

Biochemical Journal

The Biochemical Society, London © 2004

Volume 382, part 2
1 September 2004

<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. Gutteridge • Newark, DE

B. Henrissat • Marseille

D. Hoekstra • Groningen

N. M. Hooper • Leeds

J. P. Kehrer • Austin

K. H. Mayo • Minneapolis

M. J. O. Wakelam • Birmingham

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

L. Johnson

J. W. Mockridge

L. M. Petty

M. R. Thorne

Editorial Assistant

E. A. G. Elloway

Administrative Editor, US Office

S. Schendel

D. R. Alessi (Dundee)
D. Attaix (Ceyrat)
G. J. Barratt (Adelaide)
J. L. Blank (Cambridge, MA)
M. Blatt (Glasgow)
P. G. Board (Canberra)
M. Bogyo (Stanford, CA)
M. Bollen (Leuven)
B. Brüne (Kaiserslautern)
D. Carling (London)
A. Clerk (London)
G. P. Côté (Kingston, Ont.)
J. R. Couchman (London)
W. Cramer (West Lafayette)
G. J. Davies (York)
D. A. Day (Nedlands)
H. Deckmyn (Kortrijk)
C. S. Duckett (Ann Arbor)
J. M. East (Southampton)
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)
S. V. Graham (Glasgow)
P. A. Grimaldi (Nice)
B. Hallberg (Umeå)
P. I. Haris (Leicester)
L. Hedstrom (Waltham, MA)
F. G. Hegardt (Barcelona)
S. High (Manchester)
I. B. Holland (Orsay)
J. Hsuan (London)
W. Jessup (Sydney)
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)
J. S. Mort (Montreal)
W. Müller-Esterl (Frankfurt)
M. P. Murphy (Cambridge)
L. M. Obeid (Charleston)
M. Parenti (Monza)
M. A. J. Parry (Harpden)

M. Paulsson (Cologne)
L. Persson (Lund)
A. D. Postle (Southampton)
N. J. Pyne (Glasgow)
S. Roberts (Manchester)
G. A. Rutter (Bristol)
N. J. P. Ryba (Bethesda)
J. R. Sayers (Sheffield)
S. C. Sealfon (New York)
P. R. Shepherd (Auckland)
A. Sim (Callaghan, NSW)
R. J. Simpson (Parkville)
B. F. Sloane (Detroit)
C. W. Taylor (Cambridge)
K. F. Tipton (Dublin)
M. A. Titheradge (Brighton)
A. B. Tobin (Leicester)
A. Toker (Boston)
S. A. Tooze (London)
M. Torti (Pavia)
B. Vanhaesebroeck (London)
S. G. Ward (Bath)
J. F. Woessner (Miami)
S. J. Yeaman (Newcastle upon Tyne)
J. York (Durham, NC)
S. Yoshikawa (Akoh-Hyogo)



- 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 0264-6021/2004/\$36.00 + 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:** Confocal image of cultured neonatal rat cardiomyocytes stimulated to induce hypertrophy and stained to show mAKAP in green, PDE4D3 in red, and actin in blue. For further information, see Carlisle Michel et al. (2004) *Biochem. J.* **381**, 587–592.

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 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 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. 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 2004 volumes 377–384 (three parts each) will appear. The subscription also includes an author and key-word index.

● Subscription rates Institutional subscription rates for 2004 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 below, or through your usual agent.

One year (8 vols)	N. America	Rest of world	Euro price
Print and online	US\$2414	£1373	€2335
Online only	US\$2220	£1260	€2145
Print only	US\$2337	£1335	€2264
Single issues (print only)	US\$116	£67	€110

Overseas rates include airfreight delivery. Priority delivery is available at an additional cost of £58.80/€100.

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 Nickypmm@aol.com).

Biochemical Journal
Volume 382, part 2
1 September 2004

<http://www.BiochemJ.org>

Subscribing organizations are encouraged to copy and distribute this table of contents for non-commercial purposes

Review

Functions of NF- κ B1 and NF- κ B2 in immune cell biology

*Published as BJ Immediate Publication 24 June 2004,
DOI 10.1042/BJ20040544*

S. Beinke and S.C. Ley

393–409

Online Commentary

The flip side of FLIP

*Published on the Internet 24 August 2004,
DOI 10.1042/BJ20041143
(see accompanying paper pp. 651–657)*

M.E. Peter

e1–e3

Accelerated Publication

Forced expression of the cyclin B1–CDC2 complex induces proliferation in adult rat cardiomyocytes

*Published as BJ Immediate Publication 15 July 2004,
DOI 10.1042/BJ20031481*

K.A. Bicknell, C.H. Coxon and G. Brooks

411–416

Research Papers

Identification of the growth hormone-releasing peptide binding site in CD36: a photoaffinity cross-linking study

*Published as BJ Immediate Publication 3 June 2004,
DOI 10.1042/BJ20040036*

A. Demers, N. McNicoll, M. Febbraio, M. Servant, S. Marleau,
R. Silverstein and H. Ong

417–424

p90 ribosomal S6 kinase 2 is associated with and dephosphorylated by protein phosphatase 2C δ

*Published as BJ Immediate Publication 18 June 2004,
DOI 10.1042/BJ20040948*

U. Doebe, S. Gammeltoft, S.-H. Shen and C.J. Jensen

425–431

Thermal and conformational stability of Ssh10b protein from archaeon *Sulfolobus shibatae*

*Published as BJ Immediate Publication 23 April 2004,
DOI 10.1042/BJ20040191*

S. Xu, S. Qin and X.-M. Pan

433–440

Identification of phospholipase B from *Dictyostelium discoideum* reveals a new lipase family present in mammals, flies and nematodes, but not yeast

*Published as BJ Immediate Publication 14 June 2004,
DOI 10.1042/BJ20040110*

C.P. Morgan, R. Insall, L. Haynes and S. Cockcroft

441–449

Structure and cholesterol domain dynamics of an enriched caveolae/raft isolate

*Published as BJ Immediate Publication 19 May 2004,
DOI 10.1042/BJ20031562*

A.M. Gallegos, A.L. McIntosh, B.P. Atshaves and F. Schroeder

451–461

Structural requirements of the glucocorticoid-response unit of the carbamoyl-phosphate synthase gene

*Published as BJ Immediate Publication 14 June 2004,
DOI 10.1042/BJ20040471*

O.J.L.M. Schoneveld, I.C. Gaemers, A.T. Das, M. Hoogenkamp,
J. Renes, J.M. Ruijter and W.H. Lamers

463–470

Tumour necrosis factor α decreases glucose-6-phosphatase gene expression by activation of nuclear factor κ B

*Published as BJ Immediate Publication 28 May 2004,
DOI 10.1042/BJ20040160*

R. Grempler, A. Kienitz, T. Werner, M. Meyer, A. Barthel, F. Ailett,
C. Sutherland, R. Walther and D. Schmoll

471–479

Transthyretin interacts with the lysosome-associated membrane protein (LAMP-1) in circulation

*Published as BJ Immediate Publication 16 June 2004,
DOI 10.1042/BJ20031752*

M.H.Y. Chang, C.T. Hua, E.L. Isaac, T. Litjens, G. Hodge,
L.E. Karageorgos and P.J. Meikle

481–489

Kinetics and control of oxidative phosphorylation in rat liver mitochondria after dexamethasone treatment

*Published as BJ Immediate Publication 3 June 2004,
DOI 10.1042/BJ20040696*

D. Roussel, J.-F. Dumas, G. Simard, Y. Malthièry and P. Ritz

491–499

Characterization of a UDP- <i>N</i> -acetyl- <i>D</i> -galactosamine: polypeptide <i>N</i> -acetylgalactosaminyltransferase with an unusual lectin domain from the platyhelminth parasite <i>Echinococcus granulosus</i> <i>Published as BJ Immediate Publication</i> 14 May 2004, DOI 10.1042/BJ20031877	T. Freire, C. Fernández, C. Chalar, R.M. Maizels, P. Alzari, E. Osinaga and C. Robello	501–510
Superoxide production by NADH:ubiquinone oxidoreductase (complex I) depends on the pH gradient across the mitochondrial inner membrane <i>Published as BJ Immediate Publication</i> 3 June 2004, DOI 10.1042/BJ20040485	A.J. Lambert and M.D. Brand	511–517
Isolation and functional expression of human <i>COQ2</i> , a gene encoding a polyprenyl transferase involved in the synthesis of CoQ <i>Published as BJ Immediate Publication</i> 21 May 2004, DOI 10.1042/BJ20040261	M. Forsgren, A. Attersand, S. Lake, J. Grünler, E. Swiezewska, G. Dallner and I. Climent	519–526
Subcellular compartmentalization of ceramide metabolism: MAM (mitochondria-associated membrane) and/or mitochondria? <i>Published as BJ Immediate Publication</i> 14 May 2004, DOI 10.1042/BJ20031819	C. Bionda, J. Portoukalian, D. Schmitt, C. Rodriguez-Lafrasse and D. Ardail	527–533
Purification of <i>Drosophila</i> DNA polymerase ζ by REV1 protein-affinity chromatography <i>Published as BJ Immediate Publication</i> 3 June 2004, DOI 10.1042/BJ20031833	R. Takeuchi, M. Oshige, M. Uchida, G. Ishikawa, K.-i. Takata, K. Shimanouchi, Y. Kanai, T. Ruike, H. Morioka and K. Sakaguchi	535–543
Interaction of the tyrosine phosphatase SHP-2 with Gab2 regulates Rho-dependent activation of the c-fos serum response element by interleukin-2 <i>Published as BJ Immediate Publication</i> 1 June 2004, DOI 10.1042/BJ20040103	M. Arnaud, R. Mzali, F. Gesbert, C. Crouin, C. Guenzi, C. Vermot-Deroches, J. Wijdenes, G. Courtois, O. Bernard and J. Bertoglio	545–556
Central core disease mutations R4892W, I4897T and G4898E in the ryanodine receptor isoform 1 reduce the Ca ²⁺ sensitivity and amplitude of Ca ²⁺ -dependent Ca ²⁺ release <i>Published as BJ Immediate Publication</i> 3 June 2004, DOI 10.1042/BJ20040580	G.G. Du, V.K. Khanna, X. Guo and D.H. MacLennan	557–564
Characterization of the first non-insect invertebrate functional angiotensin-converting enzyme (ACE): leech <i>TtACE</i> resembles the N-domain of mammalian ACE <i>Published as BJ Immediate Publication</i> 3 June 2004, DOI 10.1042/BJ20040522	G. Rivière, A. Michaud, L. Deloffre, F. Vandenbulcke, A. Levoye, C. Breton, P. Corvol, M. Salzet and D. Vieau	565–573
Platelet cell-surface protein disulphide-isomerase mediated S-nitrosoglutathione consumption <i>Published as BJ Immediate Publication</i> 2 June 2004, DOI 10.1042/BJ20040759	P. Root, I. Sliskovic and B. Mutus	575–580
Overexpression of inactive arylsulphatase mutants and <i>in vitro</i> activation by light-dependent oxidation with vanadate <i>Published as BJ Immediate Publication</i> 3 June 2004, DOI 10.1042/BJ20040447	T.M. Christianson, C.M. Starr and T.C. Zankel	581–587
Polarized fibronectin secretion induced by adenosine regulates bacterial–epithelial interaction in human intestinal epithelial cells <i>Published as BJ Immediate Publication</i> 14 June 2004, DOI 10.1042/BJ20040021	B. Walia, F.E. Castaneda, L. Wang, V.L. Kolachala, R. Bajaj, J. Roman, D. Merlin, A.T. Gewirtz and S.V. Sitaraman	589–596
Noradrenaline represses PPAR (peroxisome-proliferator-activated receptor) γ 2 gene expression in brown adipocytes: intracellular signalling and effects on PPAR γ 2 and PPAR γ 1 protein levels <i>Published as BJ Immediate Publication</i> 14 June 2004, DOI 10.1042/BJ20031622	E.M. Lindgren, R. Nielsen, N. Petrovic, A. Jacobsson, S. Mandrup, B. Cannon and J. Nedergaard	597–606
Electrostatic interactions of domain III stabilize the inactive conformation of μ -calpain <i>Published as BJ Immediate Publication</i> 4 June 2004, DOI 10.1042/BJ20040731	A. Fernández-Montalván, I. Assfalg-Machleidt, D. Pfeiler, H. Fritz, M. Jochum and W. Machleidt	607–617
Intracellular ceramide synthesis and protein kinase C ζ activation play an essential role in palmitate-induced insulin resistance in rat L6 skeletal muscle cells <i>Published as BJ Immediate Publication</i> 14 June 2004, DOI 10.1042/BJ20040139	D.J. Powell, S. Turban, A. Gray, E. Hajduch and H.S. Hundal	619–629



Two conserved cysteine residues are critical for the enzymic function of the human platelet-derived growth factor receptor- β : evidence for different roles of Cys-822 and Cys-940 in the kinase activity <i>Published as BJ Immediate Publication 3 June 2004,</i> DOI 10.1042/BJ20040624	J.-W. Lee, J.-E. Kim, E.-J. Park, J.-H. Kim, C.-H. Lee, S.-R. Lee and J. Kwon	631–639
A proteome analysis of the arsenite response in cultured lung cells: evidence for <i>in vitro</i> oxidative stress-induced apoptosis <i>Published as BJ Immediate Publication 3 June 2004,</i> DOI 10.1042/BJ20040224	A.T.Y. Lau, Q.-Y. He and J.-F. Chiu	641–650
Activation of caspases-8 and -10 by FLIP _L <i>Published as BJ Immediate Publication 21 June 2004,</i> DOI 10.1042/BJ20040809	K.M. Boatright, C. Deis, J.-B. Denault, D.P. Sutherlin and G.S. Salvesen	651–657
Active-site-mediated elimination of hydrogen fluoride from a fluorinated substrate analogue by isopenicillin N synthase <i>Published as BJ Immediate Publication 3 June 2004,</i> DOI 10.1042/BJ20040529	A.R. Grummitt, P.J. Rutledge, I.J. Clifton and J.E. Baldwin	659–666
Cloning, expression in <i>Escherichia coli</i> and characterization of the recombinant Neu5Ac α 2,6Gal β 1,4GlcNAc-specific high-affinity lectin and its mutants from the mushroom <i>Polyporus squamosus</i> <i>Published as BJ Immediate Publication 3 June 2004,</i> DOI 10.1042/BJ20040391	H. Tateno, H.C. Winter and I.J. Goldstein	667–675
Mapping of an ankyrin-sensitive, phosphatidylethanolamine/phosphatidylcholine mono- and bi-layer binding site in erythroid β -spectrin <i>Published as BJ Immediate Publication 2 June 2004,</i> DOI 10.1042/BJ20040358	A. Hryniwicz-Jankowska, E. Bok, P. Dubielecka, A. Chorzalska, W. Diakowski, A. Jezierski, M. Lisowski and A.F. Sikorski	677–685
InsP ₃ -mediated intracellular calcium signalling is altered by expression of synaptotagmin-1 <i>Published as BJ Immediate Publication 14 April 2004,</i> DOI 10.1042/BJ20040418	F.W. Johenning, M.R. Wenk, P. Uhlén, B. DeGray, E. Lee, P. de Camilli and B.E. Ehrlich	687–694
Enhancement of correct protein folding <i>in vivo</i> by a non-lytic baculovirus <i>Published as BJ Immediate Publication 17 May 2004,</i> DOI 10.1042/BJ20040007	Y. Ho, H.-R. Lo, T.-C. Lee, C.P.Y. Wu and Y.-C. Chao	695–702
Characterization of bromosulphophthalein binding to human glutathione S-transferase A1-1: thermodynamics and inhibition kinetics <i>Published as BJ Immediate Publication 18 May 2004,</i> DOI 10.1042/BJ20040056	D. Kolobe, Y. Sayed and H.W. Dirr	703–709
Arginine ⁴⁸² to threonine mutation in the breast cancer resistance protein ABCG2 inhibits rhodamine 123 transport while increasing binding <i>Published as BJ Immediate Publication 13 May 2004,</i> DOI 10.1042/BJ20040355	O. Alqawi, S. Bates and E. Georges	711–716
δ -Catenin/NPRAP (neural plakophilin-related armadillo repeat protein) interacts with and activates sphingosine kinase 1 <i>Published as BJ Immediate Publication 14 June 2004,</i> DOI 10.1042/BJ20040141	T. Fujita, T. Okada, S. Hayashi, S. Jahangeer, N. Miwa and S.-i. Nakamura	717–723
Deletion of Ser-171 causes inactivation, proteasome-mediated degradation and complete deficiency of human transaldolase <i>Published as BJ Immediate Publication 28 April 2004,</i> DOI 10.1042/BJ20040413	C.E. Grossman, B. Niland, C. Stancato, N.M. Verhoeven, M.S. van der Knaap, C. Jakobs, L.M. Brown, S. Vajda, K. Banki and A. Perl	725–731
Octasaccharide is the minimal length unit required for efficient binding of cyclophilin B to heparin and cell surface heparan sulphate <i>Published as BJ Immediate Publication 26 April 2004,</i> DOI 10.1042/BJ20031453	C. Vanpouille, A. Denys, M. Carpentier, R. Pakula, J. Mazurier and F. Allain	733–740
Transcriptional repression of the CTP:phosphocholine cytidylyltransferase gene by sphingosine <i>Published as BJ Immediate Publication 13 May 2004,</i> DOI 10.1042/BJ20040105	A.J. Ryan, K. Fisher, C.P. Thomas and R.K. Mallampalli	741–750
Catalytic and structural contributions for glutathione-binding residues in a Delta class glutathione S-transferase <i>Published as BJ Immediate Publication 8 June 2004,</i> DOI 10.1042/BJ20040697	P. Winayanuwatkun and A.J. Ketterman	751–757
Transketolase from <i>Leishmania mexicana</i> has a dual subcellular localization <i>Published as BJ Immediate Publication 19 May 2004,</i> DOI 10.1042/BJ20040459	N.J. Veitch, D.A. Maugeri, J.J. Cazzulo, Y. Lindqvist and M.P. Barrett	759–767

Editorial Advisory Panel

- C. Abell (Cambridge)
M. Abrahamson (Lund)
L. Agius (Newcastle upon Tyne)
A. Aitken (Edinburgh)
B. Akerström (Lund)
L. Alhonen (Kuopio)
C. Anthony (Southampton)
G. J. Arlaud (Grenoble)
F. A. Armstrong (Oxford)
O. I. Aruoma (London)
B. Ashby (Philadelphia)
K. S. Authi (London)
- A. Baici (Zürich)
A. J. Bailey (Langford)
A. J. Baines (Canterbury)
M. P. Barrett (Glasgow)
K. Bartlett (Newcastle upon Tyne)
J. F. Bateman (Parkville)
G. Baverel (Lyon)
J. H. Beattie (Aberdeen)
C. Beaumont (Paris)
D. R. Bell (Nottingham)
C. T. Benack (Chicago)
D. S. Bendall (Cambridge)
A. Benedetti (Siena)
J. P. Bennett (Hull/York)
A. Berry (Leeds)
L. G. Berthiaume (Edmonton)
R. J. Beynon (Liverpool)
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)
K. M. Brindle (Cambridge)
K. Brocklehurst (London)
S. Broer (Canberra)
E. Brot-Laroche (Paris)
A. J. P. Brown (Aberdeen)
G. Brown (Birmingham)
N. J. Bulleid (Manchester)
N. W. Bunnett (San Francisco)
A. Burchell (Dundee)
B. Burchell (Dundee)
S. J. W. Busby (Birmingham)
P. J. Butterworth (London)
- K. Cain (Leicester)
J. J. Calvete (Valencia)
M. J. Carden (Canterbury)
E. A. Carrey (London)
C. Casals (Madrid)
A. M. Caswell (Leeds)
A. F. Chaffotte (Paris)
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)
M. W. H. Coughtrie (Dundee)
D. A. Cowan (Cape Town)
C. E. Creutz (Charlottesville)
C. M. Cuchillo (Barcelona)
J. M. Cuevza (Madrid)
N. P. Curthoys (Fort Collins)
W. Cushley (Glasgow)
- R. M. Daniel (Hamilton)
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)
Q. Deveraux (San Diego)
M. Dickens (Leicester)
C. Dingwall (Harlow)
F. E. Domann (Iowa City)
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)
- J. M. Edwardson (Cambridge)
J. P. Eiserich (Davis, CA)
L. Ellerby (Novato)
P. M. Epstein (Farmington)
F. Erdodi (Debrecen)
C. Erneux (Brussels)
R. W. Evans (London)
- P. Fay (Rochester, NY)
T. Feizi (London)
R. C. Feldhoff (Louisville, KY)
L. M. Field (Harpden)
M. C. Field (London)
L. M. Fisher (London)
P. R. Flatt (Londonderry)
D. R. Flower (Newbury)
G. Forloni (Milan)
F. Foufelle (Paris)
K. R. Fox (Southampton)
M. H. Fukami (Bergen)
S. J. Fuller (London)
- T. G. Gabig (Indianapolis)
C. G. Gahmberg (Helsinki)
J. T. Gallagher (Manchester)
T. Galli (Paris)
B. Garner (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)
H. P. Haagsman (Utrecht)
- P. A. Halban (Geneve)
A. Hall (London)
G. C. Hansson (Gothenburg)
G. M. Hatch (Winnipeg)
P. T. Hawkins (Cambridge)
J. D. Hayes (Dundee)
T. Herbert (Leicester)
A. C. Herington (Brisbane)
H. Hiasa (Minneapolis)
J. Higgins (Sheffield)
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)
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)
- 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. Kiely (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)
J. E. Lillehaug (Bergen)
D. M. J. Lilley (Dundee)
M. Liscovitch (Rehovot)
J. M. Lord (Coventry)
- M. G. Low (New York)
M. Lowe (Manchester)
K. A. Lukyanov (Moscow)
P. A. Lund (Birmingham)
M. Lyon (Manchester)
- D. J. MacEwan (Aberdeen)
J. Mackrill (Cork)
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)
R. W. Mason (Wilmington)
P. Masson (La Tronche)
S. Matthews (Dundee)
B. Mayer (Graz)
M. J. McConville (Parkville)
A. McEuen (Southampton)
I. J. McEwan (Aberdeen)
J. D. McGivern (Bristol)
M. McGrane (Storrs)
R. A. J. McIlhinney (Oxford)
L. McLellan (Dundee)
A. G. McLennan (Liverpool)
L. C. McPhail (Winston-Salem)
P. A. Meacock (Leicester)
D. W. Meek (Dundee)
P. J. Meier-Abt (Zürich)
E. Melendez-Hevia (Tenerife)
A. K. Menon (Madison)
D. J. Meyer (London)
P. A. Millner (Leeds)
J. L. A. Mitchell (DeKalb, IL)
T. J. Monks (Austin)
A. Morgan (Liverpool)
I. Morgan (Glasgow)
M. Mori (Kumamoto)
S. Morley (Brighton)
S. Morris (Pittsburgh)
N. Moustaid Moussa (Knoxville, TN)
M. Mueckler (St. Louis)
B. Mulloy (Potters Bar)
G. Murphy (Cambridge)
- H. Nagase (London)
T. Nagatsu (Aichi)
V. Natarajan (Baltimore)
A. R. Nebreda (Heidelberg)
P. Newsholme (Dublin)
R. Nibbs (Glasgow)
I. A. Nieduszynski (Lancaster)
M. Nishijima (Tokyo)
R. I. Norman (Leicester)
M. A. Nugent (Boston, MA)
- J. O'Donnell (Memphis)
S. Olsnes (Oslo)
K. Omori (Saitama)
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 (Vari)
J. D. Pearson (London)
D. Pei (Minneapolis)
T. M. Penning (Philadelphia)
K. C. Persaud (Manchester)
J. M. Pfeilschifter (Frankfurt)

EDITORIAL ADVISORY PANEL (continued)

- T. Pihlajaniemi (Oulu)
T. S. Pillay (Nottingham)
J. Pines (Cambridge)
V. Ponnambalam (Leeds)
C. Ponzetto (Torino)
F. Possmayer (London, Ont.)
D. Poyner (Birmingham)
N. C. Price (Glasgow)
S. A. Prigent (Leicester)
I. Prior (Liverpool)
D. Prokopp (New Orleans)
M. Puceat (Montpellier)
S. Pyne (Glasgow)
- B. Qualmann (Magdeburg)
- D. M. Raben (Baltimore)
C. Rabouille (Edinburgh)
Z. Radic (La Jolla)
S. Rahman (London)
D. P. Ramji (Cardiff)
M. Rattray (London)
F. X. Real (Barcelona)
C. C. Reddy (University Park, PA)
C. P. F. Redfern (Newcastle upon Tyne)
R. J. Reece (Manchester)
B. H. A. Rehm (Palmerston North)
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. Rönnstrand (Malmo)
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. Scruton (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 (Dusseldorf)
H. Sjöstrom (Copenhagen)
F. M. Sladek (Riverside, CA)
D. M. Smith (Macclesfield)
S. Spadari (Pavia)
F. Spener (Münster)
H. Stennicke (Bagsvaerd)
A. K. Stobart (Bristol)
W. Stöcker (Mainz)
G. J. Strous (Utrecht)
- T. W. Sturgill (Charlottesville)
K. E. Suckling (Stevenage)
B. Svensson (Kgs. Lyngby)
- A. Tepikin (Liverpool)
M. Thelen (Bellinzona)
G. Thiel (Homburg)
M. S. Thomas (Sheffield)
N. S. B. Thomas (London)
D. Thornton (Manchester)
C. Tickle (Dundee)
D. Tosh (Bath)
P. Trayhurn (Liverpool)
C. M. Troy (New York)
A. J. Trewavas (Edinburgh)
J. T. Trifritt (Oxford)
G. C. Tsokos
(Silver Spring, MD)
J. Turnbull (Liverpool)
B. M. Turner (Birmingham)
- B. Ullman (Portland, OR)
- L. M. G. van Golde (Utrecht)
S. van Heyningen (Edinburgh)
E. van Schaftingen (Brussels)
G. Vassart (Bruxelles)
A. Veillette (Montreal)
G. Verhoeven (Leuven)
D. A. Vessey (San Francisco)
H. Vidal (Lyon)
J. F. G. Vliegenthart (Utrecht)
- 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)
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. Wyman (Fribourg)
- 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	
Ailett, F.	471	Ehrlich, B. E.	687	Lamers, W. H.	463	Rodriguez-Lafrasse, C.
Allain, F.	733			Lau, A. T. Y.	641	Roman, J.
Alqawi, O.	711	Febbraio, M.	417	Lee, C.-H.	631	Root, P.
Alzari, P.	501	Fernández, C.	501	Lee, E.	687	Roussel, D.
Ardail, D.	527	Fernández-Montalván, A.	607	Lee, J.-W.	631	Ruijter, J. M.
Arnaud, M.	545	Fisher, K.	741	Lee, S.-R.	631	Ruike, T.
Assfalg-Machleidt, I.	607	Forsgren, M.	519	Lee, T.-C.	695	Rutledge, P. J.
Atshaves, B. P.	451	Freire, T.	501	Levoye, A.	565	Ryan, A. J.
Attersand, A.	519	Fritz, H.	607	Ley, S. C.	393	
		Fujita, T.	717	Lindgren, E. M.	597	Sakaguchi, K.
Bajaj, R.	589	Gaemers, I. C.	463	Lindqvist, Y.	759	Salvesen, G. S.
Baldwin, J. E.	659	Gallegos, A. M.	451	Lisowski, M.	677	Salzet, M.
Banki, K.	725	Gammeltoft, S.	425	Litjens, T.	481	Sayed, Y.
Barrett, M. P.	759	Georges, E.	711	Lo, H.-R.	695	Schmitt, D.
Barthel, A.	471	Gesbert, F.	545	Machleidt, W.	607	Schoneveld, O. J. L. M.
Bates, S.	711	Gewirtz, A. T.	589	MacLennan, D. H.	557	Schroeder, F.
Beinke, S.	393	Goldstein, I. J.	667	Maizels, R. M.	501	Servant, M.
Bernard, O.	545	Gray, A.	619	Mallampalli, R. K.	741	Shen, S.-H.
Bertoglio, J.	545	Grempler, R.	471	Malthièry, Y.	491	Shimanouchi, K.
Bicknell, K. A.	411	Grossman, C. E.	725	Mandrup, S.	597	Sikorski, A. F.
Bionda, C.	527	Grummitt, A. R.	659	Marleau, S.	417	Silverstein, R.
Boatright, K. M.	651	Grünler, J.	519	Maugeri, D. A.	759	Simard, G.
Bok, E.	677	Guenzi, C.	545	Mazurier, J.	733	Sitaraman, S. V.
Brand, M. D.	511	Guo, X.	557	McIntosh, A. L.	451	Sliskovic, I.
Breton, C.	565	Hajduch, E.	619	McNicoll, N.	417	Stancato, C.
Brooks, G.	411	Hayashi, S.	717	Meikle, P. J.	481	Starr, C. M.
Brown, L. M.	725	Haynes, L.	441	Merlin, D.	589	Sutherland, C.
Cannon, B.	597	He, Q.-Y.	641	Meyer, M.	471	Sutherlin, D. P.
Carpentier, M.	733	Ho, Y.	695	Michaud, A.	565	Swiezewska, E.
Castaneda, F. E.	589	Hodge, G.	481	Miwa, N.	717	
Cazzulo, J. J.	759	Hoogenkamp, M.	463	Morgan, C. P.	441	Takata, K.-i.
Chalar, C.	501	Hryniewicz-Jankowska, A.	677	Morioka, H.	535	Takeuchi, R.
Chang, M. H. Y.	481	Hua, C. T.	481	Mutus, B.	575	Tateno, H.
Chao, Y.-C.	695	Hundal, H. S.	619	Mzali, R.	545	Thomas, C. P.
Chiu, J.-F.	641			Nakamura, S.-i.	717	Turban, S.
Chorzalska, A.	677	Insall, R.	441	Nedergaard, J.	597	
Christianson, T. M.	581	Isaac, E. L.	481	Nielsen, R.	597	Uchida, M.
Clifton, I. J.	659	Ishikawa, G.	535	Niland, B.	725	Uhlén, P.
Clement, I.	519					Vajda, S.
Cockcroft, S.	441	Jacobsson, A.	597	Okada, T.	717	Vandenbulcke, F.
Corvol, P.	565	Jahangeer, S.	717	Ong, H.	417	van der Knaap, M. S.
Courtois, G.	545	Jakobs, C.	725	Oshige, M.	535	Vanpouille, C.
Coxon, C. H.	411	Jensen, C. J.	425	Osinaga, E.	501	Veitch, N. J.
Crouin, C.	545	Jezierski, A.	677			Verhoeven, N. M.
		Jochum, M.	607	Pakula, R.	733	Vermot-Desroches, C.
Dallner, G.	519	Johenning, F. W.	687	Pan, X.-M.	433	Vieau, D.
Das, A. T.	463			Park, E.-J.	631	
de Camilli, P.	687	Kanai, Y.	535	Perl, A.	725	Walia, B.
DeGray, B.	687	Karageorgos, L. E.	481	Peter, M. E.	e1	Walther, R.
Deis, C.	651	Ketterman, A. J.	751	Petrovic, N.	597	Wang, L.
Deloffre, L.	565	Khanna, V. K.	557	Pfeiler, D.	607	Wenk, M. R.
Demers, A.	417	Kienitz, A.	471	Portoukalian, J.	527	Werner, T.
Denault, J.-B.	651	Kim, J.-E.	631	Powell, D. J.	619	Wijdenes, J.
Denys, A.	733	Kim, J.-H.	631			Winayanuwattikun, P.
Diakowski, W.	677	Kolachala, V. L.	589	Qin, S.	433	Winter, H. C.
Dirr, H. W.	703	Kolobe, D.	703			Wu, C. P. Y.
Doehn, U.	425	Kwon, J.	631	Renes, J.	463	
Du, G. G.	557			Ritz, P.	491	Xu, S.
Dubielecka, P.	677	Lake, S.	519	Rivière, G.	565	
Dumas, J.-F.	491	Lambert, A. J.	511	Robello, C.	501	Zankel, T. C.
						581