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IN THIS ISSUE

ISSN 1742-206X CODEN MBOIBW 4(4) 269-352 (2008)



Cover

See Ivet Bahar *et al.*, pp. 287–292. Top view of the apo-form GroEL structure (PDB-ID: 1GR5). Image reproduced by permission of Chakra Chennubhotla, Zheng Yang and Ivet Bahar from *Mol. Biosyst.*, 2008, **4**, 287.

CHEMICAL BIOLOGY

B25

Drawing together the 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

April 2008/Volume 3/Issue 4

www.rsc.org/chembiology

HOT OFF THE PRESS

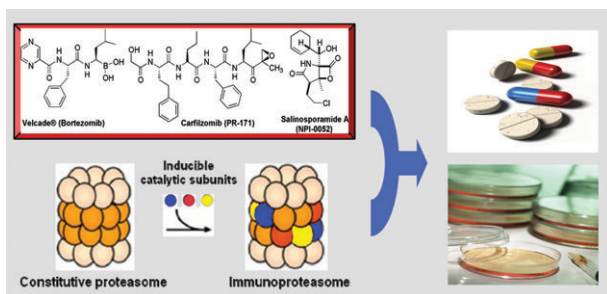
277

Hot off the press

Hot off the Press highlights recently published work for the benefit of our readers. Our contributors this month have focused on the synthesis of the complete genome of bacterium *Mycoplasma genitalium* and how two oncoproteins act together to promote tumorigenesis and cell proliferation. 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

280

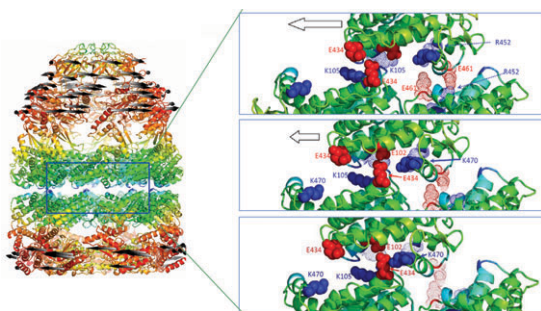


Proteasome modulators: essential chemical genetic tools for understanding human diseases

Marie Wehenkel, Jin Tae Hong and Kyung Bo Kim*

Proteasome modulators have emerged as anticancer agents as well as novel molecular probes. In this article, we outline recent progress towards the development of novel classes of proteasome modulators and the increasing breadth of their application.

287

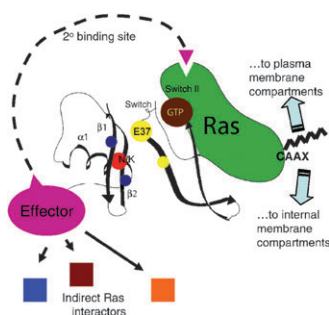


Coupling between global dynamics and signal transduction pathways: a mechanism of allostery for chaperonin GroEL

Chakra Chennubhotla, Zheng Yang and Ivet Bahar

We highlight the role of collective dynamics in regulating allosteric communication in biomolecular systems. Application to bacterial chaperonin GroEL-GroES shows how the cooperative counter-rotations of the *cis* and *trans* rings directly modulate the long-range propagation of ATP-driven signals.

293

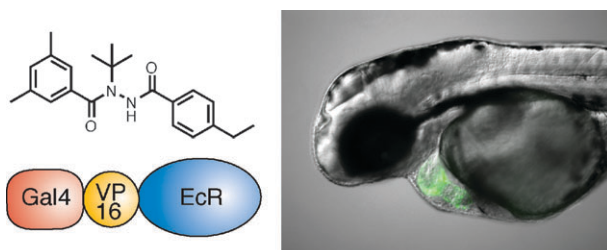


Choose your own path: specificity in Ras GTPase signaling

Lawrence E. Goldfinger

Activating mutations in Ras G proteins are implicated in nearly a third of human cancers; however, the mechanisms are unclear. This review summarizes the results of recent work in systems biology and proteomics which may elucidate the network of cellular Ras family signaling.

300



Gene regulation technologies in zebrafish

Hanife Esengil and James K. Chen*

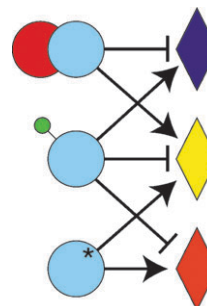
This review describes current reverse-genetic technologies in zebrafish, highlighting an ecdysone receptor-based gene expression system that will facilitate the development of conditional zebrafish models of human physiology and disease.

309

Transcription factor functionality and transcription regulatory networks

Christian A. Grove and Albertha J. M. Walhout*

Transcription factors, the core components of transcription regulatory networks (TRNs), arise in a variety of forms, each with potentially unique regulatory functions. Identifying these forms and incorporating them into TRNs will provide greater understanding of how these networks function.



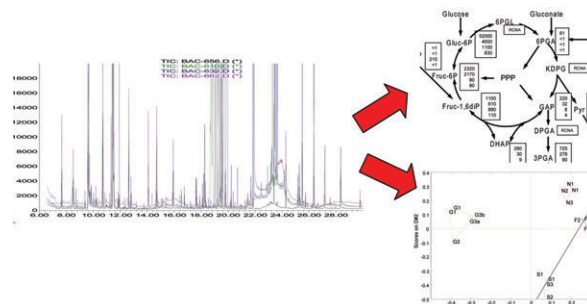
PAPERS

315

Comprehensive analysis of the metabolome of *Pseudomonas putida* S12 grown on different carbon sources

Mariët J. van der Werf,* Karin M. Overkamp, Bas Muilwijk, Maud M. Koek, Bianca J. C. van der Werff-van der Vat, Renger H. Jellema, Leon Coulier and Thomas Hankemeier

This paper describes the reproducible analysis of metabolomes obtained from controlled batch fermentations.

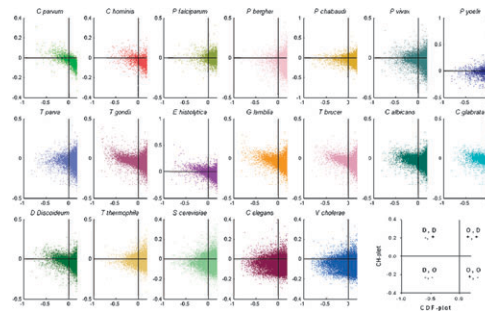


328

Intrinsic disorder in pathogenic and non-pathogenic microbes: discovering and analyzing the unfoldomes of early-branching eukaryotes

Amrita Mohan, William J. Sullivan Jr, Predrag Radivojac, A. Keith Dunker and Vladimir N. Uversky*

A bioinformatics basis for the discovery and analysis of unfoldomes of early-branching eukaryotes is provided. Some new insights into the evolution of intrinsic disorder in the context of adapting to a parasitic lifestyle are also represented.



341

Binding of protoberberine alkaloid coralyne with double stranded poly(A): a biophysical study

Prabal Giri* and Gopinatha Suresh Kumar

The strong ability of synthetic protoberberine alkaloid coralyne to intercalate and stabilize duplex poly(A) structure is significant in terms of the therapeutic potential of this alkaloid in its use as an agent in gene regulation in eukaryotic cells.



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