

# GENETICS RESEARCH

The International Journal for Genetics  
and Genomics Research



[journals.cambridge.org/grh](http://journals.cambridge.org/grh)

**CAMBRIDGE**  
UNIVERSITY PRESS

# Genetics Research

SENIOR EXECUTIVE EDITOR

**Trudy F. C. Mackay**

Department of Genetics, Box 7614,  
North Carolina State University,  
Raleigh, NC 27695, USA  
Fax: +1 919 515 3355  
Email: Trudy\_Mackay@ncsu.edu

EDITORIAL BOARD

**Hiroshi Akashi**

Department of Population Genetics, National Institute of Genetics,  
Yata-1111, Mishima, Shizuoka-ken, 411-8540, Japan

**Leif Andersson**

Department of Medical Biochemistry and Microbiology,  
Uppsala University, Uppsala, Biomedical Centre, Box 597,  
SE – 751 24, Uppsala, Sweden

**Robert R. H. Anholt**

W.M. Keck Center for Behavioral Biology, Department of Zoology,  
Box 7617, North Carolina State University, Raleigh, NC 27695-7617, USA

**Nick H. Barton**

Institute of Science and Technology, Am Campus 1, 3400 Klosterneuburg,  
Austria

**Rebecca W. Doerge**

Department of Statistics, 150 North University Street, Purdue University,  
West Lafayette, IN 47904-1399, USA

**Mike E. Goddard**

Land and Food Resources, University of Melbourne, Royal Parade,  
Parkville, 3010, Melbourne, Australia

**Greg Gibson**

School of Integrative Biology, University of Queensland, Brisbane,  
Queensland 4072, Australia

**Sergey Nuzhdin**

Section of Evolution & Ecology, University of California,  
One Shields Avenue, Davis, CA 95616-8755, USA

**Linda Partridge**

Department of Biology, University College London, Darwin Building,  
Gower Street, London WC1E 6BT, UK

FOUNDING EDITOR Eric C. R. Reeve

EXECUTIVE EDITORS

**David J. Finnegan**

**William G. Hill**

School of Biological Sciences,  
The University of Edinburgh, West Mains Road,  
Edinburgh EH9 3JT, UK  
Fax: +44 (0)131 650 6564  
Email: Genet.Res@ed.ac.uk

**Shizhong Xu**

Department of Botany and Plant Sciences,  
University of California, Riverside  
Riverside, CA 9252, USA  
Fax: +1 951 827 7335  
E-mail: shxu@ucr.edu

**Patrick Phillips**

Biology Department, 1210 University of Oregon, Eugene,  
OR 97403-1210, USA

**Daven Presgraves**

University of Rochester, Department of Biology, River Campus  
Box 270211, Rochester, New York 14627-0211, USA

**Helen Sang**

Roslin Institute, Roslin BioCentre, Midlothian, EH25 9PS, UK

**David Threadgill**

North Carolina State University, Room 5062, Genetic Medicine Building,  
CB# 7264, UNC-Chapel Hill, Chapel Hill, NC 27599-7264, USA

**Peter M. Visscher**

Queensland Institute of Medical Research, The Bancroft Centre,  
Royal Brisbane Hospital, Queensland 4029, Australia

**J. Bruce Walsh**

Department of Ecology and Evolutionary Biology, University of Arizona,  
Tucson AZ 85721, USA

**Bruce S. Weir**

Department of Biostatistics, University of Washington, Seattle,  
WA 98195-7232, USA

**Michael Whitlock**

Department of Zoology, University of British Columbia,  
6270 University Blvd., Vancouver BC V6T 1Z4, Canada

**John Willis**

Duke University, Department of Biology, Box 90338,  
Durham NC 27708, USA

**Nengjun Yi**

Department of Biostatistics, Ryals Public Health Bldg, 317F,  
University of Alabama at Birmingham, Birmingham, AL 35294, USA

*Genetics Research* (ISSN 0016-6723) is published bimonthly in February, April, June, August, October and December. The subscription price (excluding VAT) of volume 94, 2012, which includes print and electronic access, is £620.00 (in USA, Canada and Mexico US \$1160.00). Single parts £110.00 net (in USA, Canada and Mexico US \$190.00), plus postage. The electronic-only price available to institutional subscribers is £525.00 (US \$940.00 in USA, Canada and Mexico). 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. Prices include delivery by air.

Periodicals postage paid at New York, NY, and at additional mailing offices. POSTMASTER: send address changes in USA, Canada and Mexico to *Genetics Research*, Cambridge University Press, 100 Brook Hill Drive, West Nyack, New York 10994-2133.

Orders which must be accompanied by payment, should be sent to a bookseller, subscription agent, or to the publishers, Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 8RU, UK and, in the USA, Canada and Mexico, 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.

*Copying:* This journal is registered with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA. Organizations 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 0016-6723/2012 \$16.00. Organizations authorized 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 authorized to supply single copies of separate articles for private use only.

*For all other use*, permission should be sought from 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/>

This journal issue has been printed on FSC-certified paper and cover board. FSC is an independent, non-governmental, not-for-profit organization established to promote the responsible management of the world's forests. Please see [www.fsc.org](http://www.fsc.org) for information.

**Front Cover Illustration:** Left: DNA microarrays © Andre Nantel / Shutterstock. Centre left: Crowd scene © Shutterstock. Centre right: *Drosophila* © iStockphoto.com / et\_engineer. Right: Maize © Shutterstock.

© Cambridge University Press 2012