart and Aline Marnef* 295
- Small GTPase Ran and Ran-binding proteins**  
*Masahiro Nagai and Yoshihiro Yoneda* 307
- Multidrug resistance-associated ABC transporters - too much of one thing, good for nothing**  
*Jirina Prochazkova, Martina Lanova and Jiri Pachernik* 319
- Role of extracellular matrix in regulating embryonic epithelial-mesenchymal transition**  
*Francesca Zito* 333
- The role of hyperosmotic stress in inflammation and disease**  
*Chad Brocker, David C. Thompson and Vasilis Vasiliou* 345

- Genomic and non-genomic actions of estrogen: recent developments**  
*Kotaro Azuma and Satoshi Inoue* 365

- Scavenger receptors: a key player in cardiovascular diseases**  
*Mohammad Z. Ashraf and Anita Sahu* 371

## SHORT CONCEPTUAL OVERVIEWS

- Orexin modulates brown adipose tissue thermogenesis**  
*Christopher J. Madden, Domenico Tupone and Shaun F. Morrison* 381
- Long telomeres: too much of a good thing**  
*Michael Chang* 387