

Biochemical Journal

The Biochemical Society, London © 2005

Volume 385, part 2

15 January 2005

<http://www.BiochemJ.org>

Editorial Board

Chair

G. Banting • Bristol

Vice Chair, The Americas

G. Salvesen • La Jolla

Reviews Editor

J. D. Scott • Portland, OR

Deputy Chairs

R. A. J. Challiss • Leicester

S. V. Graham • Glasgow

S. Gutteridge • Newark, DE

D. Hoekstra • Groningen

N. M. Hooper • Leeds

J. P. Kehrer • Austin

C. MacKintosh • Dundee

K. H. Mayo • Minneapolis

H. M. Wallace • Aberdeen

M. P. Walsh • Calgary

Publisher

P. J. Starley

Production Editor

M. D. Cunningham

Senior Staff Editor

S. M. Hobday

Staff Editors

L. Ball

E. A. G. Elloway

L. Johnson

J. W. Mockridge

L. M. Petty

M. R. Thorne

Administrative Editor, US Office

S. Schendel

D. R. Alessi (Dundee)

G. J. Barritt (Adelaide)

J. L. Blank (Cambridge, MA)

M. Blatt (Glasgow)

P. G. Board (Canberra)

M. Bogoy (Stanford, CA)

L. Bosca (Madrid)

B. Brüne (Kaiserslautern)

D. Carling (London)

A. Clerk (London)

G. P. Côté (Kingston, Ont.)

J. R. Couchman (London)

D. A. Day (Sydney)

C. S. Duckett (Ann Arbor)

B. Engelmann (Munich)

R. M. Epand (Hamilton, Ont.)

D. A. Fell (Oxford)

R. Ferraris (Newark, NJ)

B. Foxwell (London)

J.-M. Frère (Liège)

A. Galione (Oxford)

P. G. W. Gettins (Chicago)

D. A. F. Gillespie (Glasgow)

S. Goodbourn (London)

P. A. Grimaldi (Nice)

B. Hallberg (Umeå)

P. I. Harris (Leicester)

L. Hedstrom (Waltham, MA)

F. G. Hegardt (Barcelona)

S. High (Manchester)

I. B. Holland (Orsay)

J. Hsuan (London)

S. Huber (Urbana, IL)

R. Kalluri (Boston)

B. Kalyanaraman (Milwaukee)

M. G. Kazanietz (Philadelphia)

I. M. Kovach (Washington D.C.)

P. W. Kuchel (Sydney)

R. Leduc (Sherbrooke)

E. R. Levin (Long Beach, CA)

L. Machesky (Birmingham)

R. Marais (London)

P. Maurel (Montpellier)

M. Meisterernst (Munich)

H. Mellor (Bristol)

I. Morgan (Glasgow)

W. Müller-Esterl (Frankfurt)

B. Mulloy (South Mimms)

A. W. Munro (Leicester)

M. P. Murphy (Cambridge)

L. M. Obeid (Charleston)

M. Parenti (Monza)

M. A. J. Parry (Harpندن)

S. Patel (London)

G. Pavitt (Manchester)

M. Paulsson (Cologne)

L. Persson (Lund)

A. D. Postle (Southampton)

N. J. Pyne (Glasgow)

D. R. Richardson (Sydney)

S. Roberts (Manchester)

N. J. P. Ryba (Bethesda)

J. R. Sayers (Sheffield)

S. C. Sealfon (New York)

P. R. Shepherd (Auckland)

A. Sim (Callaghan, NSW)

B. F. Sloane (Detroit)

C. W. Taylor (Cambridge)

M. Thumm (Goettingen)

M. A. Titheradge (Brighton)

A. B. Tobin (Leicester)

A. Toker (Boston)

S. A. Tooze (London)

M. Torti (Pavia)

C. Troy (New York)

D. M. F. van Aalten (Dundee)

B. Vanhaesebroeck (London)

S. G. Ward (Bath)

J. F. Woessner (Miami)

J. York (Durham, NC)

S. Yoshikawa (Akoh-Hyogo)

C. Zurzolo (Paris)



- The *Biochemical Journal* (ISSN 0264-6021 for print/online journal; ISSN 1470-8728 for online only journal) is published and distributed by Portland Press Ltd on behalf of the Biochemical Society (the owner), and appears twice monthly.
- **Editorial and publishing offices:** *Biochemical Journal*, 59 Portland Place, London W1B 1QW, U.K.
- **Biochemical Journal**, c/o Mercury Airfreight International Ltd, 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 0264-6021/2005/\$40.00 + 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 Airfreight International Ltd, 365 Blair Road, Avenel, NJ 07001, U.S.A.
- **Cover illustration:** A T-lymphoblast transmigrating across an endothelial cell. Actin stress fibres in the endothelial cell and the outline of the T-lymphoblast stain red, and ICAM-1 on the apical surface of the endothelial cell stains green. Image kindly provided by Jaime Millán and Anne Ridley (Ludwig Institute for Cancer Research, London, U.K.).

● **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 biochemical knowledge. 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 equally with papers dealing with experimental work. 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 refereed 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. Papers reporting nucleotide sequences only are not acceptable as APs. One colour figure will be published free of charge in APs; subsequent figures will cost £300 each.

● **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 typed 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.

● **Queries and correspondence** Authors in the Americas should address all queries and correspondence about their submission to: Dr Sharon Schendel, BJ USA, The Burnham Institute, 10901 N. Torrey Pines Road, La Jolla, CA 92037, U.S.A. (telephone +1 858 713 6283; fax +1 858 713 6284; email editorial@biochemjusa.org). Authors in the U.K., the rest of Europe, Japan and the rest of the world should contact: The Publisher, *Biochemical Journal*, 59 Portland Place, London W1B 1QW, U.K. (telephone +44 20 7637 5873; fax +44 20 7323 1136; email editorial@portlandpress.com).

● **Colour figures** The first colour figure is published at no charge provided that one author has been a member of the Biochemical Society for at least 2 years and that the use of colour is deemed scientifically necessary by the reviewers. Subsequent colour figures in the same paper cost £300 each.

● **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 and PDB for structures. There is no extra charge associated with the publication of a multimedia adjunct online.

Other information

The *Biochemical Journal* is published and distributed by Portland Press Ltd on behalf of the Biochemical Society. It is published twice monthly; in 2005 volumes 385–392 (three parts each) will appear. The subscription also includes an author and key-word index.

● **Subscription rates** Institutional subscription rates for 2005 are shown below. Subscribers to the *Biochemical Journal* can subscribe additionally to *Biochemical Society Transactions* and *Biotechnology and Applied Biochemistry* on a joint subscription at a reduced rate. 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, or through your usual agent.

	N. America	Rest of world	Euro price
One year (8 vols)			
Print and online	US\$2830	£1496	€2545
Online only	US\$2500	£1325	€2250
Single issues (print only)	US\$138.70	£73	€124.10

Overseas rates include airfreight delivery. Priority delivery is available at an additional cost of £61.80/€105.

VAT is due on some 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 102–336 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: Nicky Peacock, Mainline Media Ltd, The Barn, Oakley Hay Lodge Business Park, Great Folds Road, Great Oakley, Corby, Northamptonshire NN18 9AS, U.K. (telephone 01536 747333; email Nickyppmm@aol.com).



Review

- Rho GTPases and leucocyte-induced endothelial remodelling** J. Millán and A.J. Ridley 329–337
Published as BJ Immediate Publication 21 October 2004, DOI 10.1042/BJ20041584

Research Papers

- Argpyrimidine, a methylglyoxal-derived advanced glycation end-product in familial amyloidotic polyneuropathy R. Gomes, M. Sousa Silva, A. Quintas, C. Cordeiro, A. Freire, P. Pereira, A. Martins, E. Monteiro, E. Barroso and A. Ponces Freire 339–345
Published as BJ Immediate Publication 28 July 2004, DOI 10.1042/BJ20040833
- The septin Sept5/CDCrel-1 competes with α -SNAP for binding to the SNARE complex C.L. Beites, K.A. Campbell and W.S. Trimble 347–353
Published as BJ Immediate Publication 8 September 2004, DOI 10.1042/BJ20041090
- Functional domain organization of the potato α -glucan, water dikinase (GWD): evidence for separate site catalysis as revealed by limited proteolysis and deletion mutants R. Mikkelsen and A. Blennow 355–361
Published as BJ Immediate Publication 13 September 2004, DOI 10.1042/BJ20041119
- Hepatitis A virus proteinase 3C binding to viral RNA: correlation with substrate binding and enzyme dimerization H. Peters, Y.Y. Kusov, S. Meyer, A.J. Benie, E. Bäuml, M. Wolff, C. Rademacher, T. Peters and V. Gauss-Müller 363–370
Published as BJ Immediate Publication 13 September 2004, DOI 10.1042/BJ20041153
- GCN2 phosphorylation of eIF2 α activates NF- κ B in response to UV irradiation H.-Y. Jiang and R.C. Wek 371–380
Published as BJ Immediate Publication 8 September 2004, DOI 10.1042/BJ20041164
- Proteoglycans and catabolic products of proteoglycans present in ligament M.Z. Ilic, P. Carter, A. Tyndall, J. Dudhia and C.J. Handley 381–388
Published as BJ Immediate Publication 26 August 2004, DOI 10.1042/BJ20040844
- Human recombinant membrane-bound aminopeptidase P: production of a soluble form and characterization using novel, internally quenched fluorescent substrates G. Molinaro, A.K. Carmona, M.A. Juliano, L. Juliano, E. Malitskaya, M.-A. Yessine, M. Chagnon, Y. Lepage, W.H. Simmons, G. Boileau and A. Adam 389–397
Published as BJ Immediate Publication 13 September 2004, DOI 10.1042/BJ20040849
- Identification and characterization of pleckstrin-homology-domain-dependent and isoenzyme-specific Akt inhibitors S.F. Barnett, D. Defeo-Jones, S. Fu, P.J. Hancock, K.M. Haskell, R.E. Jones, J.A. Kahana, A.M. Kral, K. Leander, L.L. Lee, J. Malinowski, E.M. McAvoy, D.D. Nahas, R.G. Robinson and H. E. Huber 399–408
Published as BJ Immediate Publication 29 September 2004, DOI 10.1042/BJ20041140
- Reaction of artemisinin with haemoglobin: implications for antimalarial activity R. Kannan, K. Kumar, D. Sahal, S. Kukreti and V.S. Chauhan 409–418
Published as BJ Immediate Publication 10 September 2004, DOI 10.1042/BJ20041170

Arginine-482 is not essential for transport of antibiotics, primary bile acids and unconjugated sterols by the human breast cancer resistance protein (ABCG2) <i>Published as BJ Immediate Publication 14 September 2004, DOI 10.1042/BJ20040791</i>	T. Janvilisri, S. Shahi, H. Venter, L. Balakrishnan and H.W. van Veen	419–426
The high concentration of Arg ²¹³ → Gly extracellular superoxide dismutase (EC-SOD) in plasma is caused by a reduction of both heparin and collagen affinities <i>Published as BJ Immediate Publication 14 September 2004, DOI 10.1042/BJ20041218</i>	S.V. Petersen, D.Aa. Olsen, J.M. Kenney, T.D. Oury, Z. Valnickova, I.B. Thøgersen, J.D. Crapo and J.J. Enghild	427–432
Characterization of the survival motor neuron (SMN) promoter provides evidence for complex combinatorial regulation in undifferentiated and differentiated P19 cells <i>Published as BJ Immediate Publication 13 September 2004, DOI 10.1042/BJ20041024</i>	R. Rouget, F. Vigneault, C. Codio, C. Rochette, I. Paradis, R. Drouin and L.R. Simard	433–443
Octameric mitochondrial creatine kinase induces and stabilizes contact sites between the inner and outer membrane <i>Published as BJ Immediate Publication 5 August 2004, DOI 10.1042/BJ20040386</i>	O. Speer, N. Bäck, T. Buerklen, D. Brdiczka, A. Koretsky, T. Wallimann and O. Eriksson	445–450
Characterization of heparan sulphate 3-O-sulphotransferase isoform 6 and its role in assisting the entry of herpes simplex virus type 1 <i>Published as BJ Immediate Publication 10 August 2004, DOI 10.1042/BJ20040908</i>	D. Xu, V. Tiwari, G. Xia, C. Clement, D. Shukla and J. Liu	451–459
The disintegrin domain of ADAM9: a ligand for multiple β 1 renal integrins <i>Published as BJ Immediate Publication 10 September 2004, DOI 10.1042/BJ20041133</i>	R.M. Mahimkar, O. Visaya, A.S. Pollock and D.H. Lovett	461–468
Cloning and characterization of murine 1-acyl-sn-glycerol 3-phosphate acyltransferases and their regulation by PPAR α in murine heart <i>Published as BJ Immediate Publication 15 September 2004, DOI 10.1042/BJ20041348</i>	B. Lu, Y.J. Jiang, Y. Zhou, F.Y. Xu, G.M. Hatch and P.C. Choy	469–477
The interaction of carbohydrate-binding modules with insoluble non-crystalline cellulose is enthalpically driven <i>Published as BJ Immediate Publication 18 October 2004, DOI 10.1042/BJ20041473</i>	A.B. Boraston	479–484
5-Aminoimidazole-4-carboxamide riboside (AICAR) enhances GLUT2-dependent jejunal glucose transport: a possible role for AMPK <i>Published as BJ Immediate Publication 15 September 2004, DOI 10.1042/BJ20040694</i>	J. Walker, H.B. Jijon, H. Diaz, P. Salehi, T. Churchill and K.L. Madsen	485–491
Lipid phosphate phosphatase-1 regulates lysophosphatidic acid-induced calcium release, NF- κ B activation and interleukin-8 secretion in human bronchial epithelial cells <i>Published as BJ Immediate Publication 5 October 2004, DOI 10.1042/BJ20041160</i>	Y. Zhao, P.V. Usatyuk, R. Cummings, B. Saatian, D. He, T. Watkins, A. Morris, E.W. Spannhake, D.N. Brindley and V. Natarajan	493–502
The adaptor protein AP-4 as a component of the clathrin coat machinery: a morphological study <i>Published as BJ Immediate Publication 17 September 2004, DOI 10.1042/BJ20041010</i>	N. Barois and O. Bakke	503–510
Secondary structure, conformational stability and glycosylation of a recombinant <i>Candida rugosa</i> lipase studied by Fourier-transform infrared spectroscopy <i>Published as BJ Immediate Publication 14 September 2004, DOI 10.1042/BJ20041296</i>	A. Natalello, D. Ami, S. Brocca, M. Lotti and S.M. Doglia	511–517
Interactions of human replication protein A with single-stranded DNA adducts <i>Published as BJ Immediate Publication 14 September 2004, DOI 10.1042/BJ20041151</i>	Yiyong Liu, Z. Yang, C.D. Utzat, Yu Liu, N.E. Geacintov, A.K. Basu and Y. Zou	519–526

Processive action of cellobiohydrolase Cel7A from <i>Trichoderma reesei</i> is revealed as 'burst' kinetics on fluorescent polymeric model substrates <i>Published as BJ Immediate Publication 14 September 2004, DOI 10.1042/BJ20041144</i>	K. Kipper, P. Väljamäe and G. Johansson	527–535
Tumour necrosis factor α (TNF)–TNF receptor 1-inducible cytoprotective proteins in the mouse liver: relevance of suppressors of cytokine signalling <i>Published as BJ Immediate Publication 22 November 2004, DOI 10.1042/BJ20040279</i>	G. Sass, N.D. Shembade and G. Tiegs	 537–544
Proteasome-mediated effects on amyloid precursor protein processing at the γ -secretase site <i>Published as BJ Immediate Publication 11 October 2004, DOI 10.1042/BJ20041145</i>	F. Flood, S. Murphy, R.F. Cowburn, L. Lannfelt, B. Walker and J.A. Johnston	545–550
Arachidonic acid inhibits the store-operated Ca^{2+} current in rat liver cells <i>Published as BJ Immediate Publication 29 October 2004, DOI 10.1042/BJ20041604</i>	G.Y. Rychkov, T. Litjens, M.L. Roberts and G.J. Barritt	551–556
Transcriptional regulation of the human DNA methyltransferase 3A and 3B genes by Sp3 and Sp1 zinc finger proteins <i>Published as BJ Immediate Publication 14 September 2004, DOI 10.1042/BJ20040684</i>	A. Jinawath, S. Miyake, Y. Yanagisawa, Y. Akiyama and Y. Yuasa	557–564
X-ray crystal structure of ornithine acetyltransferase from the clavulanic acid biosynthesis gene cluster <i>Published as BJ Immediate Publication 7 September 2004, DOI 10.1042/BJ20040814</i>	J.M. Elkins, N.J. Kershaw and C.J. Schofield	565–573
Random mutagenesis of bacterial luciferase: critical role of Glu ¹⁷⁵ in the control of luminescence decay <i>Published as BJ Immediate Publication 7 September 2004, DOI 10.1042/BJ20040863</i>	S. Hosseinkhani, R. Szttnner and E.A. Meighen	575–580
A highly acid-stable and thermostable endo- β -glucanase from the thermoacidophilic archaeon <i>Sulfolobus solfataricus</i> <i>Published as BJ Immediate Publication 30 September 2004, DOI 10.1042/BJ20041388</i>	Y. Huang, G. Krauss, S. Cottaz, H. Driguez and G. Lipps	581–588
Real-time imaging of myosin II regulatory light-chain phosphorylation using a new protein biosensor <i>Published as BJ Immediate Publication 14 September 2004, DOI 10.1042/BJ20040778</i>	A. Yamada, K. Hirose, A. Hashimoto and M. Iino	589–594
Apo2L/TRAIL induction and nuclear translocation of inositol hexakisphosphate kinase 2 during IFN- β -induced apoptosis in ovarian carcinoma <i>Published as BJ Immediate Publication 24 September 2004, DOI 10.1042/BJ20040971</i>	B.H. Morrison, Z. Tang, B.S. Jacobs, J.A. Bauer and D.J. Lindner	595–603
Expression, purification, characterization and structure of <i>Pseudomonas aeruginosa</i> arylamine N-acetyltransferase <i>Published as BJ Immediate Publication 24 September 2004, DOI 10.1042/BJ20041330</i>	I.M. Westwood, S.J. Holton, F. Rodrigues-Lima, J.-M. Dupret, S. Bhakta, M.E.M. Noble and E. Sim	 605–612
Heterogeneous nuclear ribonucleoprotein K represses transcription from a cytosine/thymidine-rich element in the osteocalcin promoter <i>Published as BJ Immediate Publication 10 September 2004, DOI 10.1042/BJ20040680</i>	J.P. Stains, F. Lecanda, D.A. Towler and R. Civitelli	613–623

Editorial Advisory Panel

- C. Abell (Cambridge)
M. Abrahamson (Lund)
L. Agius (Newcastle upon Tyne)
P. Aisen (New York)
A. Aitken (Edinburgh)
B. Akerström (Lund)
L. Alhonen (Kuopio)
B. Allen (Montreal)
C. Anthony (Southampton)
G. J. Arlaud (Grenoble)
F. A. Armstrong (Oxford)
B. Ashby (Philadelphia)
K. S. Authi (London)
- A. Baici (Zürich)
A. J. Bailey (Langford)
A. J. Baines (Canterbury)
M. P. Barrett (Glasgow)
C. H. Barton (Southampton)
J. F. Bateman (Parkville)
G. Bavarel (Lyon)
J. H. Beattie (Aberdeen)
C. Beaumont (Paris)
D. R. Bell (Nottingham)
D. S. Bendall (Cambridge)
A. Benedetti (Siena)
J. P. Bennett (Hull/York)
A. Berry (Leeds)
L. G. Berthiaume (Edmonton)
R. J. Beynon (Liverpool)
O. Billker (London)
C. D. Bingle (Sheffield)
G. E. Blair (Leeds)
N. Blau (Zürich)
M. A. Bogoyevitch (Nedlands)
G. B. Bolger (Birmingham, AL)
G. P. Bolwell (Egham)
A. R. Boobis (London)
P. Booth (Bristol)
M. D. Bootman (Cambridge)
K. M. Botham (London)
M. J. Brammer (London)
S. Bratton (Austin, TX)
D. Brdiczka (Konstanz)
R. G. Brennan (Portland, OR)
K. M. Brindle (Cambridge)
K. Brocklehurst (London)
S. Broer (Canberra)
E. Brot-Laroche (Paris)
A. J. P. Brown (Aberdeen)
G. Brown (Birmingham)
H. Brumer (Stockholm)
N. Bryant (Glasgow)
N. J. Bulleid (Manchester)
N. W. Bunnett (San Francisco)
B. Burchell (Dundee)
S. J. W. Busby (Birmingham)
P. J. Butterworth (London)
- K. Cain (Leicester)
J. J. Calvete (Valencia)
E. A. Carrey (London)
C. Casals (Madrid)
A. M. Caswell (Leeds)
A. F. Chaffotte (Paris)
L. Chamberlain (Glasgow)
K. E. Chapman (Edinburgh)
F. Checler (Valbonne)
P. K. Chiang (San Francisco)
E. R. Chilvers (Cambridge)
M. Claret (Orsay)
P. Clarke (Dundee)
P. Codogno (Villejuif)
- P. Cohen (Dundee)
J. Colyer (Leeds)
S. J. Cook (Cambridge)
J. R. Coorsen (Calgary)
A. P. Corfield (Bristol)
D. A. Cowan (Cape Town)
R. Cramer (Davos)
C. E. Creutz (Charlottesville)
K. Croft (Perth)
M. Crossley (Sydney)
C. M. Cuchillo (Barcelona)
J. M. Cuezva (Madrid)
N. P. Curthoys (Fort Collins)
W. Cushley (Glasgow)
- C. Dani (Nice)
R. M. Daniel (Hamilton)
C. J. Danpure (London)
V. Darley-Usmar (Birmingham, AL)
M. J. Davies (Sydney)
B. Davis (Oxford)
F. C. de Beer (Lexington)
H. de Groot (Essen)
H. R. De Jonge (Rotterdam)
L. Dekker (Cambridge)
A. DeLong (Providence, RI)
P. N. M. Demacker (Nijmegen)
N. Demareux (Geneva)
Q. Deveraux (San Diego)
C. Dingwall (Harlow)
F. E. Domann (Iowa City)
D. Donner (Indianapolis)
C. J. Dorman (Dublin)
R. Douce (Grenoble)
K. T. Douglas (Manchester)
C. P. Downes (Dundee)
A. Draeger (Bern)
K. Drickamer (Oxford)
B. Drøbak (Norwich)
M. J. Dufton (Glasgow)
R. M. Drummond (Glasgow)
M. Duchon (London)
R. Duggleby (Brisbane)
- J. M. Edwardson (Cambridge)
L. Ellerby (Novato)
P. M. Epstein (Farmington)
F. Erdodi (Debrecen)
C. Erneux (Brussels)
- P. Fay (Rochester, NY)
T. Feizi (London)
R. C. Feldhoff (Louisville, KY)
L. M. Field (Harpending)
M. C. Field (London)
L. M. Fisher (London)
P. R. Flatt (Londonderry)
D. R. Flower (Newbury)
G. Forloni (Milan)
F. Fougère (Paris)
K. R. Fox (Southampton)
M. Francis (Umeå)
P. Fuentes-Prior (Barcelona)
M. H. Fukami (Bergen)
S. J. Fuller (London)
- C. G. Gahmberg (Helsinki)
J. T. Gallagher (Manchester)
T. Galli (Paris)
B. Garner (Sydney)
K. Gaus (Sydney)
R. A. Geremia (Grenoble)
- V. Gerke (Muenster)
C. S. Gillespie (Edinburgh)
A. Gomez-Muñoz (Bilbao)
R. A. Gottlieb (La Jolla)
L. Graeve (Stuttgart)
J. C. Gray (Cambridge)
A. W. Griffioen (Maastricht)
S. Grinstein (Toronto)
T. Grune (Dusseldorf)
S. J. Gunst (Indianapolis)
- A. Hall (London)
G. C. Hansson (Gothenburg)
J. Harris (San Diego)
G. M. Hatch (Winnipeg)
P. T. Hawkins (Cambridge)
J. D. Hayes (Dundee)
T. Herbert (Leicester)
K. Heremans (Leuven)
A. C. Herington (Brisbane)
H. Hiasa (Minneapolis)
J. Higgins (Sheffield)
K. Hinchliffe (Manchester)
J. A. Hiscox (Leeds)
M. Hodgkin (Coventry)
K. Hoebe (La Jolla)
A. A. Holder (London)
G. D. Holman (Bath)
M. J. Holness (London)
D. Holowka (Ithaca, NY)
N. A. Hotchin (Birmingham)
M. D. Houslay (Glasgow)
C. Howe (Cambridge)
A. Hudmon (West Haven, CT)
H. Hundal (Dundee)
I. Hussain (Harlow)
J. C. Hutton (Denver)
E. Hyde (Birmingham)
- Y. Ikehara (Fukuoka)
R. A. Iles (London)
A. Imberty (Grenoble)
G. B. Irvine (Belfast)
R. E. Isaac (Leeds)
C. M. Isacke (London)
T. Ishikawa (Yokohama)
P. B. Iynedjian (Geneva)
- K. H. Jakobs (Essen)
D. R. Janero (Bedford, MA)
S. M. Jarvis (London)
R. A. John (Cardiff)
P. Johnson (Vancouver)
N. C. Jones (Manchester)
L. B. Justement (Birmingham, AL)
- M. A. Kaderbhai (Aberystwyth)
K. E. Kadler (Manchester)
E. Kalkhoven (Utrecht)
H. Kanoh (Sapporo)
J. H. Kaplan (Chicago)
P. Karran (South Mimms)
D. J. Keeling (Loughborough)
P. J. Kennelly (Blacksburg, VA)
S. Keyse (Dundee)
C. M. Kielty (Manchester)
T. M. Kitson (Palmerston North)
L. Kjellen (Uppsala)
E. Knecht (Valencia)
J. Knudsen (Odense)
W. Kolch (Glasgow)
Y. Kuroki (Sapporo)
J. Kuznicki (Warsaw)
- A. Lane (Louisville, KY)
D. A. Lane (London)
P. J. Large (Hull)
P. J. Lea (Lancaster)
D. S. Leake (Reading)
A. LeBlanc (Quebec)
M. A. Lemmon (Philadelphia)
P. J. Lenting (Utrecht)
C. C. Leslie (Denver)
R. E. Lewis (Omaha, NE)
R. Lightowlers
(Newcastle-upon-Tyne)
J. E. Lillehaug (Bergen)
D. M. J. Lilley (Dundee)
M. Liscovitch (Rehovot)
J. M. Lord (Coventry)
M. G. Low (New York)
M. Lowe (Manchester)
R. Ludowyke (Sydney)
K. A. Lukyanov (Moscow)
P. A. Lund (Birmingham)
M. Lyon (Manchester)
- D. J. MacEwan (Aberdeen)
J. Mackrill (Cork)
G. Maga (Pavia)
A. I. Magee (London)
C. C. Malbon (Stony Brook, NY)
W. Maltese (Toledo, OH)
J. P. G. Malthouse (Dublin)
G. E. Mann (London)
B. Mannervik (Uppsala)
J. S. Marchant (Minneapolis)
D. Martin (Dundee)
P. Martin (Glasgow)
R. W. Mason (Wilmington)
P. Masson (La Tronche)
A. Matagne (Leige)
S. Matthews (Dundee)
B. Mayer (Graz)
M. J. McConville (Parkville)
I. J. McEwan (Aberdeen)
J. D. McGivan (Bristol)
R. A. J. McIlhinney (Oxford)
D. McIntosh (London)
L. McLellan (Dundee)
A. G. McLennan (Liverpool)
P. A. Meacock (Leicester)
D. W. Meek (Dundee)
P. J. Meier-Abt (Zürich)
E. Melendez-Hevia (Tenerife)
A. K. Menon (Madison)
R. Merrill (Guelph)
D. J. Meyer (London)
J. A. Miernyk (Columbia)
P. A. Millner (Leeds)
J. L. A. Mitchell (DeKalb, IL)
A. Morgan (Liverpool)
I. Morgan (Glasgow)
M. Mori (Kumamoto)
S. Morley (Brighton)
S. Morris (Pittsburgh)
M. Moustaid Moussa (Knoxville, TN)
N. Mueckler (St. Louis)
G. Murphy (Cambridge)
- H. Nagase (London)
T. Nagatsu (Aichi)
V. Natarajan (Baltimore)
A. R. Nebreda (Madrid)
P. Newsholme (Dublin)
R. Nibbs (Glasgow)
I. A. Nieduszynski (Lancaster)

EDITORIAL ADVISORY PANEL (continued)

- M. Nishijima (Tokyo)
C. Nobes (Bristol)
R. I. Norman (Leicester)
M. A. Nugent (Boston, MA)
- J. O'Donnell (Memphis)
S. Olsnes (Oslo)
K. Omori (Saitama)
V. O'Donnell (Cardiff)
L. A. J. O'Neill (Dublin)
R. P. J. Oude Elferink (Amsterdam)
- M. G. P. Page (Basel)
M. I. Page (Huddersfield)
F. Palmieri (Bari)
G. Panayotou (Varese)
J. D. Pearson (London)
D. Pei (Minneapolis)
T. M. Penning (Philadelphia)
K. C. Persaud (Manchester)
M. Pfeilschifter (Frankfurt)
T. Pihlajaniemi (Oulu)
T. S. Pillay (Nottingham)
J. Pines (Cambridge)
B. V. Polevoda (Rochester, NY)
V. Ponnambalam (Leeds)
C. Ponzetto (Torino)
F. Possmayer (London, Ont.)
D. Poyner (Birmingham)
N. C. Price (Glasgow)
S. A. Prigent (Leicester)
C. A. Pritchard (Leicester)
I. Prior (Liverpool)
D. Prockop (New Orleans)
M. Puceat (Montpellier)
S. Pyne (Glasgow)
- B. Qualmann (Magdeburg)
- D. M. Raben (Baltimore)
C. Rabouille (Edinburgh)
Z. Radić (La Jolla)
S. Rahman (London)
D. P. Ramji (Cardiff)
M. Rattray (London)
- F. X. Real (Barcelona)
B. Reaves (Bath)
C. C. Reddy (University Park, PA)
C. P. F. Redfern (Newcastle upon Tyne)
R. J. Reece (Manchester)
B. H. A. Rehm (Palmerston North)
G. A. Reid (Edinburgh)
R. A. F. Reithmeier (Toronto)
P. S. Rennie (Vancouver)
C. Rice-Evans (London)
P. J. Richardson (Cambridge)
C. C. Rider (Egham)
M. H. Rider (Brussels)
J. D. Robertson (Kansas City)
L. Rönstrand (Malmö)
H. Rosen (La Jolla)
G. Rotilio (Rome)
F. Russo-Marie (Paris)
- J.-M. Sabatier (Marseille)
D. B. Sacks (Boston, MA)
P. Saftig (Kiel)
K. S. Sakariassen (Uppsala)
J. P. Salier (Rouen)
J. Savill (Edinburgh)
M. F. G. Schmidt (Berlin)
M. L. Schmitz (Bern)
N. S. Scrutton (Leicester)
M. C. Seabra (London)
K. Seedorf (Hamburg)
A. W. Segal (London)
L. M. Shantz (Hershey)
S. D. Shapiro (Boston)
M. Shearman (Harlow)
S. B. Shears
(Research Triangle Park, NC)
D. Sheehan (Cork)
Y. Shimomura (Nagoya)
P. Shore (Manchester)
K. Siddle (Cambridge)
H. Sies (Düsseldorf)
H. Sjöström (Copenhagen)
F. M. Sladek (Riverside, CA)
D. M. Smith (Macclesfield)
M. Solioz (Bern)
- S. Spadari (Pavia)
F. Spener (Münster)
C. Springer (Sutton)
H. Stennicke (Bagsvaerd)
W. Stöcker (Mainz)
G. J. Strous (Utrecht)
T. W. Sturgill (Charlottesville)
K. E. Suckling (Stevenage)
A. Suroia (Bangalore)
B. Svensson (Kgs. Lyngby)
- L. J. Takemoto (Manhattan, KS)
K. M. Taylor (Cardiff)
A. Tepikin (Liverpool)
M. Thelen (Bellinzona)
G. Thiel (Homburg)
M. S. Thomas (Sheffield)
N. S. B. Thomas (London)
D. Thornton (Manchester)
C. Tickle (Dundee)
P. J. Tonge (Stony Brook)
D. Tosh (Bath)
P. Trayhurn (Liverpool)
A. J. Trewavas (Edinburgh)
J. T. Triffitt (Oxford)
G. C. Tsokos
(Silver Spring, MD)
J. Turnbull (Liverpool)
B. M. Turner (Birmingham)
- B. Ullman (Portland, OR)
H. D. Ulrich (South Mimms)
- L. M. G. van Golde (Utrecht)
S. van Heyningen (Edinburgh)
E. van Schaftingen (Brussels)
A. Varadi (Budapest)
G. Vassart (Bruxelles)
A. Veillette (Montreal)
G. Verhoeven (Leuven)
D. A. Vessey (San Francisco)
H. Vidal (Lyon)
F. Villarroya (Barcelona)
- J. F. G. Vliegthart (Utrecht)
- M. C. Wahl (Göttingen)
M. J. Warren (London)
N. J. Watmough (Norwich)
S. P. Watson (Birmingham)
A. Watts (Oxford)
D. J. Waxman (Boston)
M. J. Welham (Bath)
K. G. Welinder (Aalborg)
R. E. Wettenhall (Parkville)
M. Wheatley (Birmingham)
C. Wheeler-Jones (London)
P. J. White (Warwick)
D. G. Wilkinson (London)
I. Wilson (Wien)
S. A. Wilson (Sheffield)
D. C. Wilton (Southampton)
J.-O. Winberg (Tromsø)
S. J. Winder (Sheffield)
C. C. Winterbourn
(Christchurch, NZ)
S. G. Withers (Vancouver)
R. Wojcikiewicz (Syracuse, NY)
P. Wojtaszek (Poznan)
S. Wolf (Jena)
J. M. Woof (Dundee)
J. M. Wrigglesworth (London)
M. C. Wright (Aberdeen)
S. Wright (Leeds)
G. Wu (College Station, TX)
F. Wuytack (Leuven)
M. P. Wymann (Fribourg)
- H. Yagisawa (Hyogo-ken)
J. Ye (Sydney)
I. Young (Belfast)
L. S. Young (Birmingham)
S. P. Young (Birmingham)
D. I. Yule (Rochester, NY)
- I. Zachary (London)
R. Zamoyska (London)
J. M. Zapata (La Jolla)

Index of Authors

	PAGE		PAGE		PAGE		PAGE
Adam, A.	389	Freire, A.	339	Liu, J.	451	Sass, G.	537
Akiyama, Y.	557	Fu, S.	399	Liu, Yiyong	519	Schofield, C. J.	565
Ami, D.	511			Liu, Yu	519	Shahi, S.	419
		Gauss-Müller, V.	363	Lotti, M.	511	Shembade, N. D.	537
Bäck, N.	445	Geacintov, N. E.	519	Lovett, D. H.	461	Shukla, D.	451
Bakke, O.	503	Gomes, R.	339	Lu, B.	469	Sim, E.	605
Balakrishnan, L.	419					Simard, L. R.	433
Barnett, S. F.	399	Hancock, P. J.	399	Madsen, K. L.	485	Simmons, W. H.	389
Barois, N.	503	Handley, C. J.	381	Mahimkar, R. M.	461	Sousa Silva, M.	339
Barritt, G. J.	551	Hashimoto, A.	589	Malinowski, J.	399	Spannhake, E. W.	493
Barroso, E.	339	Haskell, K. M.	399	Malitskaya, E.	389	Speer, O.	445
Basu, A. K.	519	Hatch, G. M.	469	Martins, A.	339	Stains, J. P.	613
Bauer, J. A.	595	He, D.	493	McAvoy, E. M.	399	Szittner, R.	575
Bäumli, E.	363	Hirose, K.	589	Meighen, E. A.	575		
Beites, C. L.	347	Holton, S. J.	605	Meyer, S.	363	Tang, Z.	595
Benie, A. J.	363	Hosseinkhani, S.	575	Mikkelsen, R.	355	Tøgersen, I. B.	427
Bhakta, S.	605	Huang, Y.	581	Millán, J.	329	Tiegs, G.	537
Blennow, A.	355	Huber, H. E.	399	Miyake, S.	557	Tiwari, V.	451
Boileau, G.	389			Molinaro, G.	389	Towler, D. A.	613
Boraston, A. B.	479	Iino, M.	589	Monteiro, E.	339	Trimble, W. S.	347
Brdiczka, D.	445	Ilic, M. Z.	381	Morris, A.	493	Tyndall, A.	381
Brindley, D. N.	493			Morrison, B. H.	595		
Brocca, S.	511	Jacobs, B. S.	595	Murphy, S.	545	Usatyuk, P. V.	493
Buerklen, T.	445	Janvilisri, T.	419			Utzat, C. D.	519
		Jiang, H.-Y.	371	Nahas, D. D.	399		
Campbell, K. A.	347	Jiang, Y. J.	469	Natalello, A.	511	Väljamäe, P.	527
Carmona, A. K.	389	Jijon, H. B.	485	Natarajan, V.	493	Valnickova, Z.	427
Carter, P.	381	Jinawath, A.	557	Noble, M. E. M.	605	van Veen, H. W.	419
Chagnon, M.	389	Johansson, G.	527			Venter, H.	419
Chauhan, V. S.	409	Johnston, J. A.	545	Olsen, D. A.	427	Vigneault, F.	433
Choy, P. C.	469	Jones, R. E.	399	Oury, T. D.	427	Visaya, O.	461
Churchill, T.	485	Juliano, L.	389				
Civitelli, R.	613	Juliano, M. A.	389	Paradis, I.	433	Walker, B.	545
Clement, C.	451			Pereira, P.	339	Walker, J.	485
Codio, C.	433	Kahana, J. A.	399	Peters, H.	363	Wallimann, T.	445
Cordeiro, C.	339	Kannan, R.	409	Peters, T.	363	Watkins, T.	493
Cottaz, S.	581	Kenney, J. M.	427	Petersen, S. V.	427	Wek, R. C.	371
Cowburn, R. F.	545	Kershaw, N. J.	565	Pollock, A. S.	461	Westwood, I. M.	605
Crapo, J. D.	427	Kipper, K.	527	Ponces Freire, A.	339	Wolff, M.	363
Cummings, R.	493	Koretsky, A.	445				
		Kral, A. M.	399	Quintas, A.	339	Xia, G.	451
Defeo-Jones, D.	399	Krauss, G.	581			Xu, D.	451
Díaz, H.	485	Kukreti, S.	409	Rademacher, C.	363	Xu, F. Y.	469
Doglia, S. M.	511	Kumar, K.	409	Ridley, A. J.	329		
Driguez, H.	581	Kusov, Y. Y.	363	Roberts, M. L.	551	Yamada, A.	589
Drouin, R.	433			Robinson, R. G.	399	Yanagisawa, Y.	557
Dudhia, J.	381	Lannfelt, L.	545	Rochette, C.	433	Yang, Z.	519
Dupret, J.-M.	605	Leander, K.	399	Rodrigues-Lima, F.	605	Yessine, M.-A.	389
		Lecanda, F.	613	Rouget, R.	433	Yuasa, Y.	557
Elkins, J. M.	565	Lee, L. L.	399	Rychkov, G. Y.	551		
Enghild, J. J.	427	Lepage, Y.	389			Zhao, Y.	493
Eriksson, O.	445	Lindner, D. J.	595	Saatian, B.	493	Zhou, Y.	469
		Lipps, G.	581	Sahal, D.	409	Zou, Y.	519
Flood, F.	545	Litjens, T.	551	Salehi, P.	485		