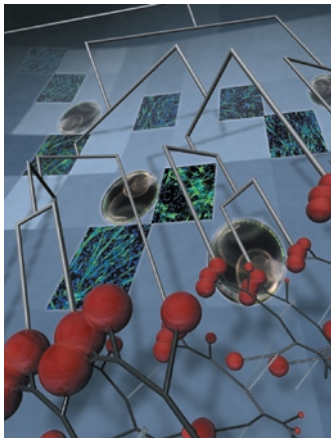
FOCUS ON
CHEMICAL PROBES

MARCH 2010 VOL 6 ISSUE 3

nature chemical biology



COVER IMAGE

Chemical probes provide important tools for dynamically interrogating biological systems and for investigating potential drug targets. In this issue we feature a collection of Commentaries and Review Articles that highlight recent advances and future directions in the field. On the cover, we highlight three research papers in this issue that describe advances in chemical probe research: using new biochemical assays, Bradner *et al.* discover unexpected selectivity within current HDAC inhibitors and develop a true pan-HDAC inhibitor (p238); Kokel *et al.* describe a method for identifying neuroactive molecules and predicting their mode of action through behavioral zebrafish assays (p231); and Bracha *et al.* use a combination of RNAi, metabolomics and chemical probes to uncover metabolic enzymes that regulate myoblast differentiation (p202). Cover image by Katie Vicari, based on artwork provided by Sigrid Hart (phylogenetic trees), Randall Peterson (zebrafish images) and Felice Frankel (cell images).

Corrected after print 18 March 2010.

FOCUS

nature publishing group

Nature Chemical Biology (ISSN 1552-4450) is published monthly by Nature Publishing Group, a trading name of Nature America Inc. located at 75 Varick Street, FI 9, New York, NY 10013-1917. **Editorial Office:** Davenport Building, 25 First Street, Suite 104, Cambridge, MA 02141. Tel: (617) 475 9273, Fax: (617) 494 4960. **Annual subscription rates:** USA/Canada: US$160 (personal), US$3,520 (institution). Canada add 5% GST #104911595RT001; Euro-zone: €127 (personal), €2,795 (institution); Rest of world (excluding China, Japan, Korea): £82 (personal), £1,806 (institution); Japan: Contact NPG Nature Asia-Pacific, Chiyoda Building, 2-37 Ichigayatamachi, Shinjuku-ku, Tokyo 162-0843. Tel: 81 (03) 3267 8751, Fax: 81 (03) 3267 8746. **Authorization to photocopy** material for internal or personal use, or internal or personal use of specific clients, is granted by Nature Publishing Group to libraries and others registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided the relevant copyright fee is paid direct to CCC, 222 Rosewood Drive, Danvers, MA 01923, USA. Identification code for *Nature Chemical Biology*: 1552-4450/04. For single back issue prices contact the publisher. CPC PUB AGREEMENT #40032744. Printed on acid-free paper by The Sheridan Press, Hanover, PA, USA.

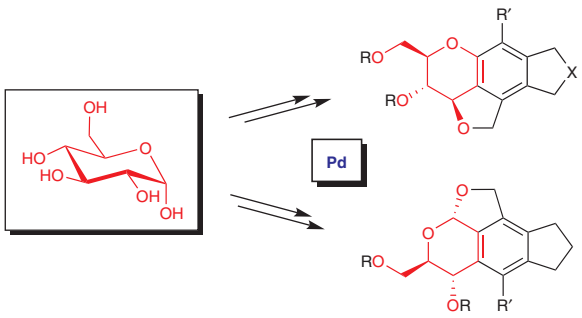
BRIEF COMMUNICATIONS

199 Domino access to highly substituted chromans and isochromans from carbohydrates

M Leibeling, D C Koester, M Pawliczek, S C Schild & D B Werz

Pd-catalyzed domino reactions have been shown to stitch together chemical groups to form more complex scaffolds. Now these methods are used in a diversity-oriented synthesis approach to make intricate natural product–like structures using simple sugars as starting materials.

▶ N&V p174

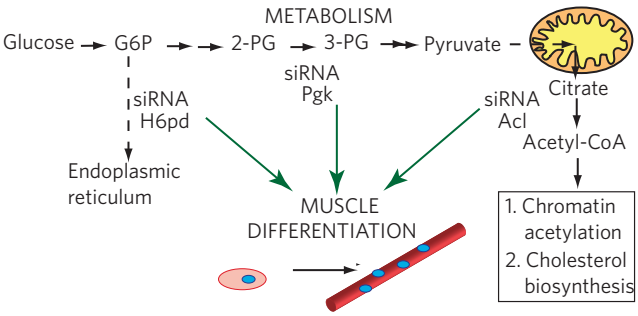


202 Carbon metabolism–mediated myogenic differentiation

A L Bracha, A Ramanathan, S Huang, D E Ingber & S L Schreiber

Differentiation of mouse myoblasts is coordinated with glycolysis, calcium/calcineurin signaling, chromatin acetylation and cholesterol biosynthesis. This is consistent with profiling of the intracellular metabolites that accompany myogenic differentiation and points to new targets for cancer differentiation therapy of rhabdomyosarcoma.

▶ N&V p176



205 Capture and release of alkyne-derivatized glycerophospholipids using cobalt chemistry

S B Milne, K A Tallman, R Serwa, C A Rouzer, M D Armstrong, L J Marnett, C M Lukehart, N A Porter & H A Brown

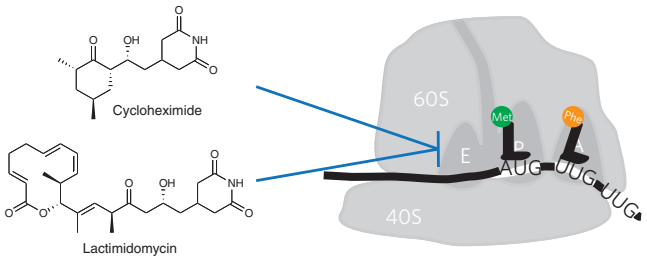
Reversible cobalt complexation of alkynes is a critical step in some chemical transformations. New research shows this reaction can be used to specifically retrieve modified lipids from complex cellular mixtures, simplifying tracking and providing insights into lipid metabolism.

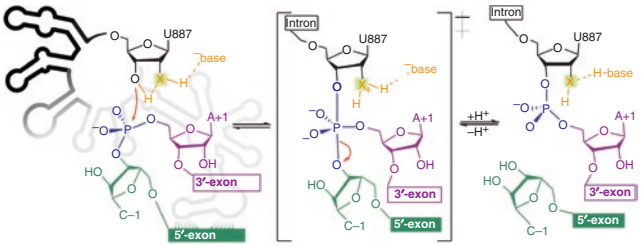
ARTICLES

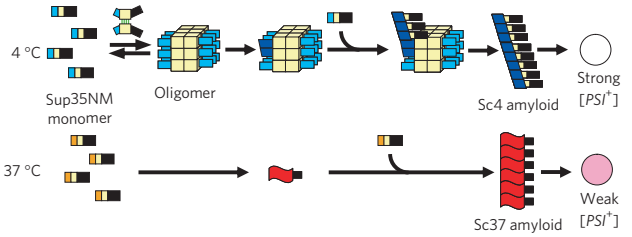
209 Inhibition of eukaryotic translation elongation by cycloheximide and lactimidomycin

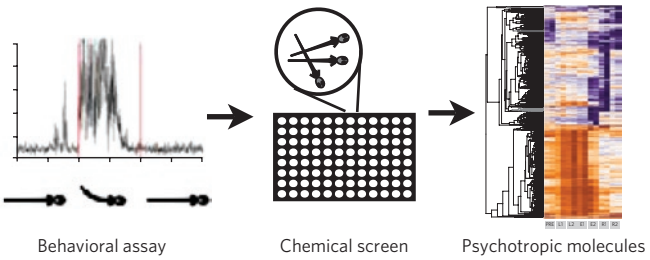
T Schneider-Poetsch, J Ju, D E Eyler, Y Dang, S Bhat, W C Merrick, R Green, B Shen & J O Liu

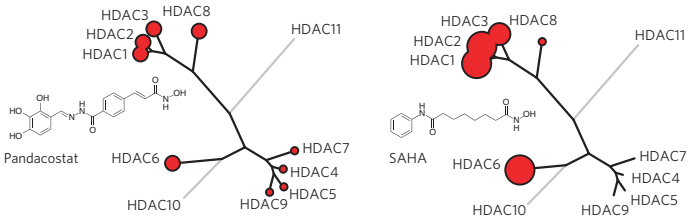
Cycloheximide is a natural product that cell biologists have used for decades as a tool to arrest protein synthesis in eukaryotes. Biochemical data now refine our mechanistic view of how cycloheximide and structurally related analogs inhibit translational elongation.











CLASSIFIEDS

See the back pages

ERRATUM

Cover caption

Nat. Chem. Biol. **6** (2010); published online 12 February 2010; corrected after print 18 March 2010

In the version of this cover caption initially published, Sigrid Hart's name was misspelled. The error has been corrected in the HTML and PDF versions of the cover caption.