

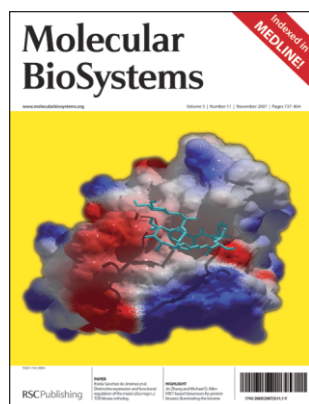
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Cover

See Sánchez de Jiménez *et al.*, pp. 794–802.
A model of human FKBP12 mutated *in silico* to resemble maize FKBP12 at the rapamycin binding region. The green structure is the rapamycin molecule inserted at the binding cavity of FKBP12. Red represents regions of negative electrostatic potential and blue represents positive potentials. Image reproduced by permission of L. T. Agredano-Moreno, H. Reyes de la Cruz, L. P. Martínez-Castilla and E. Sánchez de Jiménez from *Mol. BioSyst.*, 2007, 3, 794.

CHEMICAL BIOLOGY

B81

Drawing together research highlights and news from all RSC publications, *Chemical Biology* provides a 'snapshot' of the latest developments in chemical biology, showcasing newsworthy articles and significant scientific advances.

Chemical Biology

November 2007/Volume 2/Issue 11

www.rsc.org/chembiology

HOT OFF THE PRESS

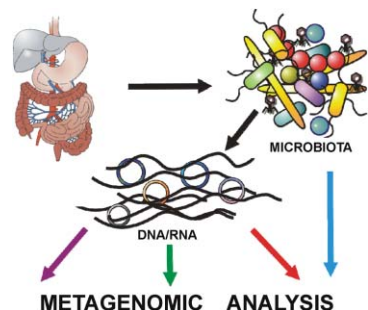
747

Hot off the Press

Hot off the Press highlights recently published work for the benefit of our readers. Our contributor this month has focused on antidepressant inhibition in neurotransmitter transporters. New contributors are always welcome. If you are interested please contact molbiosyst@rsc.org for more information, we'd like to hear from you.

HOT OFF THE PRESS

749

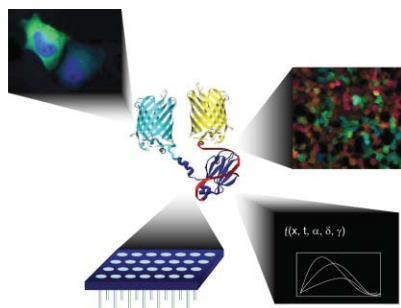


Accessing the mobile metagenome of the human gut microbiota

Brian V. Jones and Julian R. Marchesi*

Current and possible access to the mobile metagenome of bacterial ecosystems and evidence for the role of this genetic resource in community functions of the human gut microbiota is reviewed.

759

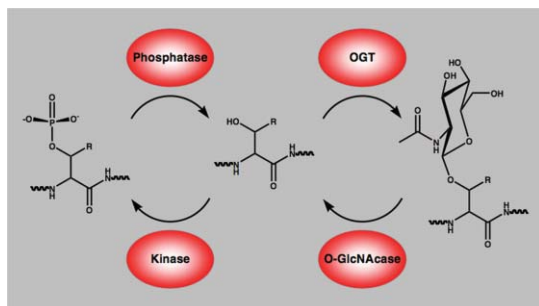


FRET-based biosensors for protein kinases: illuminating the kinome

Jin Zhang* and Michael D. Allen

We provide a summary of the growing field of kinase activity tracking in live biological contexts using FRET based biosensors. Reporter examples and their implementation in single cell and tissue imaging, computational biology, or high throughput screening are described.

766

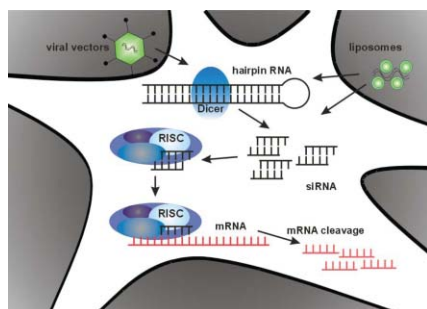


O-GlcNAc modification in diabetes and Alzheimer's disease

Wagner B. Dias and Gerald W. Hart*

Similar to phosphorylation, GlcNAcylation is an abundant, dynamic, and inducible post-translational modification. GlcNAcylation modulates signaling, degradation, trafficking and transcription, among others. Emerging data indicate that dysfunctional protein GlcNAcylation/phosphorylation has a role in the etiology and pathology of Alzheimer's disease and type II diabetes.

773



Targeting neurological disease with RNAi

Paul Lingor* and Mathias Bähr

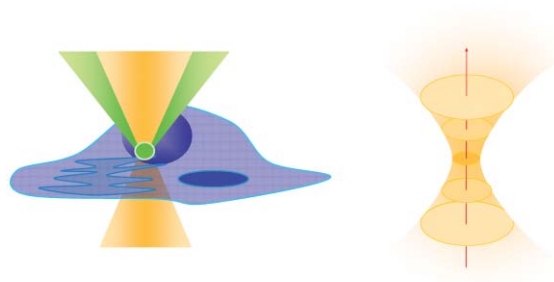
Gene silencing by RNA interference rapidly entered the labs of neuroscience. Its future transfer to the bedside depends on the resolution of crucial technical issues, but it raises hope for the cure of several neurological disorders.

781

Beyond the diffraction limit: far-field fluorescence imaging with ultrahigh resolution

James H. Rice

Diffraction limited far-field fluorescence microscopy is extensively utilised for imaging biological systems. Techniques have now emerged that enable fluorescence images taken in the far-field to possess an ultrahigh resolution beyond the diffraction limit. This review outlines developments in such techniques and their application in biology.



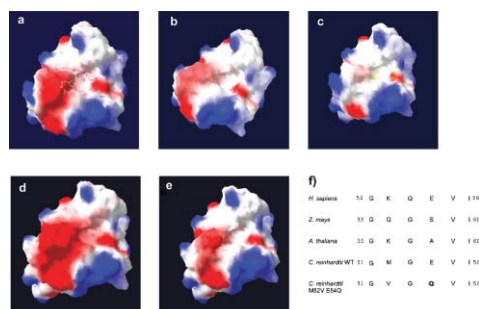
PAPER

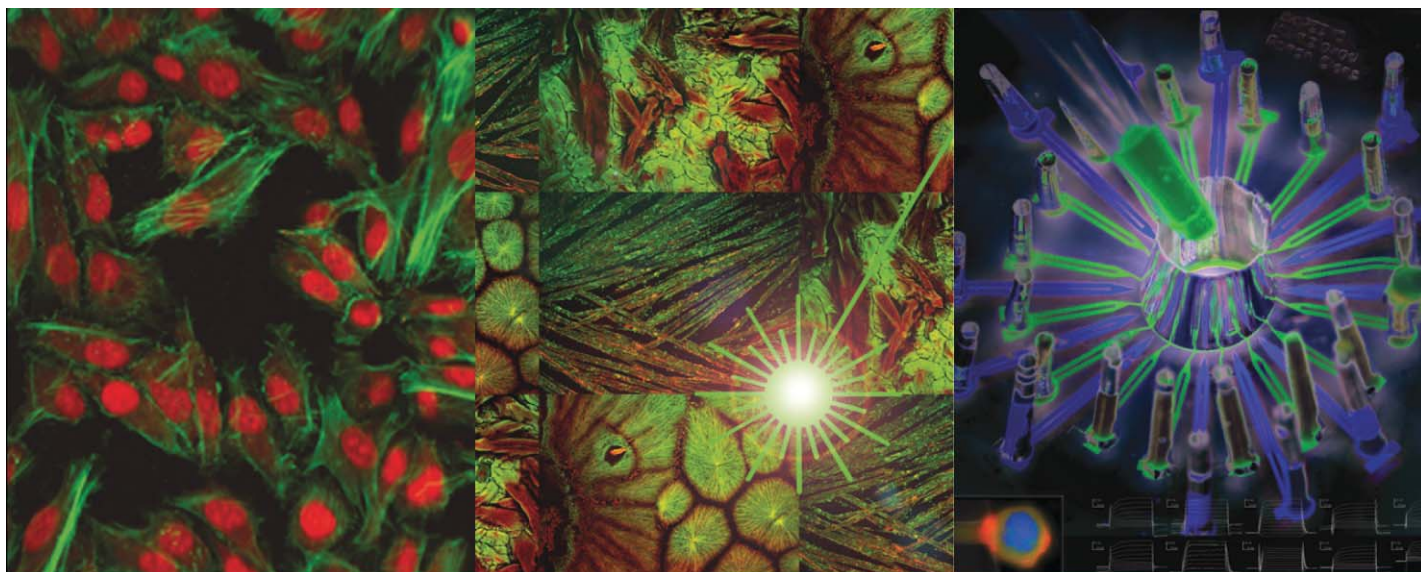
794

Distinctive expression and functional regulation of the maize (*Zea mays* L.) TOR kinase ortholog

Lourdes Teresa Agredano-Moreno, Homero Reyes de la Cruz, León Patricio Martínez-Castilla and Estela Sánchez de Jiménez*

TOR kinase is a central controller of growth regulation in eukaryotes. Controversial plant growth regulation by rapamycin is approached by electrostatic potential distribution analysis of the FKBP12-rapamycin complex *in silico* mutants of *Zea mays* and *Arabidopsis thaliana*.





Biology in Focus

Biology in Focus highlights and draws together research in key areas at the chemistry/biology interface. Each quarterly instalment will showcase a different subject area, providing scientists with an opportunity to browse and view related science on specific themes. Research material is primarily drawn from three RSC journals: *Molecular BioSystems*, *Lab on a Chip* and *The Analyst*.



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