

Molecular BioSystems

www.molecularbiosystems.org

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IN THIS ISSUE

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Cover

See Mahesh Uttamchandani, Jun Wang and Shao Q. Yao, page 58. Advancing proteomics through microarrays. The image displays a novel nanodroplet microarray platform to rapidly profile and discover enzyme inhibitors. Image reproduced by permission of Shao Q. Yao *et al.*, from *Mol. BioSyst.*, 2005, 2, 58.

CHEMICAL BIOLOGY

B1

Chemical Biology

January 2006/Volume 1/Issue 1

www.rsc.org/chemicalbiology

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.

EDITORIAL

11



Molecular BioSystems goes from strength to strength

At the start of a new year we reflect on the growth of *Molecular BioSystems* in 2005 and look ahead to the developments planned for 2006.

14

Hot off the Press

Topics highlighted in this month's *Hot off the Press* include molecular beacons for *in vivo* studies, fungus as an antibiotic source, and bioelectronic devices made by coupling microorganisms and nanoparticles.

HOT OFF THE PRESS

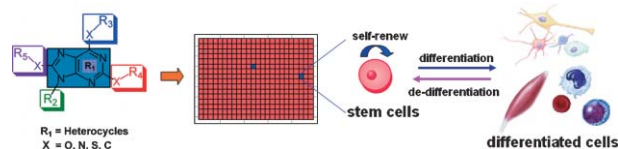
HIGHLIGHT

18

Exploring stem cell biology with small molecules

Shuibing Chen, Simon Hilcove and Sheng Ding*

Small molecules serve as useful chemical tools to control stem cell fate and may ultimately contribute to development of effective medicines for tissue repair and regeneration.



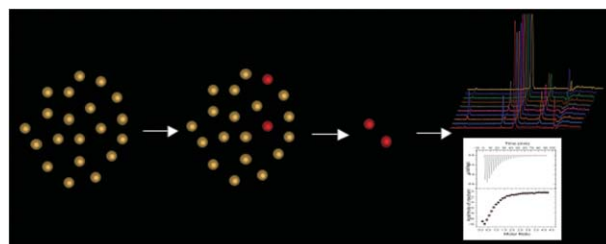
TUTORIAL REVIEW

25

Optimized protocols for the isolation of specific protein-binding peptides or peptoids from combinatorial libraries displayed on beads

Thomas Kodadek* and Kiran Bachhawat-Sikder

Detailed protocols are provided for the isolation and validation of protein-binding peptides or peptoids from bead-displayed libraries.



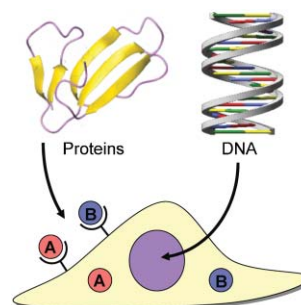
REVIEWS

36

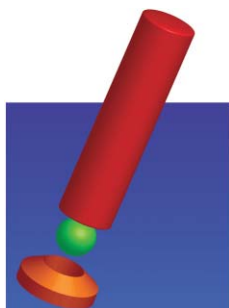
Inductive tissue engineering with protein and DNA-releasing scaffolds

David M. Salvay and Lonnie D. Shea*

The design of synthetic extracellular matrices used to provide growth factors within a three-dimensional microenvironment as well as their use as platforms to direct cell and tissue growth are discussed.



49

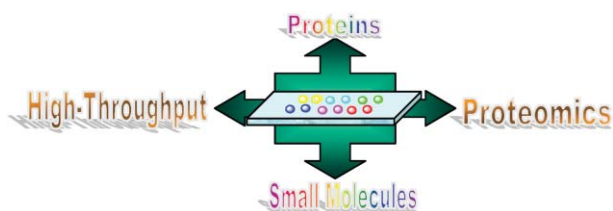


Optimizing the affinity and specificity of proteins with molecular display

A. M. Levin and G. A. Weiss*

Molecular display methods provide powerful tools for optimization of protein affinity and specificity. This review uses illustrative examples of protein optimization and molecular display methods to examine kinetic and thermodynamic approaches to the challenge.

58

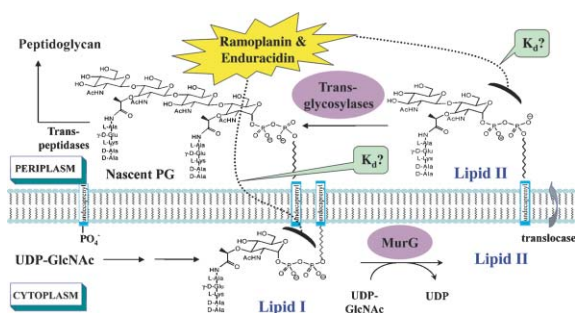


Protein and small molecule microarrays: powerful tools for high-throughput proteomics

Mahesh Uttamchandani, Jun Wang and Shao Q. Yao*

We describe recent advances and applications in the field of protein and small molecule microarrays. Significant technical and conceptual developments are highlighted that open new possibilities for proteomic research.

69



The mechanism of action of ramoplanin and enduracidin

Xiao Fang, Kittichoat Tiyanont, Yi Zhang, Jutta Wanner, Dale Boger and Suzanne Walker*

Two cellular targets have been identified for the lipodepsipeptide antibiotics ramoplanin and enduracidin, which inhibit bacterial cell wall biosynthesis. These antibiotics bind preferentially to the peptidoglycan intermediate Lipid II, leading to inhibition of the transglycosylation step of peptidoglycan synthesis.