

Molecular BioSystems

www.molecularbiosystems.org

RSC Publishing is a not-for-profit publisher and a division of the Royal Society of Chemistry. Any surplus made is used to support charitable activities aimed at advancing the chemical sciences. Full details are available from www.rsc.org

IN THIS ISSUE

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



Cover

See Tim Binnewies *et al.*, pp. 363–371.
A BLASTatlas visualisation comparing bacterial genomes to a reference chromosome. Image reproduced by permission of Peter F. Hallin, Tim T. Binnewies and David W. Ussery from *Mol. BioSyst.*, 2008, **4**, 363.

CHEMICAL BIOLOGY

B33

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

May 2008/Volume 3/Issue 5

www.rsc.org/chembiology

HIGHLIGHTS

363

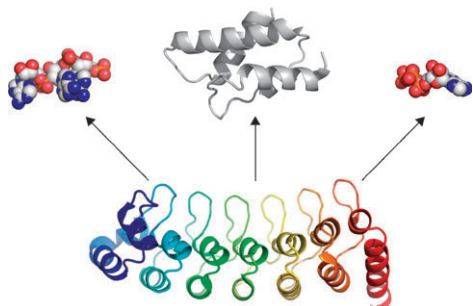
The genome BLASTatlas—a GeneWiz extension for visualization of whole-genome homology

Peter F. Hallin, Tim T. Binnewies and David W. Ussery

We describe the “BLASTatlas” tool to visualize comparisons of multiple bacterial genomes to a reference chromosome. For each protein-encoding gene, the alignment of the best match is visualized, at the chromosomal level or zooms of regions around genes of interest.



372

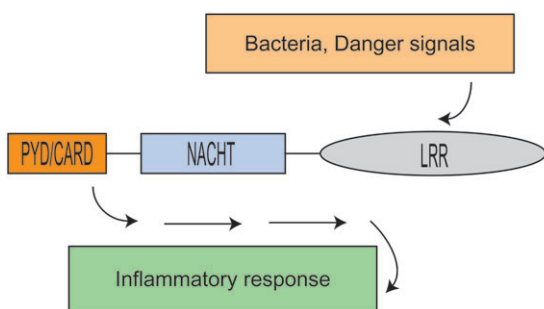


A primer on ankyrin repeat function in TRP channels and beyond

Rachelle Gaudet

Recent studies on the ankyrin repeat motifs in the cytosolic N-terminus of transient receptor potential (TRP) channels provide new clues on ankyrin repeat functions, including the ability to bind a surprising variety of ligands.

380

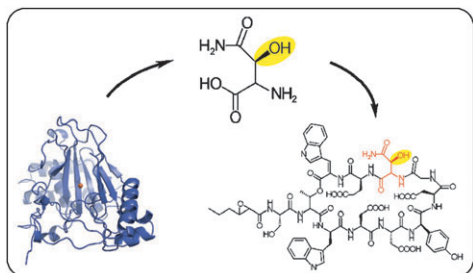


Signal transduction pathways used by NLR-type innate immune receptors

Thomas A. Kufer

Proteins from the NLR family are important for sensing bacterial invasion and danger signals in mammalian cells. This review covers current advances in our understanding of their signalling pathways.

387



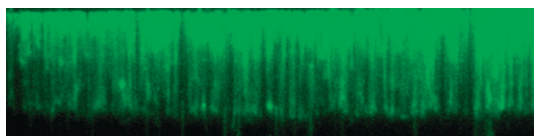
How to tailor non-ribosomal peptide products—new clues about the structures and mechanisms of modifying enzymes

Stefan A. Samel, Mohamed A. Marahiel* and Lars-Oliver Essen*

This *Highlight* gives a concise overview of the field of modifying enzymes by surveying those enzymes whose structures have been solved recently and discusses both structural and mechanistic aspects as well as the potential for biocatalysts with altered substrate specificity.

REVIEW ARTICLES

394



The importance of surfaces in single-molecule bioscience

Mari-Liis Visnapuu, Daniel Duzdevich and Eric C. Greene*

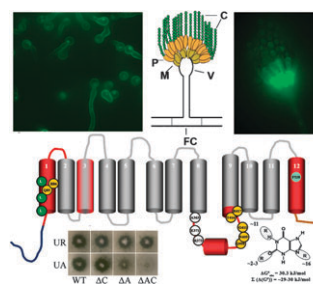
New scientific tools that can probe the properties of single molecules are providing insights into biology that were previously not possible. Here we provide an overview of methods currently used to study single biological molecules.

404

The nucleobase–ascorbate transporter (NAT) family: genomics, evolution, structure–function relationships and physiological role

Christos Gournas, Ioannis Papageorgiou and George Diallinas*

Model bacterial and fungal systems are providing knowledge concerning structure–function relationships and regulation of expression of nucleobase–ascorbate transporters (NATs), as well as clues for their evolution, physiological role and potential use as specific gateways for targeted drug delivery.



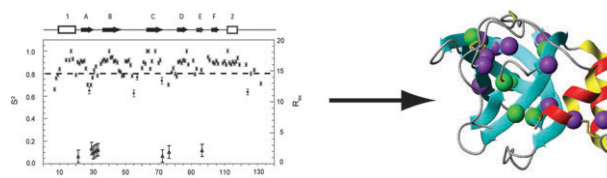
PAPERS

417

Dynamic characterisation of the netrin-like domain of human type 1 procollagen C-proteinase enhancer and comparison to the N-terminal domain of tissue inhibitor of metalloproteinases (TIMP)

Richard A. Williamson,* Parthena Panagiotidou, Joni D. Mott and Mark J. Howard*

The backbone mobility of NTR^{PCOLCE1} suggests its unknown target molecule is somewhat different from that observed for proteins of similar fold.

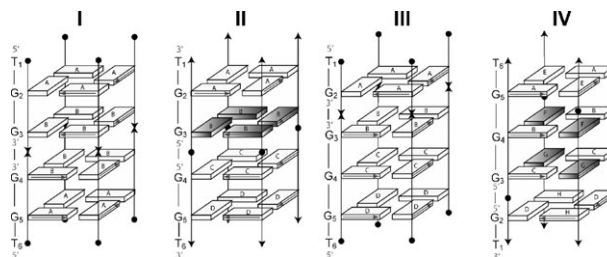


426

A further contribution to the extreme variability of quadruplex structures from oligodeoxyribonucleotides containing inversion of polarity sites in the G-tract

Aldo Galeone, Luciano Mayol, Antonella Virgilio, Ada Virno and Antonio Randazzo*

Structural insight into DNA quadruplex structures formed by oligodeoxyribonucleotides 3′TG^{5′}-5′GGGT^{3′} and 5′TG^{3′}-3′GGGT^{5′} is presented; evidence for an unprecedented quadruplex complex is shown.

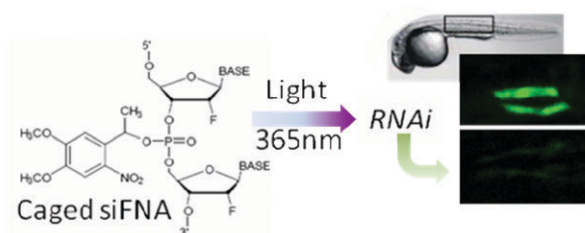


431

Photoinduced RNA interference using DMNPE-caged 2′-deoxy-2′-fluoro substituted nucleic acids *in vitro* and *in vivo*

Richard A. Blidner, Kurt R. Svoboda, Robert P. Hammer and W. Todd Monroe*

2′-Fluorinated nucleic acids (FNAs) were caged with DMNPE for photoactivated gene silencing in cell culture and zebrafish embryos. Caged FNAs were stable to chemical and enzymatic degradation, and showed increases in RNAi activity upon 365 nm light exposure.

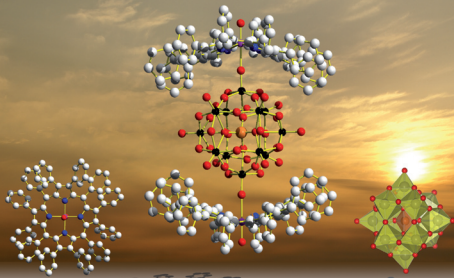


ChemComm

Chemical Communications

www.rsc.org/chemcomm

Number 39 | 21 October 2007 | Pages 3969 – 4060



ISSN 1522-2675

RSC Publishing

COMMUNICATION

S. Balci, H. Kaya and
A. discrete conglomerate of a
pharmaceutical polyphenol with a
directly coordinated Kaggin-type
polymerization

FEATURE ARTICLES

Yoshio Yamano and Hiroshi Nishihara
Assembly of various metal particles
and molecular wires on electrode surfaces
Domenico Baccaro and Helen Kauranen
Assessing phase behavior models for the
evolution of homochirality



1522-2675(200739)3:1-F

Make an impact

Introducing Professor Mike Doyle

Associate Editor for Organic Chemistry

Michael P. (Mike) Doyle is Professor and Chair of the Department of Chemistry and Biochemistry at the University of Maryland, College Park. He has been the recipient of numerous awards, including the George C. Pimentel Award for Chemical Education in 2002 and the Arthur C. Cope Scholar Award in 2006. He has written or coauthored ten books, including *Basic Organic Stereochemistry*, 20 book chapters, and he is the co-author of more than 270 journal publications. The inventor of chiral dirhodium carboxamidate catalysts known as "Doyle catalysts," his research is focused on applications with metal carbene transformations, Lewis acid catalyzed reactions, and selective catalytic oxidations.

Submit your work to *ChemComm*

Professor Doyle will be delighted to receive submissions from North America in the field of organic chemistry. Submissions to *ChemComm* are welcomed via ReSource, our homepage for authors and referees.



"*ChemComm* is an outstanding forum for the communication of significant research in the chemical sciences, and I am honoured to be a member of the editorial family. I continue to be amazed with the breadth of exciting chemistry that is being submitted to *ChemComm* and the high level of professionalism that is found at *ChemComm*."

RSC Publishing

www.rsc.org/chemcomm

Registered Charity Number 207890

020878