

# Biochemical Journal

The Biochemical Society, London © 2005

Volume 392, part 2  
1 December 2005

<http://www.BiochemJ.org>

## Editorial Board

### Chair

**G. Banting** • Bristol

Vice Chair, The Americas

**G. Salvesen** • La Jolla

### Reviews Editor

**A. Toker** • Boston

### Deputy Chairs

**D. R. Alessi** • Dundee

**R. A. J. Challiss** • Leicester

**S. V. Graham** • Glasgow

**S. Gutteridge** • Newark, DE

**D. Hoekstra** • Groningen

**N. M. Hooper** • Leeds

**J. P. Kehrer** • Pullman, WA

**C. MacKintosh** • Dundee

**K. H. Mayo** • Minneapolis

**H. M. Wallace** • Aberdeen

**M. P. Walsh** • Calgary

### Publisher

**P. J. Starley**

### Production Editor

**M. D. Cunningham**

### Executive Editor

**M. R. Thorne**

### Senior Staff Editor

**S. M. Hobday**

### Staff Editors

**L. Ball**

**E. A. G. Elloway**

**J. W. Mockridge**

Administrative Editor, US Office

**S. Schendel**

J. Arino (Barcelona)

A. Baici (Zurich)

J. L. Blank (Cambridge, MA)

M. Blatt (Glasgow)

P. G. Board (Canberra)

M. Bogoy (Stanford, CA)

P. J. Booth (Bristol)

A. Boraston (Victoria, BC)

L. Bosca (Madrid)

Y. Bourne (Marseille)

B. Brüne (Frankfurt)

D. Carling (London)

A. Clerk (London)

I. Collinson (Bristol)

G. P. Côté (Kingston, Ont.)

J. R. Couchman (London)

D. M. Davis (London)

D. A. Day (Sydney)

C. S. Duckett (Ann Arbor)

B. Engelmann (Munich)

R. M. Epand (Hamilton, Ont.)

P. Fay (Rochester, NY)

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)

R. Golsteyn (Croissy-sur-Seine)

S. Goodbourn (London)

P. A. Grimaldi (Nice)

B. Hallberg (Umeå)

B. Halliwell (Singapore)

P. I. Haris (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)

G. F. King (Farmington, CT)

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

P. W. Kuchel (Sydney)

J. E. Ladbury (London)

J. H. Lakey (Newcastle upon Tyne)

R. Leduc (Sherbrooke)

E. R. Levin (Long Beach, CA)

L. Machesky (Birmingham)

E. Manser (Singapore)

R. Marais (London)

P. Maurel (Montpellier)

R. J. Mayer (Nottingham)

M. Meisterernst (Munich)

H. Mellor (Bristol)

I. Morgan (Glasgow)

A. J. Morris (Chapel Hill, NC)

W. Müller-Esterl (Frankfurt)

B. Mulloy (South Mimms)

A. W. Munro (Manchester)

M. P. Murphy (Cambridge)

M. E. Noble (Oxford)

L. M. Obeid (Charleston)

M. Parenti (Monza)

M. A. J. Parry (Harpenden)

S. Patel (London)

G. Pavitt (Manchester)

M. Paulsson (Cologne)

L. Persson (Lund)

A. D. Postle (Southampton)

D. R. Richardson (Sydney)

S. Roberts (Manchester)

N. J. P. Ryba (Bethesda)

J. Sandy (Tampa)

N. Savery (Bristol)

J. R. Sayers (Sheffield)

S. C. Sealton (New York)

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

P. R. Shepherd (Auckland)

A. Sim (Callaghan, NSW)

B. F. Sloane (Detroit)

E. Smythe (Sheffield)

S. Stack (Chicago)

C. W. Taylor (Cambridge)

M. Thumm (Goettingen)

M. A. Titheradge (Brighton)

A. B. Tobin (Leicester)

S. A. Tooze (London)

M. Torti (Pavia)

C. Troy (New York)

D. M. F. van Aalten (Dundee)

M. van der Woude (York)

B. Vanhaesebroeck (London)

S. G. Ward (Bath)

M. Welham (Bath)

J. F. Woessner (Miami)

J. York (Durham, NC)

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*, Portland Press Ltd, Third Floor, Eagle House, 16 Procter Street, London WC1V 6NX, 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:** The beadlet anemone (*Actinia equina*). Image courtesy of Konstantin A. Lukyanov (Shemiakin-Ovchinnikov Institute of Bioorganic Chemistry, Moscow, Russia).