

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**L. J. Goodyear** • Boston, MA**S. V. Graham** • Glasgow**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** • Charlottesville, VA**D. Tosh** • Bath**D. M. F. van Aalten** • Dundee**B. Vanhaesbroeck** • London**H. M. Wallace** • Aberdeen**M. F. White** • St Andrews

Publisher

P. J. Starley

Executive Editor

M. R. Thorne

Production Manager

M. D. Cunningham

Staff Editors

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

Administrative Editor, US Office

S. Schendel

- J. Ariño (Barcelona)
 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, VIC)
 L. H. Boise (Atlanta, GA)
 J. Bolaños (Salamanca)
 P. J. Booth (Bristol)
 L. Boscá (Madrid)
 P. S. Brookes (Rochester, NY)
 N. J. Buckley (London)
 D. Burger (Geneva)
 J. F. Cáceres (Edinburgh)
 D. Carling (London)
 M. Cascante (Barcelona)
 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)
 P. Fay (Rochester, NY)
 S. Flitsch (Manchester)
 P. G. W. Gettins (Chicago, IL)
 R. Golsteyn (Lethbridge, AB)
 B. Halliwell (Singapore)
 J. M. Horowitz (Raleigh, NC)
- E. Ikonen (Helsinki)
 A. Imberty (Grenoble)
 D. A. Jans (Monash)
 D. Jordan (Peoria, IL)
 M. G. Kazanietz (Philadelphia, PA)
 Z. Knight (New York)
 D. Komander (Cambridge)
 D. W. Laird (London, Ont.)
 J. H. Lakey (Newcastle upon Tyne)
 K. Lingelbach (Marburg)
 D. W. Litchfield (London, Ont.)
 B. Luisi (Cambridge)
 E. Manser (Singapore)
 M. McManus (Palmerston North)
 J. Miernyk (Columbia, MO)
 E. T. Morgan (Atlanta, GA)
 I. Morgan (Glasgow)
 A. J. Morris (Lexington, KY)
 M. Muckenthaler (Heidelberg)
 B. Mulloy (South Mimms)
 A. W. Munro (Manchester)
 G. Murphy (Cambridge)
 H. Y. Nairn (Hannover)
 J. Naismith (St Andrews)
 W. Ogawa (Kobe)
 G. Panayotou (Vari)
 S. Patel (London)
 G. Pavitt (Manchester)
 N. D. Perkins (Newcastle)
 P. F. Pilch (Boston, MA)
 W. C. Plaxton (Kingston, Ont.)
 S. Ponnambalam (Leeds)
 R. Y. Poon (Hong Kong)
 B. Potter (Bath)
 Z. Radić (La Jolla, CA)
- D. R. Richardson (Sydney)
 K. Rittinger (London)
 M. F. Roberts (Boston, MA)
 J. M. Sanchez-Ruiz (Granada)
 R. Sasisekharan (Cambridge, MA)
 N. Savery (Bristol)
 J. R. Sayers (Sheffield)
 P. T. Schumacker (Chicago, IL)
 M. C. Seabra (London)
 F. J. Sharom (Guelph, Ont.)
 G. S. Shelness (Winston-Salem, NC)
 H. Shimano (Tsukuba City)
 J. Slack (Minneapolis, MN)
 E. Smythe (Sheffield)
 S. Spiegel (Richmond, VA)
 S. Stack (Columbia, MO)
 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)
 M. van der Woude (York)
 A. J. Vidal-Puig (Cambridge)
 H. J. Vogel (Calgary)
 M. Welham (Bath)
 S. Whitney (Canberra)
 C. Winterbourn (Christchurch, NZ)
 D. Withers (London)
 D. Wu (Guangzhou)
 A. Xu (Hong Kong)
 H. Xue (Shanghai)
 I. Zachary (London)
 C. Zurzolo (Paris)

- Journal compilation © 2010 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 2JL, 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 0264-6021/2010/\$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:** Sharon M. 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.

Instructions to Authors

● 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 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 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 2011 volumes 433–440 (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 2011 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. One year (8 vols) Print and online	America Online only	Rest of world £2373 £2136	Euro price €3812 €3430
Single issues (print only)		US\$235	£119	€202

Overseas rates include airfreight delivery. Airspeeded delivery is available at an additional cost of £80/€101.

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: Mark Burgess, Editorial Department, Portland Press Limited Third Floor, Charles Darwin House, 12 Roger Street, London WC1N 2JL, U.K.; tel.: +44 (0)20 7685 2410; fax: +44 (0)20 7685 2469; email: editorial@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

The myotubularin family of lipid phosphatases in disease and in spermatogenesis

Published on the Internet 22 December 2010,
doi:10.1042/BJ20101267

TB domain proteins: evolutionary insights into the multifaceted roles of fibrillins and LTBP

Published on the Internet 22 December 2010,
doi:10.1042/BJ20101320

Online Commentary

For a PDK1 inhibitor, the substrate matters

Published on the Internet 22 December 2010,
doi:10.1042/BJ20102038
(see accompanying paper, pp. 357–369)

Research Papers

Molecular mechanisms of substrate recognition and specificity of botulinum neurotoxin serotype F

Published as BJ Immediate Publication 29 October 2010,
doi:10.1042/BJ20101310

The human polycystin-2 protein represents an integral membrane protein with six membrane-spanning domains and intracellular N- and C-termini

Published as BJ Immediate Publication 2 November 2010,
doi:10.1042/BJ20101141

Crystal structure of the catalytic core of *Saccharomyces cerevisiae* histone demethylase Rph1: insights into the substrate specificity and catalytic mechanism

Published as BJ Immediate Publication 10 November 2010,
doi:10.1042/BJ20101418

The crystal structure of human GLRX5: iron–sulfur cluster co-ordination, tetrameric assembly and monomer activity

Published as BJ Immediate Publication 29 October 2010,
doi:10.1042/BJ20101286

Protein 4.2 interaction with hereditary spherocytosis mutants of the cytoplasmic domain of human anion exchanger 1

Published as BJ Immediate Publication 1 November 2010,
doi:10.1042/BJ20101375

Surprising toxicity and assembly behaviour of amyloid β -protein oxidized to sulfone

Published as BJ Immediate Publication 2 November 2010,
doi:10.1042/BJ20101391

Role of p38 MAPK pathway in BMP4-mediated Smad-dependent premature senescence in lung cancer cells

Published as BJ Immediate Publication 4 November 2010,
doi:10.1042/BJ20100404

D.D. Mruk and C.Y. Cheng



253–262

I. Robertson, S. Jensen and P. Handford



263–276

Z.A. Knight

e1–e2

S. Chen and H.Y. Wan



277–284

H. Hoffmeister, A.-R. Gallagher, A. Rasclle and R. Witzgall



285–294

Y. Chang, J. Wu, X.-J. Tong, J.-Q. Zhou and J. Ding



295–302

C. Johansson, A.K. Roos, S.J. Montano, R. Sengupta, P. Filippakopoulos, K. Guo, F. von Delft, A. Holmgren, U. Oppermann and K.L. Kavanagh



303–311

S.P. Bustos and R.A.F. Reithmeier



313–322

P. Maiti, R. Piacentini, C. Ripoli, C. Grassi and G. Bitan



323–332

D. Su, X. Peng, S. Zhu, Y. Huang, Z. Dong, Y. Zhang, J. Zhang, Q. Liang, J. Lu and B. Huang



333–343

Contents

A new RNase sheds light on the RNase/angiogenin subfamily from zebrafish <i>Published as BJ Immediate Publication 4 November 2010, doi:10.1042/BJ20100892</i>	E. Pizzo, A. Merlini, M. Turano, I. Russo Krauss, F. Coscia, A. Zanfardino, M. Varcamonti, A. Furia, C. Giancola, L. Mazzarella, F. Sica and G. D'Alessio	 online data	345–355
Characterization of GSK2334470, a novel and highly specific inhibitor of PDK1 <i>Published as BJ Immediate Publication 18 November 2010, doi:10.1042/BJ20101732</i>	A. Najafov, E.M. Sommer, J.M. Axten, M.P. DeYoung and D.R. Alessi	 commentary	357–369
Identification of binding partners interacting with the α 1-N-propeptide of type V collagen <i>Published as BJ Immediate Publication 28 October 2010, doi:10.1042/BJ20101061</i>	S. Symoens, M. Renard, C. Bonod-Bidaud, D. Syx, E. Vaganay, F. Malfait, S. Ricard-Blum, E. Kessler, L. Van Laer, P. Coucke, F. Ruggiero and A. De Paepe	 online data	371–381
Reduction of N^{ω} -hydroxy-L-arginine by the mitochondrial amidoxime reducing component (mARC) <i>Published as BJ Immediate Publication 29 October 2010, doi:10.1042/BJ20100960</i>	J. Kotthaus, B. Wahl, A. Havemeyer, J. Kotthaus, D. Schade, D. Garbe-Schönberg, R. Mendel, F. Bittner and B. Clement		383–391
Reactive oxygen species derived from Nox4 mediate BMP2 gene transcription and osteoblast differentiation <i>Published as BJ Immediate Publication 29 October 2010, doi:10.1042/BJ20100357</i>	C.C. Mandal, S. Ganapathy, Y. Gorin, K. Mahadev, K. Block, H.E. Abboud, S.E. Harris, G. Ghosh-Choudhury and N. Ghosh-Choudhury	 online data	393–402

Editorial Advisory Panel

L. Agius (Newcastle upon Tyne)
A. Aitken (Edinburgh)
S. Alexson (Huddinge)
L. Alhonen (Kuopio)
B. Allen (Montréal)
A. Aplin (Albany, NY)

A. J. Baines (Canterbury)
M. P. Barrett (Glasgow)
G. J. Barratt (Adelaide)
A. Basak (Ottawa)
I. Behrmann (Luxembourg)
D. Benbrook (Oklahoma City)
A. M. Bennett (New Haven, CT)
R. Beyaert (Ghent)
C. D. Bingle (Sheffield)
G. E. Blair (Leeds)
G. B. Bolger (Birmingham, AL)
A. R. Boobis (London)
K. M. Botham (London)
V. M. M. Braga (London)
S. Bratton (Austin, TX)
D. N. Brindley (Edmonton, Alb.)
S. Broer (Canberra)
A. J. Brown (Sydney)
H. Brumer (Stockholm)
U. T. Brunk (Linkoping)
N. Bryant (Glasgow)
N. J. Bulleid (Manchester)
T. D. Butters (Oxford)

E. Cahoon (St. Louis, MO)
K. Cain (Leicester)
J. J. Calvete (Valencia)
M. Campanella (London)
D. Campopiano (Edinburgh)
L. Chamberlain (Edinburgh)
K. E. Chapman (Edinburgh)
Y. Chen (Shanghai)
C. H. K. Cheng (Hong Kong)
R. Chiesa (Milan)
A. K. Choudhury (Iowa City)
G. C. Churchill (Oxford)
G. J. Clark (Louisville, KY)
P. J. Coffey (Utrecht)
P. Cohen (Dundee)
S. J. Cook (Cambridge)
M. R. Cookson (Bethesda, MD)
R. Crameri (Davos)
C. E. Creutz (Charlottesville)
K. Croft (Perth)
P. Curnow (Bristol)

C. Dani (Nice)
R. M. Daniel (Hamilton)
C. J. Danpure (London)
V. L. Davidson (Jackson, MS)
S. Dawson (Nottingham)
K. A. DeFea (Riverside, CA)
V. De Filippis (Padua)
A. DeLong (Providence, RI)
N. Demaurex (Geneva)
J.-B. Denault (Sherbrooke, QC)
E. Deuerling (Konstanz)
Q. Devereaux (San Diego)
P. W. Dickson (Callaghan)
M. Dillingham (Bristol)
J. Ding (Shanghai)
A. Dingley (Auckland)
S. Djordjevic (London)
F. E. Domann (Iowa City)
S. Dove (Birmingham)
C. P. Downes (Dundee)
J. A. Downs (Brighton)
A. Draeger (Bern)
K. Drickamer (London)

E. Ellis (Glasgow)
J. A. Ellis (London)
P. M. Epstein (Farmington, CT)
C. Erneux (Brussels)
P. C. Evans (London)

M. Falasca (London)
J. Fandrey (Essen)
K. M. Ferguson (Philadelphia)
M. C. Field (Cambridge)
J. U. Flanagan (Auckland)
F. Foufelle (Paris)
K. R. Fox (Southampton)
M. S. Francis (Umeå)
A. M. Fry (Leicester)
P. Fuentes-Prior (Barcelona)
F. V. Fuller-Pace (Dundee)

C. G. Gahmberg (Helsinki)
T. Galli (Paris)
J. C. García-Barrón (Murcia)
B. Garner (Sydney)
K. L. Gaston (Bristol)
K. Gaus (Sydney)
V. Gerke (Muenster)
M. Ginger (Lancaster)
A. Gomez-Muñoz (Bilbao)
M. Goppelt-Strube (Erlangen)
P. R. Graves (Richmond, VA)
J. E. Gray (Sheffield)
N. K. Gray (Edinburgh)
F. Gribble (Cambridge)
S. Grinstein (Toronto)
G. Grogan (York)
D. Guerini (Basel)
A. H. Guse (Hamburg)

A. P. Halestrap (Bristol)
A. Hall (New York)
M. B. Hampton (Christchurch, N.Z.)
P. A. Handford (Oxford)

J. Hanley (Bristol)
G. C. Hansson (Gothenburg)
J. L. Harris (San Diego)
R. K. Hartmann (Marburg)
G. M. Hatch (Winnipeg)
P. T. Hawkins (Cambridge)
J. D. Hayes (Dundee)
O. Hazeki (Hiroshima)
R. P. Hellens (Auckland)
B. Henrissat (Marseille)
T. P. Herbert (Leicester)
H. Hiasa (Minneapolis)
K. Hinchliffe (Manchester)
M. Hodgkin (Coventry)
K. Hoebe (Cincinnati)
G. D. Holman (Bath)
M. J. Holness (London)
J. Horsfield (Dunedin)
M. D. Houslay (Glasgow)
W. E. Hughes (Sydney)
H. S. Hundal (Dundee)
A. N. Hunt (Southampton)
J. Huntington (Cambridge)
W. Hunziker (Singapore)

C. M. Isacke (London)
H. Ischiropoulos (Philadelphia, PA)
P. B. Ilyedjian (Geneva)

E. L. Jacobson (Tucson, AZ)
S. Janecek (Bratislava)
J. Jensen (Oslo)
X. Jiang (New York)
J. Johansson (Uppsala)
N. C. Jones (Manchester)
L. B. Justement (Birmingham, AL)
K. E. Kadler (Manchester)
E. Kalkhoven (Utrecht)

H. H. Kampinga (Groningen)
D. J. Keeling (Loughborough)
G. J. Kemp (Liverpool)
I. D. Kerr (Nottingham)
A. J. Kettnerman (Nakhon Pathom)
S. Keyse (Dundee)

M. R. Kini (Singapore)
L. Kjellen (Uppsala)
E. Klipp (Berlin)
E. Knecht (Valencia)
O. A. Kost (Moscow)
O. H. Kramer (Jena)
J. Kwon (Seoul)

W. Laing (Auckland)
S. Lamande (Melbourne)
D. A. Lane (London)
D. J. R. Lane (Sydney)
A. LeBlanc (Montréal)
J.-Y. Lee (Newark, DE)
P. Lefebvre (Lille)
M. Leippe (Kiel)
C. C. Leslie (Denver)
T. Levade (Toulouse)
R. Lightowers
(Newcastle upon Tyne)
C. Lindon (Cambridge)
J. S. Lindsey (Pullman, WA)
K. L. Linton (London)
H. J. Lipps (Witten)
D. Liu (Beijing)
O. Lockridge (Omaha, NE)
J. M. Lord (Coventry)
P. S. Lorenzo (Honolulu, HI)
M. Lowe (Manchester)
N. Lowndes (Galway)
A. Luckhoff (Aachen)
K. A. Lukyanov (Moscow)
M. Lyon (Manchester)

J. A. MacDonald (Calgary)
D. J. MacEwan (Norwich)
L. Mach (Vienna)
J. Mackrill (Cork)
R. Madhubala (New Delhi)
G. Maga (Pavia)
A. I. Magee (London)
C. C. Malbon (Stony Brook, NY)
R. K. Mallampalli (Iowa City)
J. P. G. Malthouse (Dublin)
G. E. Mann (London)
J. S. Marchant (Minneapolis)
J. Martin (Tübingen)
P. E. Martin (Glasgow)

R. W. Mason (Wilmington, DE)
A. E. Mast (Milwaukee, WI)
A. Matagne (Liège)
S. Matthews (Dundee)
M. J. McConville (Melbourne)

I. J. McEwan (Aberdeen)
D. McIntosh (London)
A. G. McLennan (Liverpool)
D. W. Meek (Dundee)
A. R. Merrill (Guelph)

E. Metzen (Luebeck)
A. J. Michael (Dallas, TX)
M. Migand (Belfast)
A. H. Millar (Crawley, West. Aus.)
E. M. Mills (Austin, TX)

K.-i. Miyamoto (Tokushima)
G. B. Moorhead (Calgary)
A. Morgan (Liverpool)
S. Morley (Brighton)
H. Munshi (Chicago)
S. Murphy (Oxford)

H. Nagase (London)
V. Natarajan (Chicago)

A. R. Nebreda (Madrid)
P. Newsholme (Dublin)
R. Nibbs (Glasgow)
S. Nicholson (Melbourne)

R. T. O'Keefe (Manchester)
L. A. J. O'Neill (Dublin)
J. M. O'Sullivan (Auckland)

D. N. Palmer (Canterbury, N.Z.)
R. Palmer (Umeå)
F. Palmieri (Bari)
K. Pantopoulos (Montréal)
R. B. Parsons (London)
L. J. Partridge (Sheffield)
M. Pastor-Anglada (Barcelona)
B. Payrastre (Toulouse)
M. Peckham (Leeds)
S. Perrett (Beijing)
J. M. Peters (University Park, PA)
W. A. Phillips (Melbourne)
T. S. Pillay (Cape Town)
S. M. Pitson (Adelaide)
T. Polenova (Newark, NJ)
D. Poyner (Birmingham)
C. G. Print (Auckland)
I. Prior (Liverpool)
M. Pusch (Genova)

W. Qin (Thunder Bay, ON)
B. Qualmann (Magdeburg)

S. Rahman (Kuala Lumpur)
D. P. Ramji (Cardiff)
E. L. Raven (Leicester)
B. Reaves (Athens, GA)
S. Rebiffat (Paris)
R. J. Reece (Manchester)
G. A. Reid (Edinburgh)
P. S. Rennie (Vancouver)
O. Rey (Los Angeles)
I. Richard (Evry)
S. J. Richardson (Bundoora)
C. C. Rider (Egham)
M. H. Rider (Brussels)
D. J. Riese (West Lafayette, IN)
N. J. Robinson
(Newcastle upon Tyne)
S. Rocha (Dundee)
L. Rönnstrand (Malmö)
J. Rouse (Dundee)
E. Rubinstein (Villejuif)
F. Ruggiero (Lyon)

J.-M. Sabatier (Marseille)
D. B. Sacks (Boston, MA)
P. Saftig (Kiel)
J. P. Salier (Rouen)
M. L. Schmitz (Giessen)
L. Schomburg (Berlin)
N. S. Scrutton (Manchester)
L. C. Serpell (Brighton)
J. K. Sethi (Cambridge)
B. Sha (Birmingham, AL)
Y. Shai (Rehovot)
L. M. Shantz (Hershey, PA)
S. B. Shears
(Research Triangle Park, NC)
T. Shimizu (Sendai)
J. Shorter (Philadelphia, PA)
K. Siddle (Cambridge)
L. Sistonen (Turku)

EDITORIAL ADVISORY PANEL (continued)

A. G. Smith (Leicester)
D. M. Smith (Macclesfield)
M. A. Smith (Cleveland, OH)
M. Soberon (Cuernavaca)
M. Solioz (Bern)
S. Souchelnytskyi (Solna)
J. Spencer (Bristol)
F. Spener (Graz)
M. J. R. Stark (Dundee)
H. R. Stennicke (Bagsvaerd)
G. S. Stewart (Birmingham)
W. Stöcker (Mainz)
A. Y. Strongin (La Jolla, CA)
C. Sutherland (Dundee)

T. Takenawa (Kobe)
C. T. Taylor (Dublin)
M. E. Taylor (London)
A. Tengholm (Uppsala)

A. Tepikin (Liverpool)
V. Tergaonkar (Singapore)
M. Thelen (Bellinzona)
G. Thiel (Homburg)
G. M. H. Thomas (London)
T. Tiganis (Melbourne)
T. Toda (London)
P. J. Tonge (Stony Brook, NY)
K. Török (London)
J. Tovar-Torres (Egham)
P. Trayhurn (Liverpool)
G. C. Tsokos (Boston, MA)

S. Urbé (Liverpool)

J. van Hellemond (Rotterdam)
E. Van Schaftingen (Brussels)
A. Varadi (Budapest)
N. C. Veitch (Kew)

K. Venkateswarlu (Swansea)
F. Villarroya (Barcelona)
D. Vyoral (Prague)

M. C. Wahl (Göttingen)
D. M. Walsh (Dublin)
M. P. Walsh (Calgary)
F. Wan (Bethesda, MD)
H.-G. Wang (Hershey, PA)
M. J. Warren (Canterbury)
S. P. Watson (Birmingham)
R. H. Wenger (Zürich)
G. Werner-Felmayer (Innsbruck)
D. A. White (Birmingham)
J. Whitehead (Brisbane)
I. Wilson (Wien)
J.-O. Winberg (Tromsø)
S. J. Winder (Sheffield)
S. G. Withers (Vancouver)
R. Wojcikiewicz (Syracuse, NY)

P. Wojtaszek (Poznan)
S. Wolf (Berlin)
J. M. Woof (Dundee)
M. C. Wright
(Newcastle upon Tyne)
S. Wright (Leeds)

F. Xu (Davis, CA)
G. Xu (Shanghai)

H. Yang (Sydney)
X.-J. Yang (Montreal)
H. Yarwood (London)
J. Ye (Sydney)
P. Yen (Taipei)
G. Yeo (Cambridge)

J. M. Zapata (Madrid)
Z. Zhang (Hunan)
X.-L. Zheng (Calgary)
M. Ziegler (Bergen)

Index of Authors

	PAGE		PAGE		PAGE		PAGE
Abboud, H. E.	393	Garbe-Schönberg, D.	383	Maiti, P.	323	Sengupta, R.	303
Alessi, D. R.	357	Ghosh-Choudhury, G.	393	Malfait, F.	371	Sica, F.	345
Axten, J. M.	357	Ghosh-Choudhury, N.	393	Mandal, C. C.	393	Sommer, E. M.	357
		Giancola, C.	345	Mazzarella, L.	345	Su, D.	333
Bitan, G.	323	Gorin, Y.	393	Mendel, R.	383	Symoens, S.	371
Bittner, F.	383	Grassi, C.	323	Merlino, A.	345	Syx, D.	371
Block, K.	393	Guo, K.	303	Montano, S. J.	303		
Bonod-Bidaud, C.	371			Mruk, D. D.	253		
Bustos, S. P.	313	Handford, P.	263			Tong, X.-J.	295
		Harris, S. E.	393	Najafov, A.	357	Turano, M.	345
Chang, Y.	295	Havemeyer, A.	383				
Chen, S.	277	Hoffmeister, H.	285	Oppermann, U.	303	Vaganay, E.	371
Cheng, C. Y.	253	Holmgren, A.	303			Van Laer, L.	371
Clement, B.	383	Huang, B.	333	Peng, X.	333	Varcamonti, M.	345
Coscia, F.	345	Huang, Y.	333	Piacentini, R.	323	von Delft, F.	303
Coucke, P.	371	Jensen, S.	263	Pizzo, E.	345		
D'Alessio, G.	345	Johansson, C.	303	Rasclle, A.	285	Wahl, B.	383
De Paepe, A.	371	Kavanagh, K. L.	303	Reithmeier, R. A. F.	313	Wan, H. Y.	277
DeYoung, M. P.	357	Kessler, E.	371	Renard, M.	371	Witzgall, R.	285
Ding, J.	295	Knight, Z. A.	e1	Ricard-Blum, S.	371	Wu, J.	295
Dong, Z.	333	Kotthaus, Joscha	383	Ripoli, C.	323		
Filippakopoulos, P.	303	Kotthaus, Jürke	383	Robertson, I.	263		
Furia, A.	345			Roos, A. K.	303	Zanfardino, A.	345
		Liang, Q.	333	Ruggiero, F.	371	Zhang, J.	333
Gallagher, A.-R.	285	Lu, J.	333	Russo Krauss, I.	345	Zhang, Y.	333
Ganapathy, S.	393	Mahadev, K.	393	Schade, D.	383	Zhou, J.-Q.	295
						Zhu, S.	333