



nature publishing group

nature
REVIEWSDecember 2011 volume 12 no 12
www.nature.com/nrg

GENETICS



► **COVER:** 'Sub rosa' by Patrick Morgan, inspired by the Ethics Watch on p808.



LOUISA FLINTOFT



TANITA CASCI



MARY MUERS



HANNAH STOWER



DARREN BURGESS

This issue of *Nature Reviews Genetics* sees the launch of a new Article Series on Non-coding RNA (ncRNA).

We start the Series with two new Reviews that look at two very different aspects of ncRNA biology. On p846, Eugene Berezikov explores the evolution of animal microRNAs and what this particularly celebrated class of ncRNAs has contributed to the evolution of increasingly more complex organisms. A diverse range of approaches — from phylogenomics to biochemistry — have contributed to our understanding in these areas.

In a second Review on p861, Manel Esteller looks at the roles of ncRNAs in human disease. Initially, this field of research focused on miRNA dysregulation in cancer. But it is becoming increasingly apparent that a diverse range of ncRNAs — from small nucleolar RNAs (snoRNAs) to long non-coding RNAs (lncRNAs) — have crucial functions in disease. The disorders in which ncRNAs and their machineries have been implicated span from neurological disorders with Mendelian patterns of inheritance to complex conditions, such as cardiovascular disease.

Despite the relatively long history of research on the roles of miRNAs in cancer, we clearly still have much to learn, even in this regard — as underlined by the Research Highlight on p804. This article discusses three new studies that reveal extra layers of complexity to microRNA regulation, in which the interactions of miRNAs with their targets — including an important tumour suppressor gene — are modulated by other mRNAs and ncRNAs.

More articles on the diverse roles of ncRNAs can be found online at the Series homepage (<http://www.nature.com/nrg/series/noncoding>), including Reviews on the functions of ncRNAs in embryogenesis and the use of RNAi for therapy.

EDITORIAL OFFICES

LONDON NatureReviews@nature.com
The Macmillan Building,
4 Crinan Street, London N1 9XW, UK
Tel: +44 (0)20 7843 3620;
Fax: +44 (0)20 7843 3629

CHIEF EDITOR: Louisa Flintoft
SENIOR EDITORS: Tanita Casci, Mary Muers
ASSOCIATE EDITOR: Hannah Stower
ASSISTANT EDITOR: Darren Burgess
COPY EDITOR: Matthew Smyllie
SENIOR COPY EDITORS: Yukie Ozawa, Catriona Rodwell, Man Tsuey Tse, Lucie Wootton
COPY EDITING MANAGER: Lewis Packwood
SENIOR ART EDITOR (NRG): Patrick Morgan
ART CONTROLLER: Susanne Harris
SENIOR ART EDITORS: Vicky Summersby, Kirsten Lee
MANAGING PRODUCTION EDITOR: Judith Shadwell
SENIOR PRODUCTION EDITOR: Simon Fenwick
PRODUCTION CONTROLLER: Natalie Smith

SENIOR EDITORIAL ASSISTANT: Laura Corns
EDITORIAL ASSISTANT: Ella Lines
WEB PRODUCTION MANAGER: Deborah Anthony
MARKETING MANAGERS: Tim Redding, Leah Rodriguez

MANAGEMENT OFFICES

LONDON nature@nature.com
The Macmillan Building, 4 Crinan Street,
London N1 9XW, UK
Tel: +44 (0)20 7833 4000;
Fax: +44 (0)20 7843 4596/7
OFFICE MANAGER: Laura Lee
MANAGING EDITOR: Suzanne Farley
PUBLISHER: James Butcher
MANAGING DIRECTOR: Steven Inchcombe
EDITOR-IN-CHIEF, NATURE PUBLICATIONS: Philip Campbell
ASSOCIATE DIRECTORS: Jenny Henderson, Dominic Pettit
EDITORIAL PRODUCTION DIRECTOR: James McQuat

PRODUCTION DIRECTOR:

Yvonne Strong
DIRECTOR, WEB PUBLISHING: Dan Pollock
HEAD OF WEB PRODUCTION: Alexander Thurrell
NEW YORK nature@natureny.com
Nature Publishing Group,
75 Varick Street, 9th floor, New York,
NY 10013-1917, USA
Tel: +1 212 726 9200;
Fax: +1 212 696 9006
CHIEF TECHNOLOGY OFFICER: Howard Ratner
HEAD OF INTERNAL SYSTEMS DEVELOPMENT: Anthony Barrera
HEAD OF SOFTWARE SERVICES: Luigi Squillante
GLOBAL HEAD OF ADVERTISING AND SPONSORSHIP: Dean Sanderson
HEAD OF NATURE RESEARCH & REVIEWS MARKETING: Sara Girard

TOKYO nature@natureasia.com
Chiyoda Building 5F, 2-37-1 Ichigayatamachi,
Shinjuku-ku, Tokyo 162-0843, Japan
Tel: +81 3 3267 8751; Fax: +81 3 3267 8746
ASIA-PACIFIC PUBLISHER: Antoine E. Bocquet
MANAGER: Koichi Nakamura
ASIA-PACIFIC SALES DIRECTOR: Kate Yoneyama
SENIOR MARKETING MANAGER: Peter Yoshihara
MARKETING/PRODUCTION MANAGER: Takesh Murakami
INDIA 5A/12 Ansari Road, Daryaganj,
New Delhi 110 002, India
Tel/Fax: +91 11 2324 4186
SALES AND MARKETING MANAGER, INDIA: Harpal Singh Gill
Copyright © 2011 Nature Publishing Group
Research Highlight images courtesy of
Getty Images unless otherwise credited.
Printed in Wales by Cambrian Printers
on acid-free paper