

Editorial Board

Chair

P. R. Shepherd • Auckland

Vice Chair, The Americas

G. Salvesen • La Jolla, CA

Vice Chair, Asia-Pacific

T. Xu • Beijing

Vice Chair, Europe

D. R. Alessi • Dundee

Vice Chair Reviews

A. Toker • Boston, MA

Deputy Chairs

M. Blatt • Glasgow**J. F. Cáceres** • Edinburgh**D. Carling** • London**L. J. Goodyear** • Boston, MA**D. Hoekstra** • Groningen**S. Huber** • Urbana, IL**J. E. Ladbury** • Houston, TX**M. A. Lemmon** • Philadelphia, PA**C. MacKintosh** • Dundee**M. Murphy** • Cambridge**S. Roberts** • Buffalo, NY**M. A. Schwartz** • New Haven, CT**D. Tosh** • Bath**D. M. F. van Aalten** • Dundee**B. Vanhaesebroeck** • London**H. M. Wallace** • Aberdeen**M. F. White** • St Andrews

Publisher

P. J. Starley

Executive Editor

M. R. Thorne

Head of Production

M. D. Cunningham

Staff Editors

M. Banerjee**C. L. Curtis****E. A. G. Elloway****J. W. Mockridge****H. F. Roberts**

Editorial Assistant

P. D. Taylor

Administrative Editor, US Office

S. Schendel

Administrative Editor, China Office

L. Huo

S. M. Assmann (University Park, PA)

T. K. Attwood (Manchester)

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)

S. Bröer (Canberra)

P. S. Brookes (Rochester, NY)

N. J. Buckley (London)

D. Burger (Geneva)

M. Cascante (Barcelona)

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

Y.-G. Chen (Beijing)

L. Chernomordik (Bethesda, MD)

A. C. Clark (Raleigh, NC)

V. Darley-Usmar (Birmingham, AL)

M. J. Davies (Sydney)

B. Davis (Oxford)

L. A. Devi (New York, NY)

I. Dikic (Frankfurt)

R. Docampo (Athens, GA)

D. Doyle (Dublin)

C. S. Duckett (Ann Arbor, MI)

A. F. Dulhunty (Canberra)

S. Flitsch (Manchester)

P. G. W. Gettins (Chicago, IL)

B. Halliwell (Singapore)

J. A. Hardy (Amherst, MA)

J. M. Horowitz (Raleigh, NC)

E. Ikonen (Helsinki)

A. Imberty (Grenoble)

D. A. Jans (Monash)

P. A. Jeggo (Brighton)

D. Jordan (Peoria, IL)

M. G. Kazanietz (Philadelphia, PA)

Z. Knight (New York, NY)

D. Komander (Cambridge)

D. W. Laird (London, ON)

K. Lingelbach (Marburg)

D. W. Litchfield (London, ON)

B. Luisi (Cambridge)

B. D. Manning (Boston, MA)

M. McManus (Palmerston North)

G. Melino (Leicester)

J. Miernyk (Columbia, MO)

E. T. Morgan (Atlanta, GA)

M. Muckenthaler (Heidelberg)

B. Mulloy (South Mimms)

A. W. Munro (Manchester)

G. Murphy (Cambridge)

H. Y. Naim (Hannover)

J. H. Naismith (St Andrews)

A. R. Nebreda (Barcelona)

W. Ogawa (Kobe)

M. Okada (Osaka)

G. Panayotou (Vare)

D. Pei (Columbus, OH)

N. D. Perkins (Newcastle)

P. F. Pilch (Boston, MA)

W. C. Plaxton (Kingston, ON)

S. Ponnambalam (Leeds)

R. Y. Poon (Hong Kong)

B. V. L. Potter (Bath)

Z. Radić (La Jolla, CA)

K. Rittinger (London)

M. F. Roberts (Boston, MA)

J. M. Sanchez-Ruiz (Granada)

R. Sasisekharan (Cambridge, MA)

N. Savery (Bristol)

J. R. Sayers (Sheffield)

K. Schumacher (Heidelberg)

P. T. Schumacker (Chicago, IL)

F. J. Sharom (Guelph, ON)

G. S. Shelness (Winston-Salem, NC)

H. Shimano (Tsukuba City)

J. Slack (Minneapolis, MN)

S. Spiegel (Richmond, VA)

W. M. Stark (Glasgow)

H. Stenmark (Oslo)

C. Tickle (Bath)

N. K. Tonks (Cold Spring Harbor, NY)

C. Tournier (Manchester)

C. Troy (New York, NY)

H. D. Ulrich (South Mimms)

A. J. Vidal-Puig (Cambridge)

H. J. Vogel (Calgary, AB)

S. P. Watson (Birmingham)

S. Whitney (Canberra)

C. Winterbourn (Christchurch, NZ)

D. Withers (London)

D. Wu (Guangzhou)

A. Xu (Hong Kong)

H.-W. Xue (Shanghai)

I. Zachary (London)

C. Zurzolo (Paris)



- Journal compilation © 2012 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 Mercury International, 365 Blair Road, Avenel, NJ 07001, U.S.A.
- **Subscriptions department:** Portland Customer Services, P.O. Box 32, Commerce Way, Colchester CO2 8HP, 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 0264-6021/2012/\$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 Rahway, NJ, U.S.A.
- **Postmaster:** send address corrections to *Biochemical Journal*, c/o Mercury International, 365 Blair Road, Avenel, NJ 07001, 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; Nottingham *Arabidopsis* Stock Centre (NASC); G. P. Côté, Kingston, Ont.; G. Salvesen, La Jolla; Dr Gordon Beahes, Newcastle University.

● **General policy** The *Biochemical Journal* publishes papers in English in all fields of biochemistry and cellular and molecular biology, provided that they make a sufficient contribution to knowledge in these fields. Papers may include new results obtained experimentally, descriptions of new experimental methods of biochemical importance, or new interpretations of existing results. Novel theoretical contributions will be considered, although these papers should also contain some experimental testing of the theory. All work presented should have as its aim the development of biochemical concepts rather than the mere recording of facts. Preliminary, confirmatory or inconclusive work will not be published. The *Biochemical Journal* will not publish material that has been wholly or largely published elsewhere, even as a preliminary communication or in unrefereed symposium proceedings or on the World Wide Web (WWW); equally, fragmentation of research into the 'least publishable unit' is discouraged.

Submission of a paper implies that it has been approved by all the named authors, that all persons entitled to authorship have been so named, that it reports unpublished work that is not under consideration elsewhere, and that if the paper is accepted for publication the authors will transfer to the Biochemical Society the copyright in the paper, which will then not be published elsewhere in the same form, in any language, without the consent of the Society. Authors will be required to sign an undertaking to these effects.

Authors may suggest potential reviewers for their papers, but the journal is under no obligation to follow such suggestions. Authors may also specify the names of those they wish to be excluded from the review process, and such wishes are usually respected unless, in the opinion of the journal, such a request unreasonably excludes all the expertise available to it in that scientific area.

To allow the reviewers to assess possible overlap with previous work, all submitted papers must be accompanied by duplicate copies of the author's relevant published work, including that on the WWW, and of all related papers in press or under editorial consideration in this or other journals.

The following types of paper are included in the journal.

Research Papers are the normal form of publication, and may be of any length that is justified by their content. However, because of pressure for space in the journal, no paper, whatever its scientific merits, will be accepted if it exceeds the minimum length required for precision in describing the experiments and clarity in interpreting them. As a guide, most Research Papers published in the *Biochemical Journal* are of between six and eight

printed pages. A concise well-written paper tends to be published more rapidly.

Accelerated Publications (APs) are short (normally four printed pages) papers bringing particularly novel and significant findings to the attention of the research community. It is intended that a decision on acceptance or rejection will be made within 10 working days of receipt, and publication of accepted APs in an issue will follow within 2 months. APs receive full but accelerated reviewing. The criteria of 'novelty and significance' are strictly enforced, and papers may be rejected solely on the grounds of lack of novelty and significance. APs are not a path to accelerated publication of sound but non-urgent material. Authors must include in their letter of submission a brief statement of why they believe their AP merits accelerated treatment. Colour figures will be published free of charge in APs, provided the use of colour is deemed scientifically necessary by the reviewers.

Reviews will usually be solicited, although unsolicited reviews will be considered for publication. Prospective writers of reviews should first consult the Reviews Editor, via the editorial office, and should enclose a short (one page) summary of the area they propose to cover.

● **Procedure for submission** These instructions do not replace the official *Biochemical Journal* Instructions to Authors (<http://www.BiochemJ.org>). Authors are encouraged to refer to these for overall guidelines on submitting a paper. Before preparing papers for the journal, authors should consult a current issue to make themselves familiar with the general format, such as the use of cross-headings, layout of tables and figures and citation of references. A full page of text in the *Biochemical Journal* contains approximately 1200 words; when calculating the printed length of papers, allowance must be made for the space occupied by tables and figures and the number of text words reduced accordingly.

The numerical system of references must be used. A reference to 'unpublished work' must be accompanied by the names of all persons concerned: a reference to a 'personal communication' must be supported by written permission for the quotation from the person or persons concerned; both of these types of citation are permitted in the text only, not in the list of references.

● **Submit manuscripts online** Authors should submit manuscripts electronically using the Online Submission and Review System available at <http://www.BiochemJ.org/submit/>

● **Immediate Publications** Manuscripts are published online in PDF format as soon as they are accepted, unless on submission the author requests that this not be done. Immediate Publications are listed in and accessible through Medline, and are freely available to anyone with Internet access.

● **Opt2Pay** Choose to make your paper freely available. For more information see www.biochemJ.org.

● **Queries and correspondence** Authors in the Americas should address all queries and correspondence about their submission to: Dr Sharon Schendel, BJ USA, The Sanford-Burnham Institute for Medical Research, 10901 N. Torrey Pines Road, La Jolla, CA 92037, U.S.A. (telephone +1 858 795 5283; fax +1 858 795 5284; email editorial@biochemjusa.org). Authors in China should contact: Dr Lin Huo, Institute of Biophysics, Chinese Academy of Sciences, Room 5202, 15 Datun Road, Chaoyang District, Beijing 100101 (telephone +86 10 64888573; email editorial@biochemj.cn). Authors in the U.K., the rest of Europe, Japan and the rest of the world should contact: The Publisher, *Biochemical Journal*, Portland Press Limited, Third Floor, Charles Darwin House, 12 Roger Street, London WC1N 2JL, U.K. (telephone +44 20 7685 2410; fax +44 20 7685 2469; email editorial@portlandpress.com).

● **Colour figures** Colour figures are published free of charge provided that the corresponding author on the published paper has been a Full or Early Career member of the Biochemical Society for at least 2 years and that the use of colour is deemed scientifically necessary by the reviewers. Otherwise the charges are £550 for the first colour figure and £300 for each subsequent colour figure.

● **Multimedia adjuncts** The Biochemical Journal Online offers authors the opportunity to enhance their papers with multimedia adjuncts (e.g. time-lapse movies, three-dimensional structures, animated schemes). These will be submitted to peer review alongside the manuscript. To submit a paper with a multimedia adjunct, please attach the file when you submit your manuscript electronically. Preferred formats are QuickTime for time-lapse movies, PDB for structures and Flash for animated schemes. There is no extra charge associated with the publication of a multimedia adjunct online.

● **COPE** The *Biochemical Journal* is a member of the Committee on Publication Ethics and endorses its guidelines, which are available at <http://publicationethics.org.uk>

Other information

The *Biochemical Journal* is published and distributed by Portland Press Limited on behalf of the Biochemical Society. It is published twice monthly; in 2012 volumes 441–448 (three parts each) will appear. The subscription also includes an author and key-word index.

● **Abstracted by/indexed in:** BIOBASE, BIOSIS, CAB International, Chemical Abstracts Service, Current Contents, EMBASE, International Food Information Service, Medline/Index Medicus, Proquest Information & Learning, Science Citation Index.

● **Subscription rates** Institutional subscription rates for 2012 are shown below. Subscribers to the *Biochemical Journal* can subscribe additionally to *Biochemical Society Transactions* on a joint subscription at a reduced rate (see www.portlandpress.com for further details). Terms are cash with order (US\$ in N. America, £ sterling for rest of the world, or US\$ equivalent at current rate of exchange; subscribers in the EU may

pay in £ sterling or Euros), or against pro forma invoice. Orders should be sent to the address shown, to your usual agent or purchased online at www.portlandpress.com.

	N. America	Rest of world	Euro price
One year (8 vols)	US\$4529	£2530	€3830
Print and online	US\$4076	£2278	€3446
Online only	US\$256	£130	€220
Single issues (print only)			

Overseas rates include airfreight delivery. Airtpeeded delivery is available at an additional cost of £92.85/\$142/€115.

Value Added Tax (VAT) on online-only and 'combined' subscriptions is due on supplies to subscribers within the UK, and to non-registered subscribers elsewhere in the EU. If in the EU please state your VAT number otherwise VAT may be charged at the appropriate national rate.

● **Electronic back archive** This is freely available to all users with Internet access.

● **Microfiche and back issues** Volumes 102–408 of the *Biochemical Journal* are available on microfiche. Back issues are also available. Further details may be obtained from the address below.

● Subscription Department

Portland Customer Services
P.O. Box 32, Commerce Way
Colchester CO2 8HP, Essex, U.K.
(telephone 01206 796351; fax 01206 799331;
email sales@portland-services.com).

● **Advertising** Enquiries about advertising should be addressed to marketing@portlandpress.com.

● The paper and cover-boards used in this journal are sourced from sustainable, managed and renewed commercial forests, and are fully recyclable. The bleaching process used for the pulp is 100% ECF (elemental chlorine free).

Reviews**Regulation and function of ribosomal protein S6 kinase (S6K) within mTOR signalling networks**

Published on the Internet 14 December 2011,
doi:10.1042/BJ20110892

B. Magnuson, B. Ekim and D.C. Finger



1–21

Multiple roles for the p85 α isoform in the regulation and function of PI3K signalling and receptor trafficking

Published on the Internet 14 December 2011,
doi:10.1042/BJ20111164

P. Mellor, L.A. Furber, J.N.K. Nyarko and D.H. Anderson



23–37

Insights into the PX (phox-homology) domain and SNX (sorting nexin) protein families: structures, functions and roles in disease

Published on the Internet 14 December 2011,
doi:10.1042/BJ20111226

R.D. Teasdale and B.M. Collins



39–59

Vitamin D and cancer: a review of molecular mechanisms

Published on the Internet 14 December 2011,
doi:10.1042/BJ20110744

J.C. Fleet, M. DeSmet, R. Johnson and Y. Li

61–76

Research Papers**Data-driven modelling of receptor tyrosine kinase signalling networks quantifies receptor-specific potencies of PI3K- and Ras-dependent ERK activation**

Published as BJ Immediate Publication 26 September 2011,
doi:10.1042/BJ20110833

M. Cirit and J.M. Haugh



77–85

Absence of ABCG2-mediated mucosal detoxification in patients with active inflammatory bowel disease is due to impeded protein folding

Published as BJ Immediate Publication 25 August 2011,
doi:10.1042/BJ20111281

J.J. Deuring, C. de Haar, C.L. Koelewijn, E.J. Kuipers, M.P. Peppelenbosch and C.J. van der Woude



87–93

Dissecting structure–function–stability relationships of a thermostable GH5-CBM3 cellulase from *Bacillus subtilis* 168

Published as BJ Immediate Publication 1 September 2011,
doi:10.1042/BJ20110869

C.R. Santos, J.H. Paiva, M.L. Sforça, J.L. Neves, R.Z. Navarro, J. Cota, P.K. Akao, Z.B. Hoffmam, A.N. Meza, J.H. Smetana, M.L. Nogueira, I. Polikarpov, J. Xavier-Neto, F.M. Squina, R.J. Ward, R. Ruller, A.C. Zeri and M.T. Murakami



95–104

Determinants of the enzymatic activity and the subcellular localization of aspartate N-acetyltransferase

Published as BJ Immediate Publication 21 September 2011,
doi:10.1042/BJ20111179

G. Tahay, E. Wiame, D. Tyteca, P.J. Courtoy and E. Van Schaftingen



105–112

Structural insights into the peroxidase activity and inactivation of human peroxiredoxin 4

Published as BJ Immediate Publication 15 September 2011,
doi:10.1042/BJ20110380

X. Wang, L. Wang, X. Wang, F. Sun and C.-c. Wang



113–118

Critical roles of RNA helicase DDX3 and its interactions with eIF4E/PABP1 in stress granule assembly and stress response

Published as BJ Immediate Publication 1 September 2011,
doi:10.1042/BJ20110739

J.-W. Shih, W.-T. Wang, T.-Y. Tsai, C.-Y. Kuo, H.-K. Li and Y.-H. Wu Lee



119–129

Contents

- The high-resolution crystal structure of periplasmic *Haemophilus influenzae* NAD nucleotidase reveals a novel enzymatic function of human CD73 related to NAD metabolism
Published as BJ Immediate Publication 20 September 2011,
doi:10.1042/BJ20111263
- Length of the active-site crossover loop defines the substrate specificity of ubiquitin C-terminal hydrolases for ubiquitin chains
Published as BJ Immediate Publication 19 August 2011,
doi:10.1042/BJ20110699
- Insights into subtle conformational differences in the substrate-binding loop of fungal 17 β -hydroxysteroid dehydrogenase: a combined structural and kinetic approach
Published as BJ Immediate Publication 19 September 2011,
doi:10.1042/BJ20110567
- A novel class of PTEN protein in *Arabidopsis* displays unusual phosphoinositide phosphatase activity and efficiently binds phosphatidic acid
Published as BJ Immediate Publication 24 August 2011,
doi:10.1042/BJ20110776
- Thermodynamics and structural analysis of positive allosteric modulation of the ionotropic glutamate receptor GluA2
Published as BJ Immediate Publication 7 September 2011,
doi:10.1042/BJ20111221
- Revealing the structural origin of the redox-Bohr effect: the first solution structure of a cytochrome from *Geobacter sulfurreducens*
Published as BJ Immediate Publication 24 August 2011,
doi:10.1042/BJ20111103
- Vitamin E isoforms directly bind PKC α and differentially regulate activation of PKC α
Published as BJ Immediate Publication 21 September 2011,
doi:10.1042/BJ20111318
- S6K inhibition renders cardiac protection against myocardial infarction through PDK1 phosphorylation of Akt
Published as BJ Immediate Publication 9 September 2011,
doi:10.1042/BJ20110033
- A global survey of CRM1-dependent nuclear export sequences in the human deubiquitinase family
Published as BJ Immediate Publication 2 September 2011,
doi:10.1042/BJ20111300
- Adaptive evolution of drug targets in producer and non-producer organisms
Published as BJ Immediate Publication 15 September 2011,
doi:10.1042/BJ20111278
- Targeted polyubiquitylation of RASSF1C by the Mule and SCF β -TrCP ligases in response to DNA damage
Published as BJ Immediate Publication 12 September 2011,
doi:10.1042/BJ20111500
- A conserved motif within the flexible C-terminus of the translational regulator 4E-BP is required for tight binding to the mRNA cap-binding protein eIF4E
Published as BJ Immediate Publication 13 September 2011,
doi:10.1042/BJ20101481
- Translation of a minigene in the 5' leader sequence of the enterohaemorrhagic *Escherichia coli* LEE1 transcription unit affects expression of the neighbouring downstream gene
Published as BJ Immediate Publication 6 October 2011,
doi:10.1042/BJ20110912
- S. Garavaglia, S. Bruzzone, C. Cassani, L. Canella, G. Allegrone, L. Sturla, E. Mannino, E. Millo, A. De Flora and M. Rizzi
- Z.-R. Zhou, Y.-H. Zhang, S. Liu, A.-X. Song and H.-Y. Hu
- A. Cassetta, I. Krastanova, K. Kristan, M. Brunskole Šveglj, D. Lamba, T. Lanišnik Rižner and J. Stojan
- A. Pribat, R. Sormani, M. Rousseau-Gueutin, M.M. Julkowska, C. Testerink, J. Joubès, M. Castroviejo, M. Laguerre, C. Meyer, V. Germain and C. Rothan
- C. Krintel, K. Frydenvang, L. Olsen, M.T. Kristensen, O. de Barrios, P. Naur, P. Francotte, B. Pirotte, M. Gajhede and J.S. Kastrup
- L. Morgado, V.B. Paixão, M. Schiffer, P.R. Pokkuluri, M. Bruix and C.A. Salgueiro
- C.A. McCary, Y. Yoon, C. Panagabko, W. Cho, J. Atkinson and J.M. Cook-Mills
- R. Di, X. Wu, Z. Chang, X. Zhao, Q. Feng, S. Lu, Q. Luan, B.A. Hemmings, X. Li and Z. Yang
- I. García-Santisteban, S. Bañuelos and J.A. Rodríguez
- B.G. Hansen, X.E. Sun, H.J. Genee, C.S. Kaas, J.B. Nielsen, U.H. Mortensen, J.C. Frisvad and L. Hedstrom
- X. Zhou, T.-T. Li, X. Feng, E. Hsiang, Y. Xiong, K.-L. Guan and Q.-Y. Lei
- K.S. Paku, Y. Umenaga, T. Usui, A. Fukuyo, A. Mizuno, Y. In, T. Ishida and K. Tomoo
- Md. S. Islam, R.K. Shaw, G. Frankel, M.J. Pallen and S.J.W. Busby
-  131–141
-  143–149
-  151–160
-  161–171
-  173–178
-  179–187
-  189–198
-  199–207
-  209–217
-  219–226
-  227–236
-  237–245
-  247–253

<p>A novel role for protein kinase Gcn2 in yeast tolerance to intracellular acid stress <i>Published as BJ Immediate Publication 15 September 2011, doi:10.1042/BJ20111264</i></p>	<p>G. Hueso, R. Aparicio-Sanchis, C. Montesinos, S. Lorenz, J.R. Murguía and R. Serrano</p>	<p>255–264</p>
<p>Relaxin-like factor (RLF)/insulin-like peptide 3 (INSL3) is secreted from testicular Leydig cells as a monomeric protein comprising three domains B–C–A with full biological activity in boars <i>Published as BJ Immediate Publication 7 September 2011, doi:10.1042/BJ20111107</i></p>	<p>I. Minagawa, M. Fukuda, H. Ishige, H. Kohriki, M. Shibata, E.Y. Park, T. Kawarasaki and T. Kohsaka</p>	<p>265–273</p>
<p>LRPPRC mutation suppresses cytochrome oxidase activity by altering mitochondrial RNA transcript stability in a mouse model <i>Published as BJ Immediate Publication 31 August 2011, doi:10.1042/BJ20110985</i></p>	<p>F. Xu, J.B.L. Addis, J.M. Cameron and B.H. Robinson</p>	<p>275–283</p>
<p>Reduction in BACE1 decreases body weight, protects against diet-induced obesity and enhances insulin sensitivity in mice <i>Published as BJ Immediate Publication 31 August 2011, doi:10.1042/BJ20110512</i></p>	<p>P.J. Meakin, A.J. Harper, D.L. Hamilton, J. Gallagher, A.D. McNeilly, L.A. Burgess, L.M. Vaanholt, K.A. Bannon, J. Latcham, I. Hussain, J.R. Speakman, D.R. Howlett and M.L.J. Ashford</p>	<p> 285–296</p>
<p>BAG-1 diversely affects steroid receptor activity <i>Published as BJ Immediate Publication 15 September 2011, doi:10.1042/BJ20111456</i></p>	<p>R.T. Knapp, A. Steiner, U. Schmidt, K. Hafner, F. Holsboer and T. Rein</p>	<p> 297–303</p>
<p>Selenium-containing amino acids are targets for myeloperoxidase-derived hypothiocyanous acid: determination of absolute rate constants and implications for biological damage <i>Published as BJ Immediate Publication 5 September 2011, doi:10.1042/BJ20101762</i></p>	<p>O. Skaff, D.I. Pattison, P.E. Morgan, R. Bachana, V.K. Jain, K.I. Priyadarsini and M.J. Davies</p>	<p>305–316</p>
<p>Domain assembly of NAADP-gated two-pore channels <i>Published as BJ Immediate Publication 12 October 2011, doi:10.1042/BJ20111617</i></p>	<p>D. Churamani, R. Hooper, E. Brailoiu and S. Patel</p>	<p> 317–323</p>
<p>SPAK/OSR1 regulate NKCC1 and WNK activity: analysis of WNK isoform interactions and activation by T-loop trans-autophosphorylation <i>Published as BJ Immediate Publication 28 October 2011, doi:10.1042/BJ20111879</i></p>	<p>J.O. Thastrup, F.H. Rafiqi, A.C. Vitari, E. Pozo-Guisado, M. Deak, Y. Mehellou and D.R. Alessi</p>	<p> 325–337</p>
<p>Identification of the protein kinases that activate the E3 ubiquitin ligase Pellino 1 in the innate immune system <i>Published as BJ Immediate Publication 18 October 2011, doi:10.1042/BJ20111415</i></p>	<p>E.T.H. Goh, J.S.C. Arthur, P.C.F. Cheung, S. Akira, R. Toth and P. Cohen</p>	<p> 339–346</p>
<p>Characterization of the cellular action of the MSK inhibitor SB-747651A <i>Published as BJ Immediate Publication 5 October 2011, doi:10.1042/BJ20110970</i></p>	<p>S. Naqvi, A. Macdonald, C.E. McCoy, J. Darragh, A.D. Reith and J.S.C. Arthur</p>	<p>347–357</p>
<p>Aldehyde stress and up-regulation of Nrf2-mediated antioxidant systems accompany functional adaptations in cardiac mitochondria from mice fed <i>n</i>–3 polyunsaturated fatty acids <i>Published as BJ Immediate Publication 31 August 2011, doi:10.1042/BJ20110626</i></p>	<p>E.J. Anderson, K. Thayne, M. Harris, K. Carraway and S.R. Shaikh</p>	<p> 359–366</p>
<p>PTEN interacts with metal-responsive transcription factor 1 and stimulates its transcriptional activity <i>Published as BJ Immediate Publication 1 September 2011, doi:10.1042/BJ20111257</i></p>	<p>M.-C. Lin, Y.-C. Liu, M.F. Tam, Y.-J. Lu, Y.-T. Hsieh and L.-Y. Lin</p>	<p> 367–377</p>
<p>A common single nucleotide polymorphism A118G of the μ opioid receptor alters its N-glycosylation and protein stability <i>Published as BJ Immediate Publication 25 August 2011, doi:10.1042/BJ20111050</i></p>	<p>P. Huang, C. Chen, S.D. Mague, J.A. Blendy and L.-Y. Liu-Chen</p>	<p>379–386</p>
<p>Thr⁹⁰ phosphorylation of Hsp90α by protein kinase A regulates its chaperone machinery <i>Published as BJ Immediate Publication 15 September 2011, doi:10.1042/BJ20110855</i></p>	<p>X. Wang, X.-a. Lu, X. Song, W. Zhuo, L. Jia, Y. Jiang and Y. Luo</p>	<p> 387–397</p>

Contents

- Nedd4-dependent lysine-11-linked polyubiquitination of the tumour suppressor Beclin 1
Published as BJ Immediate Publication 22 September 2011, doi:10.1042/BJ20111424
- Phospholipase D1 mediates bFGF-induced Bcl-2 expression leading to neurite outgrowth in H19-7 cells
Published as BJ Immediate Publication 14 September 2011, doi:10.1042/BJ20110302
- Inhibition of polyglutamine-mediated proteotoxicity by *Astragalus membranaceus* polysaccharide through the DAF-16/FOXO transcription factor in *Caenorhabditis elegans*
Published as BJ Immediate Publication 5 September 2011, doi:10.1042/BJ20110621
- Selection of non-competitive leptin antagonists using a random nanobody-based approach
Published as BJ Immediate Publication 19 August 2011, doi:10.1042/BJ20110438
- NAADP regulates human platelet function
Published as BJ Immediate Publication 3 October 2011, doi:10.1042/BJ20111175
- Extravesicular intraneuronal migration of internalized botulinum neurotoxins without detectable inhibition of distal neurotransmission
Published as BJ Immediate Publication 19 September 2011, doi:10.1042/BJ20111117
- Identification of novel small molecules that elevate Klotho expression
Published as BJ Immediate Publication 22 September 2011, doi:10.1042/BJ201101909
- Neurotrophin-4 modulates the mechanotransducer Ca_v3.2 T-type calcium current in mice down-hair neurons
Published as BJ Immediate Publication 5 September 2011, doi:10.1042/BJ20111147
- Mutation in the Fe–S scaffold protein Isu bypasses frataxin deletion
Published as BJ Immediate Publication 21 September 2011, doi:10.1042/BJ20111637
- Location and dynamics of an active promoter in *Escherichia coli* K-12
Published as BJ Immediate Publication 21 September 2011, doi:10.1042/BJ20111258
- Directed evolution of a temperature-, peroxide- and alkaline pH-tolerant versatile peroxidase
Published as BJ Immediate Publication 7 October 2011, doi:10.1042/BJ20111199
- Connective tissue growth factor antagonizes transforming growth factor- β 1/Smad signalling in renal mesangial cells
Published as BJ Immediate Publication 26 August 2011, doi:10.1042/BJ20110910
- Characterization of a novel peripheral pro-lipolytic mechanism in mice: role of VGF-derived peptide TLQP-21
Published as BJ Immediate Publication 31 August 2011, doi:10.1042/BJ20111165
- H.W. Platta, H. Abrahamsen, S.B. Thoresen and H. Stenmark
- S.N. Yoon, K.S. Kim, J.H. Cho, W. Ma, H.-J. Choi, S.-J. Kwon and J.-S. Han
- H. Zhang, N. Pan, S. Xiong, S. Zou, H. Li, L. Xiao, Z. Cao, A. Tunnacliffe and Z. Huang
- L. Zabeau, A. Verhee, D. Catteeuw, L. Faes, S. Seeuws, T. Decruy, D. Elewaut, F. Peelman and J. Tavernier
- C.H. Coxon, A.M. Lewis, A.J. Sadler, S.R. Vasudevan, A. Thomas, K.A. Dundas, L. Taylor, R.D. Campbell, J.M. Gibbins, G.C. Churchill and K.L. Tucker
- G.W. Lawrence, S.V. Ovsepian, J. Wang, K.R. Aoki and J.O. Dolly
- G.D. King, C. Chen, M.M. Huang, E. Zeldich, P.L. Brazee, E.R. Schuman, M. Robin, G.D. Cuny, M.A. Glicksman and C.R. Abraham
- C. Hilaire, O. Lucas, J. Valmier and F. Scamps
- H. Yoon, R. Golla, E. Lesuisse, J. Pain, J.E. Donald, E.R. Lyver, D. Pain and A. Dancis
- M.-A. Sánchez-Romero, D.J. Lee, E. Sánchez-Morán and S.J.W. Busby
- E. Garcia-Ruiz, D. Gonzalez-Perez, F.J. Ruiz-Dueñas, A.T. Martínez and M. Alcalde
- H. C. O'Donovan, F. Hickey, D.P. Brazil, D.H. Kavanagh, N. Oliver, F. Martin, C. Godson and J. Crean
- R. Possenti, G. Muccioli, P. Petrocchi, C. Cero, A. Cabassi, L. Vulchanova, M.S. Riedl, M. Manieri, A. Frontini, A. Giordano, S. Cinti, P. Govoni, G. Graiani, F. Quaini, C. Ghè, E. Bresciani, I. Bulgarelli, A. Torsello, V. Locatelli, V. Sanghez, B.D. Larsen, J.S. Petersen, P. Palanza, S. Parmigiani, A. Moles, A. Levi and A. Bartolomucci
- 399–406
- 407–416
- 417–424
- 425–434
- 435–442
- 443–452
- 453–461
- 463–471
- 473–480
- 481–485
- 487–498
- 499–510
- 511–522
- 
- 
- 
- 
- 

Editorial Board

Chair

P. R. Shepherd • Auckland

Vice Chair, The Americas

G. Salvesen • La Jolla, CA

Vice Chair, Asia-Pacific

T. Xu • Beijing

Vice Chair, Europe

D. R. Alessi • Dundee

Vice Chair Reviews

A. Toker • Boston, MA

Deputy Chairs

M. Blatt • Glasgow**J. F. Cáceres** • Edinburgh**D. Carling** • London**L. J. Goodyear** • Boston, MA**D. Hoekstra** • Groningen**S. Huber** • Urbana, IL**J. E. Ladbury** • Houston, TX**M. A. Lemmon** • Philadelphia, PA**C. MacKintosh** • Dundee**M. Murphy** • Cambridge**S. Roberts** • Buffalo, NY**M. A. Schwartz** • New Haven, CT**D. Tosh** • Bath**D. M. F. van Aalten** • Dundee**B. Vanhaesebroeck** • London**H. M. Wallace** • Aberdeen**M. F. White** • St Andrews

Publisher

P. J. Starley

Executive Editor

M. R. Thorne

Head of Production

M. D. Cunningham

Staff Editors

M. Banerjee**C. L. Curtis****E. A. G. Elloway****J. W. Mockridge****H. F. Roberts**

Editorial Assistant

P. D. Taylor

Administrative Editor, US Office

S. Schendel

Administrative Editor, China Office

L. Huo

S. M. Assmann (University Park, PA)

T. K. Attwood (Manchester)

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)

S. Bröer (Canberra)

P. S. Brookes (Rochester, NY)

N. J. Buckley (London)

D. Burger (Geneva)

M. Cascante (Barcelona)

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

Y.-G. Chen (Beijing)

L. Chernomordik (Bethesda, MD)

A. C. Clark (Raleigh, NC)

V. Darley-Ussmar (Birmingham, AL)

M. J. Davies (Sydney)

B. Davis (Oxford)

L. A. Devi (New York, NY)

I. Dikic (Frankfurt)

R. Docampo (Athens, GA)

D. Doyle (Dublin)

C. S. Duckett (Ann Arbor, MI)

A. F. Dulhunty (Canberra)

S. Flitsch (Manchester)

P. G. W. Gettins (Chicago, IL)

B. Halliwell (Singapore)

J. A. Hardy (Amherst, MA)

J. M. Horowitz (Raleigh, NC)

E. Ikonen (Helsinki)

A. Imberty (Grenoble)

D. A. Jans (Monash)

P. A. Jeggo (Brighton)

D. Jordan (Peoria, IL)

M. G. Kazanietz (Philadelphia, PA)

Z. Knight (New York, NY)

D. Komander (Cambridge)

D. W. Laird (London, ON)

K. Lingelbach (Marburg)

D. W. Litchfield (London, ON)

B. Luisi (Cambridge)

B. D. Manning (Boston, MA)

M. McManus (Palmerston North)

G. Melino (Leicester)

J. Miernyk (Columbia, MO)

E. T. Morgan (Atlanta, GA)

M. Muckenthaler (Heidelberg)

B. Mulloy (South Mimms)

A. W. Munro (Manchester)

G. Murphy (Cambridge)

H. Y. Naim (Hannover)

J. H. Naismith (St Andrews)

A. R. Nebreda (Barcelona)

W. Ogawa (Kobe)

M. Okada (Osaka)

G. Panayotou (Varese)

D. Pei (Columbus, OH)

N. D. Perkins (Newcastle)

P. F. Pilch (Boston, MA)

W. C. Plaxton (Kingston, ON)

S. Ponnambalam (Leeds)

R. Y. Poon (Hong Kong)

B. V. L. Potter (Bath)

Z. Radić (La Jolla, CA)

K. Rittinger (London)

M. F. Roberts (Boston, MA)

J. M. Sanchez-Ruiz (Granada)

R. Sasisekharan (Cambridge, MA)

N. Savery (Bristol)

J. R. Sayers (Sheffield)

K. Schumacher (Heidelberg)

P. T. Schumacker (Chicago, IL)

F. J. Sharom (Guelph, ON)

G. S. Shelness (Winston-Salem, NC)

H. Shimano (Tsukuba City)

J. Slack (Minneapolis, MN)

S. Spiegel (Richmond, VA)

W. M. Stark (Glasgow)

H. Stenmark (Oslo)

C. Tickle (Bath)

N. K. Tonks (Cold Spring Harbor, NY)

C. Tournier (Manchester)

C. Troy (New York, NY)

H. D. Ulrich (South Mimms)

A. J. Vidal-Puig (Cambridge)

H. J. Vogel (Calgary, AB)

S. P. Watson (Birmingham)

S. Whitney (Canberra)

C. Winterbourn (Christchurch, NZ)

D. Withers (London)

D. Wu (Guangzhou)

A. Xu (Hong Kong)

H.-W. Xue (Shanghai)

I. Zachary (London)

C. Zurzolo (Paris)

PORTLAND PRESS Ltd

Third Floor, Charles Darwin House
12 Roger Street
London WC1N 2JU, U.K.



ISSN 0264-6021

Index of Authors

	PAGE		PAGE		PAGE		PAGE
Abraham, C. R.	453	Dancis, A.	473	Holsboer, F.	297	Locatelli, V.	511
Abrahamsen, H.	399	Darragh, J.	347	Hooper, R.	317	Lorenz, S.	255
Addis, J. B. L.	275	Davies, M. J.	305	Howlett, D. R.	285	Lu, S.	199
Akao, P. K.	95	Deak, M.	325	Hsiang, E.	227	Lu, X.-a.	387
Akira, S.	339	de Barrios, O.	173	Hsieh, Y.-T.	367	Lu, Y.-J.	367
Alcalde, M.	487	Decruy, T.	425	Hu, H.-Y.	143	Luan, Q.	199
Alessi, D. R.	325	De Flora, A.	131	Huang, M. M.	453	Lucas, O.	463
Allegrone, G.	131	de Haar, C.	87	Huang, P.	379	Luo, Y.	387
Anderson, D. H.	23	DeSmet, M.	61	Huang, Z.	417	Lyver, E. R.	473
Anderson, E. J.	359	Deuring, J. J.	87	Hueso, G.	255		
Aoki, K. R.	443	Di, R.	199	Hussain, I.	285	Ma, W.	407
Aparicio-Sanchis, R.	255	Dolly, J. O.	443			Macdonald, A.	347
Arthur, J. S. C.	339, 347	Donald, J. E.	473	In, Y.	237	Magnuson, B.	1
Ashford, M. L.	285	Dundas, K. A.	435	Ishida, T.	237	Mague, S. D.	379
Atkinson, J.	189			Ishige, H.	265	Manieri, M.	511
		Ekim, B.	1	Islam, Md. S.	247	Mannino, E.	131
		Elewaut, D.	425			Martin, F.	499
Bachana, R.	305			Jain, V. K.	305	Martínez, A. T.	487
Bannon, K. A.	285	Faes, L.	425	Jia, L.	387	McCary, C. A.	189
Bañuelos, S.	209	Feng, Q.	199	Jiang, Y.	387	McCoy, C. E.	347
Bartolomucci, A.	511	Feng, X.	227	Johnson, R.	61	McNeilly, A. D.	285
Blendy, J. A.	379	Fingar, D. C.	1	Joubès, J.	161	Meakin, P. J.	285
Brailoiu, E.	317	Fleet, J. C.	61	Julkowska, M. M.	161	Mehellou, Y.	325
Brazee, P. L.	453	Francotte, P.	173			Mellor, P.	23
Brazil, D. P.	499	Frankel, G.	247	Kaas, C. S.	219	Meyer, C.	161
Bresciani, E.	511	Frisvad, J. C.	219	Kastrup, J. S.	173	Meza, A. N.	95
Bruix, M.	179	Frontini, A.	511	Kavanagh, D. H.	499	Millo, E.	131
Brunskole Švegelj, M.	151	Frydenvang, K.	173	Kawarasaki, T.	265	Minagawa, I.	265
Bruzzo, S.	131	Fukuda, M.	265	Kim, K. S.	407	Mizuno, A.	237
Bulgarelli, I.	511	Fukuyo, A.	237	King, G. D.	453	Moles, A.	511
Burgess, L. A.	285	Furber, L. A.	23	Knapp, R. T.	297	Montesinos, C.	255
Busby, S. J. W.	247, 481			Koelewijn, C. L.	87	Morgado, L.	179
		Gajhede, M.	173	Kohriki, H.	265	Morgan, P. E.	305
		Gallagher, J.	285	Kohsaka, T.	265	Mortensen, U. H.	219
Cabassi, A.	511	Garavaglia, S.	131	Krastanova, I.	151	Muccioli, G.	511
Cameron, J. M.	275	Garcia-Ruiz, E.	487	Krintel, C.	173	Murakami, M. T.	95
Campbell, R. D.	435	García-Santisteban, I.	209	Kristan, K.	151	Murguía, J. R.	255
Canella, L.	131	Genee, H. J.	219	Kristensen, M. T.	173		
Cao, Z.	417	Germain, V.	161	Kuipers, E. J.	87	Naqvi, S.	347
Carraway, K.	359	Ghè, C.	511	Kuo, C.-Y.	119	Naur, P.	173
Cassani, C.	131	Gibbins, J. M.	435	Kwon, S.-J.	407	Navarro, R. Z.	95
Cassetta, A.	151	Giordano, A.	511			Neves, J. L.	95
Castroviejo, M.	161	Glicksman, M. A.	453	Laguerre, M.	161	Nielsen, J. B.	219
Catteeuw, D.	425	Godson, C.	499	Lamba, D.	151	Nogueira, M. L.	95
Cero, C.	511	Goh, E. T. H.	339	Lanišnik Rižner, T.	151	Nyarko, J. N. K.	23
Chang, Z.	199	Golla, R.	473	Larsen, B. D.	511		
Chen, Chongguang	379	Gonzalez-Perez, D.	487	Latcham, J.	285	O'Donovan, H. C.	499
Chen, CiDi	453	Govoni, P.	511	Lawrence, G. W.	443	Oliver, N.	499
Cheung, P. C. F.	339	Graiani, G.	511	Lee, D. J.	481	Olsen, L.	173
Cho, J. H.	407	Guan, K.-L.	227	Lei, Q.-Y.	227	Ovsepian, S. V.	443
Cho, W.	189			Lesuisse, E.	473		
Choi, H.-J.	407	Hafner, K.	297	Levi, A.	511	Pain, D.	473
Churamani, D.	317	Hamilton, D. L.	285	Lewis, A. M.	435	Pain, J.	473
Churchill, G. C.	435	Han, J.-S.	407	Li, H.	417	Paiva, J. H.	95
Cinti, S.	511	Hansen, B. G.	219	Li, H.-K.	119	Paixão, V. B.	179
Cirit, M.	77	Harper, A. J.	285	Li, T.-T.	227	Paku, K. S.	237
Cohen, P.	339	Harris, M.	359	Li, X.	199	Palanza, P.	511
Collins, B. M.	39	Haugh, J. M.	77	Li, Y.	61	Pallen, M. J.	247
Cook-Mills, J. M.	189	Hedstrom, L.	219	Lin, L.-Y.	367	Pan, N.	417
Cota, J.	95	Hemmings, B. A.	199	Lin, M.-C.	367	Panagabko, C.	189
Courtoy, P. J.	105	Hickey, F.	499	Liu, S.	143	Park, E. Y.	265
Coxon, C. H.	435	Hilaire, C.	463	Liu, Y.-C.	367	Parmigiani, S.	511
Crean, J.	499	Hoffmam, Z. B.	95	Liu-Chen, L.-Y.	379	Patel, S.	317
Cuny, G. D.	453						

Contents

Pattison, D. I.	305	Sánchez-Romero, M.-A.	481	Taylor, L.	435	Wang, W.-T.	119
Peelman, F.	425	Sanghez, V.	511	Teasdale, R. D.	39	Wang, Xi	113
Peppelenbosch, M. P.	87	Santos, C. R.	95	Testerink, C.	161	Wang, Xiaofeng	387
Petersen, J. S.	511	Scamps, F.	463	Thastrup, J. O.	325	Wang, Xi'e	113
Petrocchi, P.	511	Schiffer, M.	179	Thayne, K.	359	Ward, R. J.	95
Pirotte, B.	173	Schmidt, U.	297	Thomas, A.	435	Wiame, E.	105
Platta, H. W.	399	Schuman, E. R.	453	Thoresen, S. B.	399	Wu, X.	199
Pokkuluri, P. R.	179	Seeuws, S.	425	Tomoo, K.	237	Wu Lee, Y.-H.	119
Polikarpov, I.	95	Serrano, R.	255	Torsello, A.	511		
Possenti, R.	511	Sforça, M. L.	95	Toth, R.	339	Xavier-Neto, J.	95
Pozo-Guisado, E.	325	Shaikh, S. R.	359	Tsai, T.-Y.	119	Xiao, L.	417
Pribat, A.	161	Shaw, R. K.	247	Tucker, K. L.	435	Xiong, S.	417
Priyadarsini, K. I.	305	Shibata, M.	265	Tunnacliffe, A.	417	Xiong, Y.	227
		Shih, J.-W.	119	Tyteca, D.	105	Xu, F.	275
Quaini, F.	511	Skaff, O.	305				
		Smetana, J. H.	95	Umenaga, Y.	237	Yang, Z.	199
Rafiqi, F. H.	325	Song, A.-X.	143	Usui, T.	237	Yoon, H.	473
Rein, T.	297	Song, X.	387			Yoon, S. N.	407
Reith, A. D.	347	Sormani, R.	161	Vaanholt, L. M.	285	Yoon, Y.	189
Riedl, M. S.	511	Speakman, J. R.	285	Valmier, J.	463		
Rizzi, M.	131	Squina, F. M.	95	van der Woude, C. J.	87	Zabeau, L.	425
Robin, M.	453	Steiner, A.	297	Van Schaftingen, E.	105	Zeldich, E.	453
Robinson, B. H.	275	Stenmark, H.	399	Vasudevan, S. R.	435	Zeri, A. C.	95
Rodríguez, J. A.	209	Stojan, J.	151	Verhee, A.	425	Zhang, H.	417
Rothan, C.	161	Sturla, L.	131	Vitari, A. C.	325	Zhang, Y.-H.	143
Rousseau-Gueutin, M.	161	Sun, F.	113	Vulchanova, L.	511	Zhao, X.	199
Ruiz-Deñás, F. J.	487	Sun, X. E.	219			Zhou, X.	227
Ruller, R.	95			Wang, C.-c.	113	Zhou, Z.-R.	143
		Tahay, G.	105	Wang, J.	443	Zhuo, W.	387
Sadler, A. J.	435	Tam, M. F.	367	Wang, L.	113	Zou, S.	417
Salgueiro, C. A.	179	Tavernier, J.	425				
Sánchez-Morán, E.	481						