

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 3(6) 365-440 (2007)



Cover

See T. Cathopoulos, P. Chuawong and T. L. Hendrickson, p. 408. Novel tRNA Aminoacylation Reactions. Image reproduced by permission of T. Cathopoulos, P. Chuawong and T. L. Hendrickson from *Mol. BioSyst.*, 2007, 6, 408.

CHEMICAL BIOLOGY

B41

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

June 2007/Volume 2/Issue 6

www.rsc.org/chembiology

HOT OFF THE PRESS

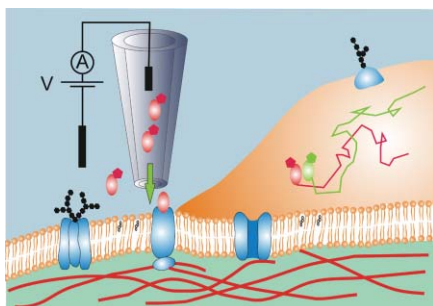
374

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 modulation of gene expression through varying the secondary structure of mRNA, a new fluorescent biosensor to monitor reversible redox cycles in cells and molecular imaging agents for angiogenesis. 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

377



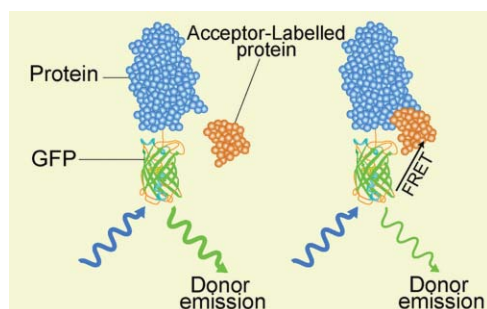
Single molecule biology: Coming of age

Liming Ying

Single molecule approaches are revolutionising the way many biological questions are interrogated.

HIGHLIGHTS

381

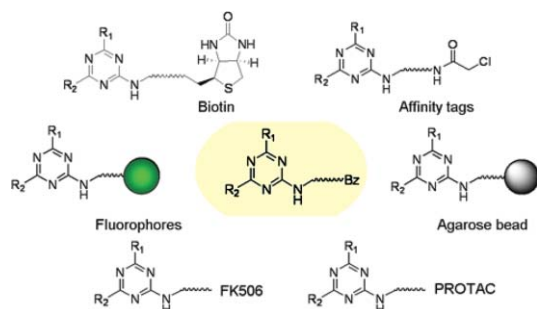


Imaging proteins *in vivo* using fluorescence lifetime microscopy

Frederic Festy, Simon M. Ameer-Beg, Tony Ng and Klaus Suhling*

Fluorescence lifetime imaging (FLIM) represents a key optical technique for imaging proteins and protein interaction *in vivo*.

392

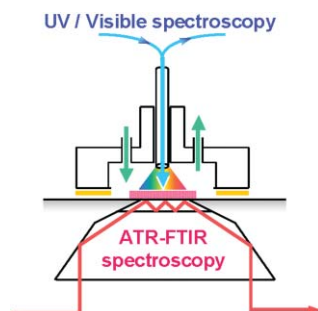


Tagged library approach facilitates forward chemical genetics

Yun Kyung Kim and Young-Tae Chang*

Forward chemical genetics is a powerful tool to search for drug candidates and cellular targets. We have developed linker-tagged triazine libraries offering an additional degree of functionality to the molecules.

398



Methods to probe protein transitions with ATR infrared spectroscopy

Peter R. Rich* and Masayo Iwaki

New methods for analysing protein chemistry and structure allow proteins to be converted between different states whilst being able to monitor simultaneously both mid-IR vibrational and UV/visible electronic spectral changes.

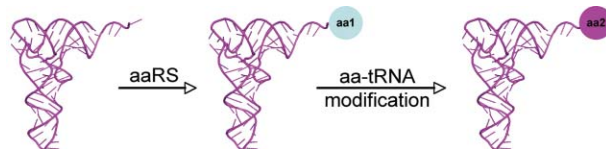
HIGHLIGHTS

408

Novel tRNA aminoacylation mechanisms

Terry Cathopoulos, Pitak Chuawong and Tamara L. Hendrickson*

The biosynthesis of all aminoacyl-tRNAs relies on the action of the aminoacyl-tRNA synthetases (aaRS). In some cases, additional modification reactions are required to generate the correct aminoacylated tRNA.



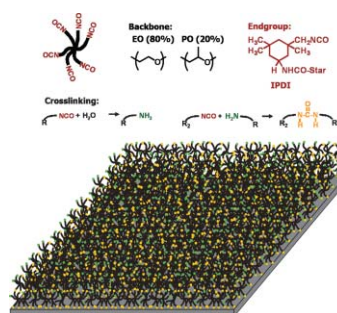
REVIEW

419

Synthesis, patterning and applications of star-shaped poly(ethylene glycol) biofunctionalized surfaces

Colin D. Heyes, Jürgen Groll,* Martin Möller and G. Ulrich Nienhaus*

Star-shaped, crosslinked PEG surface coatings show excellent resistance toward unspecific protein adsorption. Proteins specifically immobilized on such surfaces maintain their folded, functional form and even refold after denaturation. We review the properties and discuss potential applications of such surfaces.



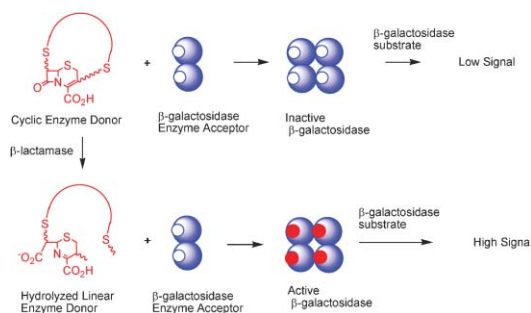
PAPER

431

A novel chemiluminescent substrate for detecting lactamase

Tabassum Naqvi and Rajendra Singh*

β -Galactosidase based enzyme fragment complementation technology has been exploited to develop a chemiluminescent lactamase substrate for use in cell based assays.



See science come alive ...

“ [Project Prospect] is an exciting application of ontologies that will help researchers. ”

Midori Harris
European Bioinformatics Institute

“ Invaluable for students. ”

Stephen Haswell
University of Hull, UK

“ This is terrific! ”

Brian Shoichet
*University of California, San Francisco and
Molecular BioSystems' Board member*

“ ...a fantastic resource for the community and a great use of the Gene Ontology and Sequence Ontology. ”

Chris Mungall
Lawrence Berkeley National Laboratory

Features include

Ontology terms linked to definitions and related papers

RSS feeds with ontology terms and compound structures

Hyperlinked compound information in text

IUPAC Gold Book terms linked

Benefits

Ideal for students

Completely free service

At a glance HTML view with additional features accessed by toolbox

Downloadable compound structures

Printer friendly

...with *Molecular BioSystems* and Project Prospect

A revolutionary change in the way chemical and molecular biology articles are published is underway - thanks to Project Prospect, an initiative developed by RSC Publishing together with academic partners. Not only can *Molecular BioSystems* readers click on named compounds in a journal article to download structures, more importantly they can link to definitions of ontology terms plus related papers. Powerful functionality instantly helps researchers and their students to find, understand and share (bio)chemical knowledge with each other quicker than ever before. See the science in *Molecular BioSystems* (and other RSC journals) come alive: visit the Project Prospect website for more details plus examples.

RSC Publishing

www.projectprospect.org

Registered Charity Number 207890