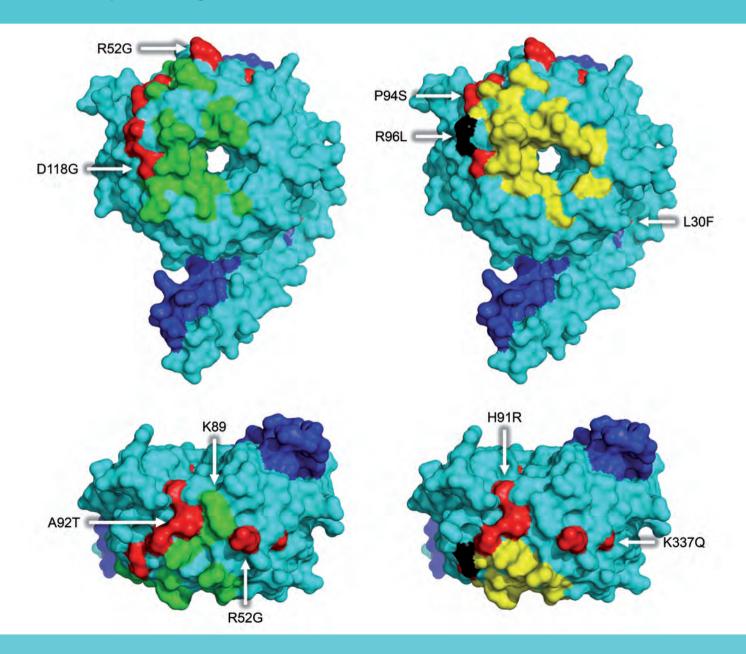
# HUMAN MOLECULAR GENETICS

Volume 26 Number 6 15 March 2017 academic.oup.com/hmg







# Human Molecular Genetics

#### **Executive Editors**

Kay E. Davies, Oxford, UK Anthony Wynshaw-Boris, San Francisco, CA, USA

### **Executive Editor, Association Studies**

Timothy M. Frayling, Exeter, UK

#### **Consulting Editor**

Huntington F. Willard, Durham, NC, USA

#### **Editorial Board**

Timothy Aitman, London, UK Chris Amos, Houston, TX, USA Marisa Bartolomei, Philadelphia, PA, USA M. Flint Beal, New York, NY, USA Bradley E. Bernstein, Boston, MA, USA Kym Marie Boycott, Ottawa, ON, Canada Guy A. Caldwell, Tuscaloosa, AL, USA David Chan, Pasadena, CA, USA Judy Cho, New Haven, CT. USA Mark R. Cookson, Bethesda, MD, USA William Cookson, London, UK Nancy J. Cox, Chicago, IL, USA Beverly L. Davidson, Iowa City, IA, USA Charis Eng, Cleveland, OH, USA Mel B. Feany, Boston, MA, USA Fred Gage, La Jolla, CA, USA Daniel Geschwind, Los Angeles, CA, USA Joseph Gleeson, San Diego, CA, USA Peter K. Gregersen, New York, NY, USA Jonathan L. Haines, Cleveland, OH, USA Nicholas Katsanis, Baltimore, MD, USA Janine LaSalle, Davis, CA, USA Brendan Lee, Houston, TX, USA He Lin, Shanghai, China Stanislas Lyonnet, Paris, France Mark McCarthy, Oxford, UK Karen L. Mohlke, Chapel Hill, NC, USA Michael O'Donovan, Cardiff, UK Harry Orr, Minneapolis, MN, USA Mike Owen, Cardiff, UK Hank Paulson, Ann Arbor, MI, USA Chris Ponting, Oxford, UK Laura Ranum, Gainesville, FL, USA Renee A. Reijo Pera, Palo Alto, CA, USA Wolf Reik, Cambridge, UK David Rubinsztein, Cambridge, UK Hiroyuki Sasaki, Fukuoka, Japan Nicholas J. Schork, USA Val Sheffield, Iowa City, IA, USA Chen-Yang Shen, Taipei, Taiwan Jay Shendure, Seattle, WA, USA Eric Shoubridge, Montreal, Canada Timothy Spector, London, UK Leslie Thompson, Irvine, CA, USA Ya-ping Zhang, Kunming, China

#### **Editorial Assistant**

Veronica Buckle, Oxford, UK

#### **Editorial Office**

Helen J. Johnson, *Manager, UK* Stephanie Sacharov, *Manager, USA* 

#### **Production**

Elisabeth Waelkens, Production Editor

### OXFORD UNIVERSITY PRESS

Oxford New York Tokyo

## **Subscriptions**

A subscription to *Human Molecular Genetics* comprises 26 issues. All prices include postage, and for subscribers outside the UK delivery is by Standard Air. *Human Molecular Genetics* Advance Access contains papers that have recently been accepted, but have not yet been included within an issue. Advance Access is updated weekly.

#### Annual subscription rate (Volume 26, 2017):

Institutional
Print and Online £2400.00 \$4561.00 €3601.00
Online Only £1613.00 \$3065.00 €2420.00
Print Only £2212.00 \$4203.00 €3318.00

#### Personal

Print edition and individual online access: £575.00 \$1093.00 €863.00 Please note: US\$ rate applies to US & Canada, Euro applies to Europe, UK £applies to UK and Rest of World

There may be other subscription rates available, for a complete listing please visit https://academic.oup.com/hmg/subscribe.

Full prepayment, in the correct currency, is required for all orders. Orders are regarded as firm and payments are not refundable. Subscriptions are accepted and entered on a complete volume basis. Claims cannot be considered more than FOUR months after publication or date of order, whichever is later. All subscriptions in Canada are subject to GST. Subscriptions in the EU may be subject to European VAT. If registered, please supply details to avoid unnecessary charges. For subscriptions that include online versions, a proportion of the subscription price may be subject to UK VAT. Personal rate subscriptions are only available if payment is made by personal cheque or credit card and delivery is to a private address.

The current year and two previous years' issues are available from Oxford University Press. Previous volumes can be obtained from the Periodicals Service Company, 11 Main Street, Germantown, NY 12526, USA. Email: psc@periodicals.com. Tel: +1 (518) 537 4700. Fax: +1 (518) 537 5899.

For further information, please contact: Journals Customer Service Department, Oxford University Press, Great Clarendon Street, Oxford OX26DP, UK. Email: jnls.cust.serv@oup.com. Tel (and answerphone outside normal working hours): +44 (0)1865 353907. Fax: +44 (0)1865 353485. In the US, please contact: Journals Customer Service Department, Oxford University Press, 2001 Evans Road, Cary, NC 27513, USA. Email: jnlorders@oup.com. Tel (andanswerphone outside normal working hours): 800 852 7323 (toll-free inUSA/ Canada). Fax: 919 677 1714. In Japan, please contact: Oxford Journals,Oxford University Press, Tokyo, 4-5-10-8F Shiba, Minato-ku, Tokyol008-8386, Japan. E-mail: custserv.jp@oup.com. Tel: +81 3 5444 5858. Fax: +81 3 3454 2929.

Methods of payment. (i) Cheque (payable to Oxford University Press, to Oxford University Press, Cashiers Office, Great Clarendon Street, Oxford OX2 6DP, UK) in GB£ Sterling (drawn on a UK bank), US\$ Dollars (drawn on a US bank), or EU€ Euros. (ii) Bank transfer to Barclays Bank Plc, Oxford Group

Office, Oxford (bank sort code 20-65-18) (UK), overseas only Swift code BARC GB 22 (GB£ Sterling to account no. 70299332, IBAN GB89BARC20651870299332; US\$ Dollars to account no. 66014600, IBAN GB27BARC20651866014600; EU€ Euros to account no. 78923655, IBAN GB16BARC20651878923655). (iii) Credit card (Mastercard, Visa, Switch or American Express).

Human Molecular Genetics is published every two weeks plus two extra issues (in April and October) by Oxford University Press, Oxford, UK. Annual subscription price is £2400.00 \$4561.00 €3601.00. Human Molecular Genetics is distributed by Mercury Media Processing LLC, 1850 Elizabeth Ave., Suite #C, Rahway, NJ 07065, USA. Periodicals postage paid at Piscataway, NJ and additional mailing offices.

US Postmaster: send address changes to *Human Molecular Genetics* (ISSN0964 6906), c/o Mercury Media Processing, 1634 E. Elizabeth Ave, Linden, NJ07036. USA.

#### Environmental and ethical policies

Oxford Journals, a division of Oxford University Press, is committed to working with the global community to bring the highest quality research to the widest possible audience. Oxford Journals will protect the environment by implementing environmentally friendly policies and practices wherever possible. Please see https://academic.oup.com/journals/pages/about\_us/ethical\_policies for further information on environmental and ethical policies.

#### Permissions

For information on how to request permissions to reproduce articles/information from this journal, please visit https://academic.oup.com/journals/pages/access\_purchase/rights\_and\_permissions.

#### Advertising

Advertising, inserts and artwork enquiries should be addressed to Advertising and Special Sales, Oxford Journals, Oxford University Press, Great Clarendon Street, Oxford, OX2 6DP, UK. Tel: +44 (0) 1865 354767; Fax: +44 (0) 1865 353774; E-mail: jnlsadvertising@oup.com.

© Oxford University Press 2017

All rights reserved; no part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without prior written permission of the Publishers, or a licence permitting restricted copying issued in the UK by the Copyright Licensing Agency Ltd, 90 Tottenham Court Road, London W1P 9HE, or in the USA by the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

Typeset by Cenveo publisher services, Bangalore, India.

Printed by CTPS Digiprints, China.