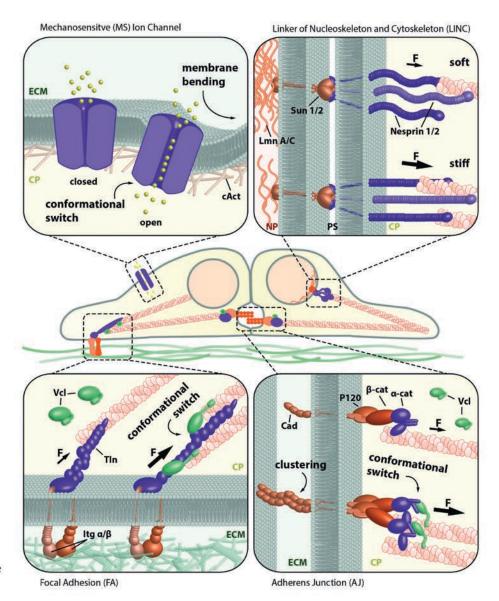
BIOLOGICAL CHEMISTRY





EDITOR-IN-CHIEF

Bernhard Brüne

BIOLOGICAL CHEMISTRY

Founded in 1877 by Felix Hoppe-Seyler as Zeitschrift für Physiologische Chemie

Felix Hoppe-Seyler (1825–1895) was a pioneer of biochemistry, remembered not only for his discovery of hemoglobin and his contributions to the chemical characterization of many other biological compounds and processes but also for having been the mentor of Friedrich Miescher and Albrecht Kossel. In his preface to the first issue of *Zeitschrift für Physiologische Chemie*, Felix Hoppe-Seyler coined the term *Biochemistry* ('Biochemie') for the then newly emerging discipline.



Biological Chemistry is associated with the Gesellschaft für Biochemie und Molekularbiologie e.V. (GBM)

DE GRUYTER

EDITOR-IN-CHIEF

B. Brüne, Frankfurt/Main

EXECUTIVE EDITORS

J. Buchner, Munich

M. Lei, Shanghai

S. Ludwig, Münster

D. Thomas, Chicago

B. Turk, Ljubljana

A. Wittinghofer, Dortmund

EDITORIAL BOARD

P. Agostinis, Leuven

L. Banks, Trieste

A.G. Beck-Sickinger, Leipzig

L. Boscá, Madrid

E. Cadenas, Los Angeles

I. Dikic, Frankfurt/Main

W.-X. Ding, Kansas City

A. Driessen, Groningen K. Gevaert, Ghent

C. Hammann. Bremen

F.U. Hartl, Martinsried

D. Häussinger, Düsseldorf

J. Hiscott, Rome

L.-O. Klotz, Jena

M. Lamkanfi, Ghent

V. Magdolen, Munich

G. Mugesh, Bangalore M. Müschen, San Francisco

C.M. Overall, Vancouver

G. Peiler, Uppsala

N. Pfanner, Freiburg

R. Pike, Melbourne

J. Potempa, Krakow

K. Sandhoff, Bonn

J. Scheller, Düsseldorf

H. Sies, Düsseldorf

C. Sommerhoff, Munich

G. Tiegs, Hamburg

J.M. Valpuesta, Madrid

ASSOCIATE EDITORS (GBM STUDY GROUPS)

J.W. Bartsch, Marburg

A. Ebert, Göttingen

R. Erdmann, Bochum

K. Giehl, Giessen

 $S.\ Hiller,\ Basel$

C. Hunte, Freiburg
I. Koch, Frankfurt/Main

T. Proikas-Cezanne, Tübingen

L. Randau, Marburg

J. Riemer, Cologne

C. Seidel, Düsseldorf

R. Sterner, Regensburg

C. Villmann, Würzburg

ABSTRACTED/INDEXED IN Academic OneFile (Gale/Cengage Learning), ASFA1: Biological Sciences & Living Resources, Biochemistry & Biophysics Citation Index, Biological Abstracts, BIOSIS Previews, CAB Abstracts, Calcium and Calcified Tissue Abstracts, Chemical Abstracts and the CAS databases, CSA Illustrata - Natural Sciences, CSA Neurosciences Abstracts, Current Contents/Life Sciences, Elsevier BIOBASE/Current Awareness in Biological Sciences (CABS), EMBASE - the Excerpta Medica database, EMBiology, Index Medicus/MEDLINE, Journal Citation Reports/Science Edition, Reaction Citation Index, Reference Update, Science Citation Index, Science Citation Index Expanded (SciSearch), Scopus, SIIC Data Bases, Zoological Record.

The Journal is associated with the Gesellschaft für Biochemie und Molekularbiologie e.V.



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 1431-6730 · e-ISSN 1437-4315 · CODEN BICHF3

All information regarding notes for contributors, subscriptions, Open access, back volumes and orders is available online at www.degruyter.com/bc.

RESPONSIBLE EDITOR(S) Professor Dr. Bernhard Brüne, Goethe-University Frankfurt, Faculty of Medicine, Biochemistry I, Theodor-Stern-Kai 7, D-60590 Frankfurt/Main, Germany, Tel.: +49-69-6301 7424, Email: B.Bruene@biochem.uni-frankfurt.de

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: biol.chem.editorial@degruyter.com

RESPONSIBLE FOR ADVERTISEMENTS Claudia Neumann, De Gruyter, Genthiner Straße 13, 10785 Berlin, Germany. Tel.: +49 (0)30 260 05-226, Fax: +49 (0)30 260 05-264, Email: anzeigen@degruyter.com

© 2019 Walter de Gruyter GmbH, Berlin/Boston

TYPESETTING Compuscript Ltd., Shannon, Ireland

PRINTING Franz X. Stückle Druck und Verlag e.K., Ettenheim

COVER ILLUSTRATION

The ability of cells to sense and respond to physical forces is central for numerous cell biological processes. Uncovering the molecular mechanisms governing force transduction in cells has therefore become a major focus in the field of mechanobiology. In their review article on pp. 687-698 in this issue Kanoldt et al. discuss how distinct proteins and macromolecular complexes such as mechanosensitive ion channels, the 'linker of nucleoskeleton and cytoskeleton' (LINC) complex at the nuclear membrane, focal adhesions and adherens junctions mediate cellular mechanoresponses. Furthermore, the review elaborates on the concept of mechanical memory that allows cells to remember their mechanical history. The front cover shows a schematic overview of several representative mechanosensitive cellular structures.

Drawing courtesy of Verena Kanoldt, Lisa Fischer and Carsten Grashoff, Institute of Molecular Cell Biology, University of Münster, Germany.



Contents

Reviews

Verena Kanoldt, Lisa Fischer and Carsten Grashoff
Unforgettable force – crosstalk and memory
of mechanosensitive structures — 687

Federico Marziali, María Paula Dizanzo, Ana Laura Cavatorta and Daniela Gardiol Differential expression of DLG1 as a common trait in different human diseases: an encouraging issue in molecular pathology —— 699

Mohsen Khosravi, Adeleh Poursaleh, Ghasem Ghasempour, Shaikhnia Farhad and Mohammad Najafi

The effects of oxidative stress on the development

The effects of oxidative stress on the development of atherosclerosis —— 711

Research Articles/Short Communications

Protein Structure and Function

Markus Schweipert, Niklas Jänsch, Wisely Oki Sugiarto and Franz-Josef Meyer-Almes
Kinetically selective and potent inhibitors
of HDAC8 — 733

Klaus Harzer, Yildiz Yildiz and Stefanie Beck-Wödl Assay of β -glucosidase 2 (GBA2) activity using lithocholic acid β -3-0-glucoside substrate for cultured fibroblasts and glucosylceramide for brain tissue — 745

Cell Biology and Signaling

Xingping Dai, Min Yi, Dongsheng Wang, Yanyi Chen and Xia Xu

Changqin NO. 1 inhibits neuronal apoptosis via suppressing GAS5 expression in a traumatic brain injury mice model —— 753

Cun-en Wu, Yu-wen Zhuang, Jin-yong Zhou, Shen-lin Liu, Xi Zou, Jian Wu, Rui-ping Wang and Peng Shu *Nm23-H1* inhibits hypoxia induced epithelial-mesenchymal transition and stemness in non-small cell lung cancer cells — 765

Xiaohui Xu, Xiaoyun Zhou, Chao Gao, Lei Cao, Ye Zhang, Xue Hu and Yushang Cui

Nodal promotes the malignancy of non-small cell lung cancer (NSCLC) cells via activation of NF-kB/IL-6 signals —— 777

Joana Pereira-Vieira, João Azevedo-Silva, Ana Preto, Margarida Casal and Odília Queirós

MCT1, MCT4 and CD147 expression and 3-bromopyruvate toxicity in colorectal cancer cells are modulated by the extracellular conditions —— 787

Proteolysis

Uwe Schlomann, Kristina Dorzweiler, Elisa Nuti, Tiziano Tuccinardi, Armando Rossello and Jörg W. Bartsch Metalloprotease inhibitor profiles of human ADAM8 in vitro and in cell-based assays —— 801