# **Molecular Omics**

Research and reviews in omic sciences, including genomics, proteomics, transcriptomics, metabolomics, glycomics and lipidomics

# rsc.li/molomics

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

## IN THIS ISSUE

ISSN 2515-4184 CODEN MOOMAW 19(8) 601-682 (2023)



Cover See Jun Adachi et al., pp. 624–639. Image reproduced by permission of Jun Adachi from *Mol. Omics*, 2023, 19, 624. © Ozz Design/Yellow duck/BAIVECTOR, all images via Shutterstock.com



Inside cover

See Muzaffer Arıkan and Thilo Muth, pp. 607–623. Image reproduced by permission of Muzaffer Arıkan from *Mol. Omics*, 2023, **19**, 607.

# EDITORIAL

## 606

Advancing science through data sharing: a new data policy for *Molecular Omics* 



# REVIEW

# 607

Integrated multi-omics analyses of microbial communities: a review of the current state and future directions

Muzaffer Arıkan\* and Thilo Muth\*



### **Editorial Staff**

Executive Editor Katie Lim

Deputy Editor

Jack Washington
Development Editor

Daniel Robertshaw

Editorial Production Manager Sarah Whitehouse

Publishing Editors

Nicola Burton, Tom Cozens, Katie Fernandez, Ryan Kean, Roxane Owen

Editorial Assistant Amy Cook

Publishing Assistant

Andrea Whiteside

Sam Keltie

For queries about submitted papers, please contact Sarah Whitehouse, Editorial Production Manager, in the first instance. E-mail: **molomics@rsc.org** 

For pre-submission queries please contact Katie Lim, Executive Editor. E-mail: molomics-rsc@rsc.org

Molecular Omics (electronic: ISSN 2515-4184) is published 10 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, UK CB4 0WF.

All orders, with cheques made payable to the Royal Society of Chemistry, should be sent to the Royal Society of Chemistry Order Department, Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, CB4 0WF, UK

Tel +44 (0)1223 432398; E-mail orders@rsc.org

2023 Annual (electronic) subscription price: £1430; US\$2520. Customers in Canada will be subject to a surcharge to cover GST. Customers in the EU subscribing to the electronic version only will be charged VAT.

If you take an institutional subscription to any Royal Society of Chemistry journal you are entitled to free, site-wide web access to that journal. You can arrange access via Internet Protocol (IP) address at www.rsc.org/ip

Customers should make payments by cheque in sterling payable on a UK clearing bank or in US dollars payable on a US clearing bank.

Whilst this material has been produced with all due care, the Royal Society of Chemistry cannot be held responsible or liable for its accuracy and completeness, nor for any consequences arising from any errors or the use of the information contained in this publication. The publication of advertisements does not constitute any endorsement by the Royal Society of Chemistry or Authors of any products advertised. The views and opinions advanced by contributors do not necessarily reflect those of the Royal Society of Chemistry which shall not be liable for any resulting loss or damage arising as a result of reliance upon this material. The Royal Society of Chemistry is a charity, registered in England and Wales, Number 207890, and a company incorporated in England by Royal Charter (Registered No. RC000524), registered office: Burlington House, Piccadilly, London W1J 0BA, UK, Telephone: +44 (0) 207 4378 6556.

### Advertisement sales:

Tel +44 (0) 1223 432246; Fax +44 (0) 1223 426017; E-mail **advertising@rsc.org** 

For marketing opportunities relating to this journal, contact marketing@rsc.org

# **Molecular Omics**

### rsc.li/molomics

*Molecular Omics* is a premier journal publishing the highest quality research in the -omics sciences, including genomics, proteomics, transcriptomics, metabolomics, glycomics and lipidomics.

**Editorial Board** 

Advisory Board

Singapore, Singapore

### Chair

Singapore

Turkey

Robert Moritz, Institute for Systems Biology, USA

Hyungwon Choi, Yong Loo Lin School of

Medicine, National University of Singapore,

Richard Unwin, University of Manchester, UK

Chris Bakal, Institute of Cancer Research, UK

Anne K Bendt, Singapore Lipidomics

Incubator (SLING), National University of

Tunahan Cakir, Gebze Technical University,

Erin Carlson, University of Minnesota, USA

James Edwards, Saint Louis University, USA

Information for Authors

via the journal's homepage: rsc.li/molomics

permission of the Royal Society of Chemistry.

Full details on how to submit material for publication in

Molecular Omics are given in the Instructions for Authors (available

contribution without seeking permission from the Royal Society of

Chemistry, provided that any such republication is accompanied by

an acknowledgement in the form: (Original Citation)-Reproduced by

from http://www.rsc.org/authors). Submissions should be made

Authors may reproduce/republish portions of their published

#### Associate Editors

Celia Berkers, Utrecht University, Netherlands Subhra Chakraborty, National Institute of Plant Genome Research, Delhi, India Maria do Rosário Domingues, University of Aveiro, Portugal

Members

Benjamin Garcia, Washington University in St Louis, USA

Ling Hao, George Washington University, USA Nicolle Packer, Macquarie University, Australia Xiaohua Shen, Tsinghua University, China Michael Washburn, University of Kansas Medical Center, USA

Claire Eyers, University of Liverpool, UK Alex Georgakilas, National Technical University of Athens. Greece

Metershy of Andrens, Greece Rebekah Gundry, University of Nebraska Medical Center, USA Walter Kolch, System Biology Ireland, Ireland Ben Lehner, Wellcome Sanger Institute, UK Souvik Maiti, Institute of Genomics and

Integrative Biology, India Andrej Shevchenko, Max Planck Institute for Molecular Cell Biology and Genetics, Germany Silke Sperling, Charité - Universitätsmedizin Berlin, Germany Ed Tate, Imperial College London, UK Ronghu Wu, Georgia Tech, USA

This journal is © The Royal Society of Chemistry 2023. Apart from fair dealing for the purposes of research or private study for non-commercial purposes, or criticism or review, as permitted under the Copyright, Designs and Patents Act 1988 and the Copyright and Related Rights Regulation 2003, this publication may only be reproduced, stored or transmitted, in any form or by any means, with the prior permission in writing of the Publishers or in the case of reprographic reproduction in accordance with the terms of licences issued by the Copyright Licensing Agency in the UK. US copyright law is applicable to users in the USA.

Registered charity number: 207890



# **RESEARCH ARTICLES**

## 624

Integrative analysis of cancer dependency data and comprehensive phosphoproteomics data revealed the EPHA2-PARD3 axis as a cancer vulnerability in KRAS-mutant colorectal cancer

Daigo Gunji, Ryohei Narumi, Satoshi Muraoka, Junko Isoyama, Narumi Ikemoto, Mimiko Ishida, Takeshi Tomonaga, Yoshiharu Sakai, Kazutaka Obama and Jun Adachi\*



### 640

Biochemical and metabolic signatures are fundamental to drought adaptation in PGPR Enterobacter bugandensis WRS7

Saumya Arora, Piyoosh K Babele and Prabhat Nath Jha\*



# 653

Integrated network pharmacology and fecal metabolomic analysis of the combinational mechanisms of Shexiang Baoxin Pill against atherosclerosis

Zhicong Wang, Qianqian Wan, Bin Xie, Zifan Zhu, Xike Xu, Peng Fu\* and Runhui Liu\*

### 668

Protein network analysis links the NSL complex to Parkinson's disease via mitochondrial and nuclear biology

Katie Kelly, Patrick A. Lewis, Helene Plun-Favreau\* and Claudia Manzoni\*



