

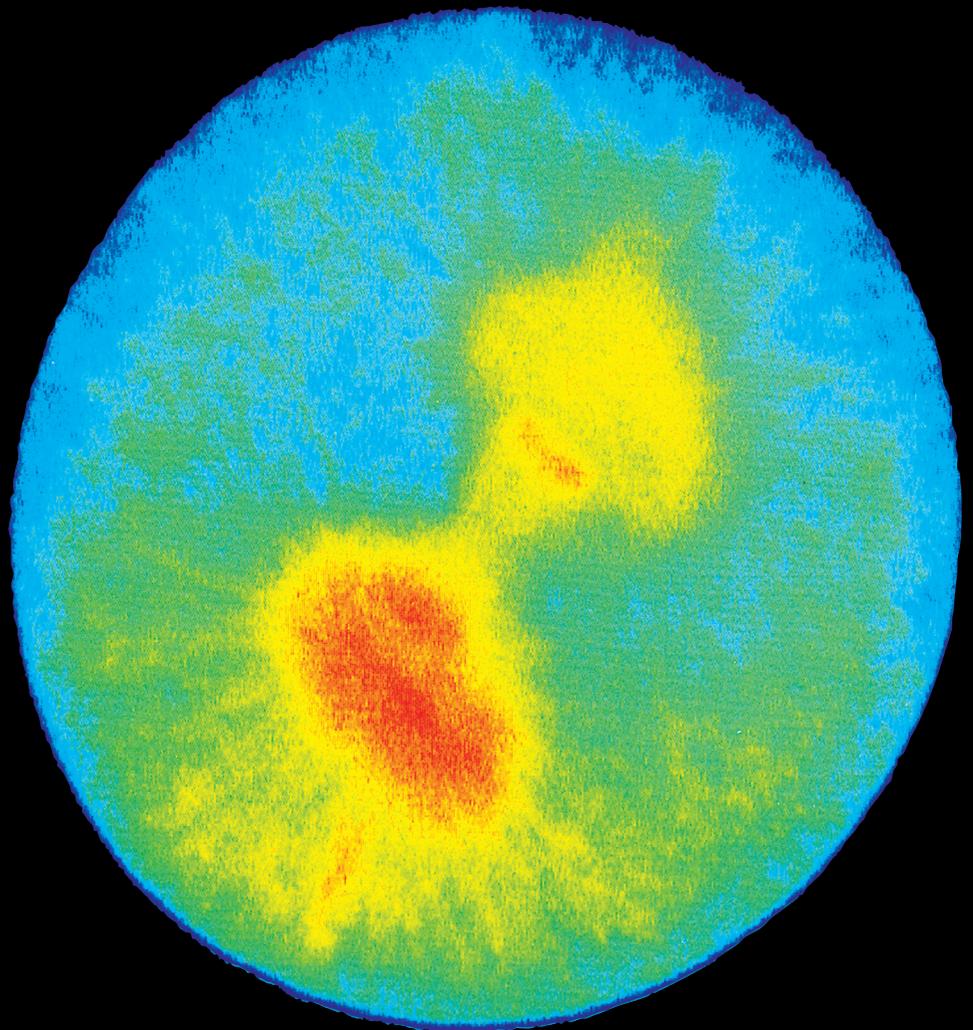
ISSN: 0967-1994

Vol. 18.1

February 2010

# Zygote

The Biology of Gametes and Early Embryos



CAMBRIDGE  
UNIVERSITY PRESS

ZYGOTE

Volume 18 Issue 1 February 2010 pp. 1-92

CAMBRIDGE

# Zygote

The Biology of Gametes and Early Embryos

*Zygote* covers all aspects of early development from gametogenesis to gastrulation. Studies on plants, invertebrates, lower vertebrates, mammals and humans at the molecular and cellular levels are accepted, leading to a unique multidisciplinary publication.

Editor-in-Chief

**Brian Dale**

Centre for Reproductive Biology, Clinica Villa del Sole, Via Manzoni 15, Naples, 80123, Italy

North American Editor

**Jacques Cohen**

Tyho-Galileo Research Laboratories,  
3 Regent Street, Suite 301, Livingston, NJ 07039, USA

Asian-Pacific Editor

**Norio Suzuki**

Division of Biological Sciences, Graduate School of Science,  
Hokkaido University, Sapporo 060-0810, Japan

## Editorial Board

**John Aitken**  
Newcastle, Australia

**David Albertini**  
Boston, USA

**Baccio Baccetti**  
University of Siena, Italy

**Colin Brownlee**  
The Plymouth Marine Laboratory, UK

**Andrew Cameron**  
California Institute of Technology,  
USA

**Alberto Darszon**  
Universidad Nacional Autonoma  
Mexico

**Louis DeFelice**  
Richmond, USA

**David Epel**  
Stanford University, USA

**John Eppig**  
Bar Harbour, USA

**Rafael Fissore**  
Amherst, USA

**Anthony Galione**  
University of Oxford, UK

**Alan Handyside**  
St Thomas' Hospital, London, UK

**Motonori Hoshi**  
Keio University, Japan

**Yasuhiro Iwao**  
Yamaguchi, Japan

**William Jeffery**  
Pennsylvania State University, USA

**Martin Johnson**  
University of Cambridge, UK

**Ken Kitajima**  
Nagoya, Japan

**Gregory Kopf**  
University of Pennsylvania, USA

**Steven L'Hernault**  
Emory University, USA

**Howard Lipshitz**  
The Hospital for Sick Children,  
Toronto, Canada

**Frank J. Longo**  
University of Iowa, USA

**Yoshi Masui**  
University of Toronto, Canada

**David McClay**  
Duke University, Durham, USA

**Yves Menez**  
INSA-Lyon, France

**Hitoshi Sawada**  
Sugashima, Japan

**Allen Schuetz**  
Johns Hopkins University, USA

**Richard Schultz**  
University of Pennsylvania, USA

**B. Shur**  
Emory University, USA

**Andrew Singson**  
Piscataway, USA

**Takayuki Takahashi**  
Hokkaido, Japan

**Andrzej K. Tarkowski**  
University of Warsaw, Poland

**Victor Vacquier**  
Scripps Institution of Oceanography,  
La Jolla, USA

**Jonathan Vanblerkom**  
Colorado, USA

**Paul Wassarman**  
Roche Institute of Molecular Biology,  
Nutley, UK

**Michael Whitaker**  
University College & Middlesex  
School of Medicine, London, UK

**Don Wolf**  
Beaverton, USA

© CAMBRIDGE UNIVERSITY PRESS 2010

## Subscriptions

*Zygote* (ISSN 0967-1994) is published quarterly in February, May, August and November. The subscription price (excluding VAT) of Volume 18, 2010, which includes print and electronic access, is £333 net (US \$634 in USA, Canada and Mexico). The electronic-only price available to institutional subscribers is £286 net (US \$551 in USA, Canada and Mexico); single parts cost £83 net (US \$160 in USA, Canada and Mexico). Prices include delivery by air where appropriate. EU subscribers (outside the UK) who are not registered for VAT should add VAT at their country's rate. VAT registered subscribers should provide their VAT registration number. Four parts form a volume. Orders, which must be accompanied by payment, may be sent to any bookseller, subscription agent or to the publisher. Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge, CB2 8RU, UK, or in the USA, Canada and Mexico to Cambridge University Press, Journals Fulfillment Department, 100 Brook Hill Drive, West Nyack, New York 10994-2133. Japanese prices for institutions are available from Kinokuniya Company Ltd, P.O. Box 55, Chitose, Tokyo 156, Japan. Application to mail at periodicals postage rates pending at New York, NY, and additional mailing offices. POSTMASTER: send address changes in USA, Canada and Mexico to *Zygote*, Cambridge University Press, 100 Brook Hill Drive, West Nyack, New York 10994-2133.

Claims for missing issues should be made immediately on receipt of the subsequent issue.

Advertising Apply to the publisher. Address enquiries to: Rebecca Curtis (UK) or the Advertising Co-ordinator (North America).

## Copying

This journal is registered with the Copyright Clearance Centre, 222 Rosewood Drive, Danvers, MA 01923, USA. Organisations in the USA who are also registered with the C.C.C. may therefore copy material (beyond the limits permitted by sections 107 and 108 of US copyright law) subject to payment to C.C.C. of the per-copy fee of \$16.00. This consent does not extend to multiple copying for promotional or commercial purposes. Code 0967-1994/2010 \$16.00. Organisations authorised by the Copyright Licensing Agency may also copy material subject to the usual conditions. *ISI Tear Sheet Service*, 3501 Market Street, Philadelphia, Pennsylvania 19104, USA is authorised to supply single copies of separate articles for private use only. For all other use, permission should be sought from the Cambridge or the American Branch of Cambridge University Press.

### Internet Access

This journal is included in the Cambridge Journals Online service which can be found at <http://journals.cambridge.org>. For further information on other Press titles access <http://www.cambridge.org>.

*Zygote* is covered by the major abstracting and indexing services including Current Contents/Life Sciences, Chemical Abstracts and Index Medicus.

Cover illustration: Confocal localisation of fluorescein-calmodulin during anaphase of the first mitosis of a *Lytechinus pictus* zygote. The image is shown in pseudocolour, warmer colours representing greater intensities of fluorescence. Calmodulin localisation can be seen as astral rays, the spindle poles and condensed chromosomes. (Courtesy of Wilding, Torok and Whitaker).