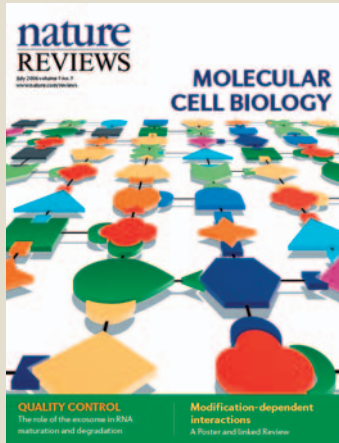




nature publishing group



► **COVER:** 'Modification-dependent interactions' by Vicky Askew; inspired by the Review on p473 and the linked Poster



ARIANNE HEINRICHS



RACHEL SMALLRIDGE



EKAT KRITIKOU

Cellular proteins are subject to a vast array of post-translational modifications (PTMs), which control many aspects of cellular function. Such modifications can regulate protein activity through allosteric effects, but can also provide binding sites for a number of interaction domains.

In their Review on page 473, Bruce T. Seet, Ivan Dikic, Ming-Ming Zhou and Tony Pawson explain how PTM-dependent protein–protein interactions represent a fundamental mechanism through which the state of the proteome is 'read' and interpreted. The specific recognition of modified protein sites by interaction domains can yield complex responses. For example, such interactions can mediate cooperative or switch-like effects, or can function in mutually exclusive or antagonistic modes. They also often function sequentially to create extended signalling pathways or networks.

The regulatory properties of PTMs and their interaction domains are also highlighted in the accompanying Poster by Bruce T. Seet, Caesar Lim and Tony Pawson (see <http://www.nature.com/nrm/poster/modifications>). The same protein can potentially be modified at several sites by different types of PTM, which allows complex forms of regulation. Generous support from Upstate and Chemicon International, Inc. means that the poster will be freely available online until the end of 2006.

The significance and timeliness of the topic of PTMs and their interaction domains is nicely illustrated on page 469. In a Research Highlight, we discuss a flurry of papers that report the identification of the plant-homeodomain, or PHD, finger as the interaction domain the trimethylated Lys4 residue of histone H3. This domain provides the crucial link between a physiologically important histone-tail modification and its effect on gene expression and chromatin function.

#### 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:** Arienne Heinrichs  
**SENIOR EDITOR:** Rachel Smallridge  
**ASSOCIATE EDITOR:** Ekaterina Kritikou  
**ASSISTANT EDITOR:** Sharon Ahmad  
**COPY EDITOR:** Asher Mullard  
**SENIOR ART EDITOR (NRMCB):**  
Vicky Askew  
**SENIOR COPY EDITOR:** Meg Fitzpatrick  
**ART CONTROLLER:** Claudia Bentley  
**SENIOR ART EDITOR:** Susanne Harris  
**CARTOONIST:** Neil Smith  
**MANAGING PRODUCTION EDITOR:**  
Judith Shadwell  
**DEPUTY PRODUCTION EDITOR:**  
Simon Fenwick  
**PRODUCTION CONTROLLER:** Natalie Smith

**EDITORIAL ASSISTANTS:** Mary Aboukhalil,  
Elliann Fairbairn  
**WEB PRODUCTION EDITORS:**  
Deborah Anthony, Angela Bird, June Lim,  
Amy Wagner, Nadia Younus  
**DEPUTY WEB PRODUCTION MANAGER:**  
Alexander Thurrell  
**MARKETING MANAGERS:**  
Anna Duguid, Kellie Lane

#### 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:** Sheryl Ocampo  
**PUBLISHER:** Hugh Blackbourn  
**MANAGING DIRECTOR:** Annette Thomas  
**EDITOR-IN-CHIEF, NATURE PUBLICATIONS:**  
Philip Campbell  
**ASSOCIATE DIRECTORS:**  
Jenny Henderson, Tony Rudland

**EDITORIAL PRODUCTION DIRECTOR:**  
James McQuat  
**PRODUCTION MANAGER:** Yvonne Strong  
**WEB PRODUCTION MANAGER, UK:**  
Amanda Ward  
**DIRECTOR, WEB PUBLISHING:**  
Timo Hannay  
**HEAD OF WEB PRODUCTION:**  
Jeremy Macdonald  
**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  
**DIRECTOR OF NEW TECHNOLOGY:**  
Greg Suprock  
**HEAD OF WEB SERVICES:** Anthony Barrera  
**NATUREJOBS PUBLISHER:** Ben Crowe  
**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:**  
Takeshi 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 © 2006 Nature Publishing Group  
Printed in Wales by Cambrian Printers  
on acid-free paper