

Editorial Board

Chair

D. Carling • London

Vice Chair, The Americas

G. Salvesen • La Jolla, CA

Vice Chair, Asia-Pacific

T. Xu • Beijing

Vice Chair, Europe

D. R. Alessi • Dundee

Reviews Editor

G. Salvesen • La Jolla, CA

Deputy Chairs

J. F. Cáceres • Edinburgh**A. C. Clark** • Raleigh, NC**S. Huber** • Urbana, IL**M. A. Lemmon** • Philadelphia, PA**C. MacKintosh** • Dundee**M. Murphy** • Cambridge**K. Rittinger** • London**S. Roberts** • Bristol**M. A. Schwartz** • New Haven, CT**G. R. Steinberg** • Hamilton, ON**D. Tosh** • Bath**M. Uesugi** • Kyoto**D. M. F. van Aalten** • Dundee**B. Vanhaesebroeck** • London**H. M. Wallace** • Aberdeen**M. F. White** • St Andrews**A. Xu** • Hong Kong**C. Zurzolo** • Paris

Publisher

M. Legge

Executive Editor

C. L. Curtis

Publishing Operations Manager

M. D. Cunningham

Production Editor

R. B. Etherington

Administrative Editor, US Office

S. Schendel

Administrative Editor, China Office

L. Huo

J. C. Adams (Bristol)

H. A. Armelin (São Paulo)

S. M. Assmann (University Park, PA)

J. M. Backer (Bronx, NY)

B. M. Baker (Notre Dame, IN)

J. E. Bear (Chapel Hill, NC)

J. L. Blank (Cambridge, MA)

M. A. Bogoyevitch (Melbourne)

L. H. Boise (Atlanta, GA)

J. Bolaños (Salamanca)

A. Bowie (Dublin)

S. Bray (Cambridge)

S. Bröer (Canberra)

P. S. Brookes (Rochester, NY)

D. Burger (Geneva)

R. A. Casero, Jr (Baltimore, MD)

L. Chernomordik (Bethesda, MD)

J. Cui (St Louis, MO)

V. L. Davidson (Orlando, FL)

M. J. Davies (Sydney)

B. Davis (Oxford)

C. L. Day (Dunedin)

L. A. Devi (New York, NY)

C. Dickey (Tampa, FL)

I. Dikic (Frankfurt)

J. Endicott (Newcastle upon Tyne)

S. Flitsch (Manchester)

F. Foufelle (Paris)

C. Frezza (Cambridge)

M. Hampton (Otago)

A. D. Hanson (Gainesville, FL)

J. A. Hardy (Amherst, MA)

P. Hawkins (Cambridge)

P. Hedden (Harpden)

N. Hogg (Milwaukee, WI)

J. M. Horowitz (Raleigh, NC)

E. Ikonen (Helsinki)

A. Imberty (Grenoble)

D. A. Jans (Monash)

J. Jez (St Louis, MO)

P. Kemp (Cardiff)

S. Kim (Seoul)

K. Kirk (Canberra)

Z. Knight (San Francisco, CA)

D. W. Laird (London, ON)

S. P. Lees-Miller (Calgary, AB)

J. Leiper (London)

S. Ley (London)

M. Lowe (Manchester)

K. Lynch (Philadelphia, PA)

N. Q. McDonald (London)

M. McManus (Palmerston North)

G. Melino (Leicester)

T. Miller (Norwich)

G. B. Moorhead (Calgary)

E. T. Morgan (Atlanta, GA)

S. J. Morley (Brighton)

M. Muckenthaler (Heidelberg)

J. M. Murphy (Parkville)

J. H. Naismith (St Andrews)

A. R. Nebreda (Barcelona)

W. Ogawa (Kobe)

M. Okada (Osaka)

K. Okkenhaug (Cambridge)

R. Parton (Queensland)

B. Payrastre (Toulouse)

D. Pei (Columbus, OH)

P. F. Pilch (Boston, MA)

W. C. Plaxton (Kingston, ON)

S. Ponnambalam (Leeds)

R. Y. Poon (Hong Kong)

B. V. L. Potter (Bath)

C. G. Proud (Southampton)

A. Quest (Chile)

M. F. Roberts (Boston, MA)

B. S. Rothberg (Philadelphia, PA)

P. Saftig (Kiel)

K. Sakamoto (Lausanne)

J. M. Sanchez-Ruiz (Granada)

F. Sargent (Dundee)

K. Schumacher (Heidelberg)

P. T. Schumacker (Chicago, IL)

L. C. Serpell (Brighton)

S. M. Serrano (São Paulo)

R. J. Shaw (La Jolla, CA)

H. Shimano (Tsukuba City)

J. Slack (Minneapolis, MN)

S. Spiegel (Richmond, VA)

A. Srebrow (Buenos Aires)

W. M. Stark (Glasgow)

S. Teichmann (Cambridge)

V. Tergaonkar (Singapore)

K. Tokatlidic (Glasgow)

C. N. Tomes (Mendoza)

C. Tournier (Manchester)

H. D. Ulrich (Mainz)

S. Urbé (Liverpool)

M.-W. Wang (Shanghai)

M. J. West (Brighton)

S. Whitney (Canberra)

D. Wu (Guangzhou)

I. Zachary (London)



- Journal compilation © 2015 Biochemical Society
- The *Biochemical Journal* (ISSN 0264-6021 for print/online journal; ISSN 1470-8728 for online only journal) is published and distributed by Portland Press Limited on behalf of the Biochemical Society (the owner), and appears twice monthly (24 issues).
- **Editorial and publishing offices:** *Biochemical Journal*, Portland Press Limited, Third Floor, Charles Darwin House, 12 Roger Street, London WC1N 2JU, U.K.
- **US agent:** c/o Air Business Ltd, c/o Worldnet Shipping Inc., 156–15, 146th Avenue, 2nd Floor, Jamaica, NY 11434, U.S.A.
- **Subscriptions department:** Portland Customer Services, Third Floor, Charles Darwin House, 12 Roger Street, London WC1N 2JU, U.K.
- All rights reserved. Apart from any fair dealing for the purposes of research or private study, or criticism or review, as permitted under the Copyright, Designs and Patents Act, 1988, this publication may be reproduced, stored or transmitted, in any forms or by any means, only with the prior permission in writing of the publishers, or in the case of reprographic reproduction in accordance with the terms of permissions granted by copyright clearing houses such as the Copyright Licensing Agency (U.K.) or the Copyright Clearance Center (U.S.A.). The CCC item-fee code for this publication is 0264-6021/2015/\$50.00 + 0.00. Inquiries concerning reproduction outside those terms should be sent to the publishers at the above-mentioned address.
- Although, at the time of going to press, the information contained in this publication is believed to be correct, neither the authors nor the editors nor the publisher assume any responsibility for any errors or omissions herein contained. Opinions expressed in articles are not necessarily those of the editors, the publisher or the owner.
- Periodicals postage paid at Jamaica, NY 11431
- **Postmaster:** send address corrections to *Biochemical Journal*, c/o Air Business Ltd, c/o Worldnet Shipping Inc., 156–15, 146th Avenue, 2nd Floor, Jamaica, NY 11434, U.S.A.
- **Cover design:** Angie Moyes (www.fuz.co.uk).
- **Cover image credits:** M. Sharon Stack, University of Missouri; Carmen A. Mannella, Research and Technology Wadsworth Center, Albany, NY; Department of Microbiology, University of Leeds; Jan A. Miernyk, University of Missouri; G. P. Côté, Kingston, ON; G. Salvesen, La Jolla; Dr Gordon Beakes, Newcastle University.