

# 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](http://www.rsc.org)

## IN THIS ISSUE

ISSN 1742-206X CODEN MBOIBW 4(8) 781-872 (2008)



### Cover

See Bowen and Corcoran  
pp. 790–798.

Depiction of non-coding RNA transcripts emanating from immunoglobulin alleles before V(D)J recombination – this intergenic transcription is believed to contribute to opening up the chromatin in these multigene loci. The red signal is a control non-coding transcript, a so called ‘supergene’ that is continuously transcribed, while the green signals represent V region antisense intergenic transcripts.

Image reproduced by permission of Adam J. Bowen and Anne E. Corcoran from *Mol. BioSyst.*, 2008, 4, 790.

## CHEMICAL BIOLOGY

B57

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

August 2008/Volume 3/Issue 8

[www.rsc.org/chembiology](http://www.rsc.org/chembiology)

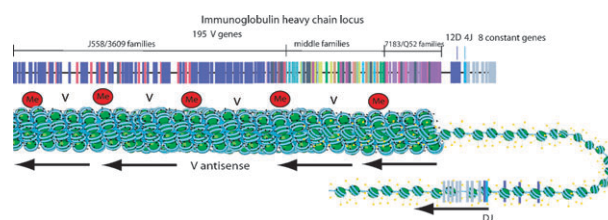
## HIGHLIGHT

790

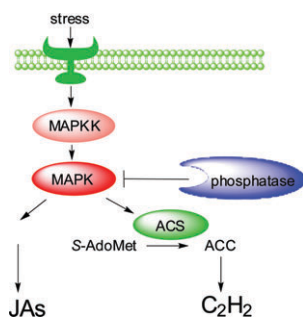
### How chromatin remodelling allows shuffling of immunoglobulin heavy chain genes

Adam J. Bowen and Anne E. Corcoran\*

This review explores the processes implicated in the shuffling of immunoglobulin heavy chain locus genes, including non-coding RNA transcription, histone modifications, transcription factors, nuclear relocation and locus contraction.



799

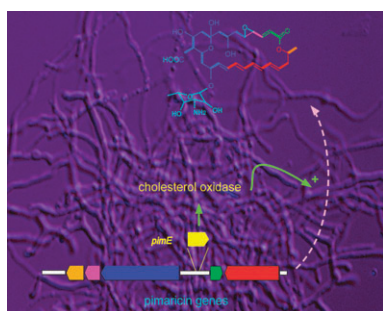


### Regulation of stress hormones jasmonates and ethylene by MAPK pathways in plants

Alois Schweighofer and Irute Meskiene\*

Jasmonates (JAs) and ethylene (ET) are plant stress hormones produced upon abiotic/biotic stress. Here, we highlight recent findings on protein phosphorylation cascades regulating their induction in plants.

804

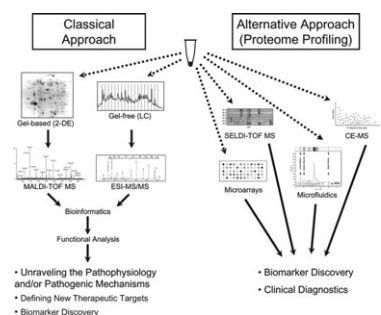


### Microbial cholesterol oxidases: bioconversion enzymes or signal proteins?

Jesús F. Aparicio\* and Juan F. Martín

The recent discovery of cholesterol oxidases implicated in polyene antifungal biosynthesis expands the vast array of properties and biological roles of these fascinating enzymes.

810

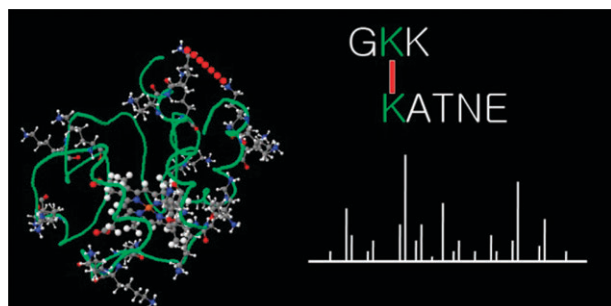


### Urinary proteomics: towards biomarker discovery, diagnostics and prognostics

Visith Thongboonkerd\*

This article highlights and updates recent progress in the urinary proteomics field, which is moving towards biomarker discovery, diagnostics and prognostics. The concept of biomarker discovery is discussed and examples of successful clinical applications of urinary proteomics are given.

816



### Mass spectrometric analysis of cross-linking sites for the structure of proteins and protein complexes

Young Jin Lee\*

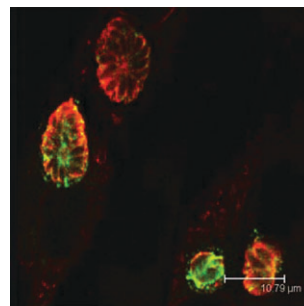
Chemical cross-linking of intact proteins or protein complexes followed by mass spectrometric analysis of cross-linked sites is rapidly emerging as a low resolution alternative technology that will supplement current X-ray or NMR based structural proteomics. We introduce this technology with focus on the recent advances.

824

### Stress-related and spontaneous stage differentiation of *Toxoplasma gondii*

Marialice da Fonseca Ferreira da Silva, Helene S. Barbosa, Uwe Groß and Carsten G. K. Lüder\*

Developmental differentiation of the protozoan parasite *Toxoplasma gondii* is critical for transmission between hosts and for the pathogenesis of human toxoplasmosis. We discuss concepts and recent advances which further our knowledge of the underlying mechanisms.

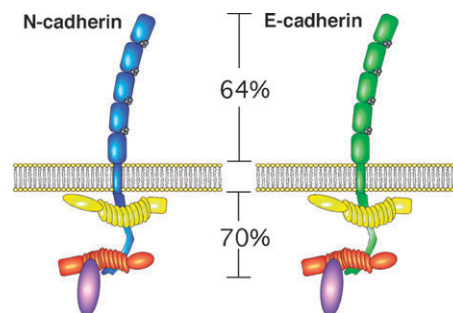


835

### Cadherins in development and cancer

Marc P. Stemmler\*

The importance of cadherin-mediated cell adhesion during embryogenesis and the inappropriate switching among family members during tumour progression is summarized with a focus on E- and N-cadherin.



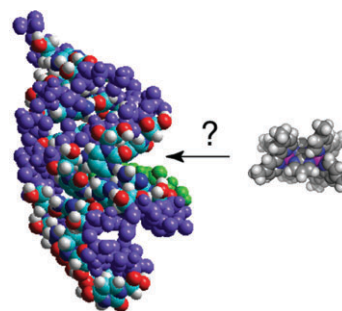
## COMMUNICATION

851

### Binding of a dinuclear ruthenium(II) complex to the TAR region of the HIV-AIDS viral RNA

Damian P. Buck, Caitriona B. Spillane, J. Grant Collins\* and F. Richard Keene\*

Molecular modelling has identified a new RNA conformational feature created by the insertion of bulge residues into duplex regions that may act as a recognition site for small molecule binding, in particular for inert dinuclear ruthenium complexes.



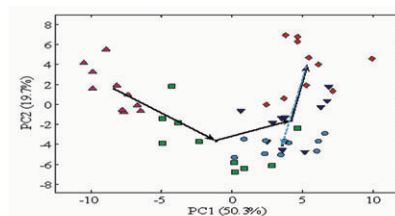
## PAPER

855

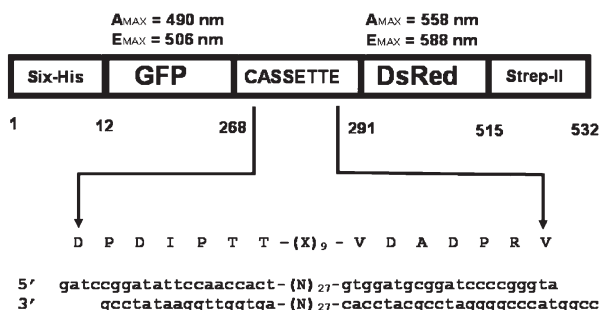
### Metabonomic study on ageing: NMR-based investigation into rat urinary metabolites and the effect of the total flavone of *Epimedium*

Bin Wu, Shikai Yan, Zhongying Lin, Qi Wang, Yun Yang, Genjin Yang, Ziyin Shen\* and Weidong Zhang\*

Administration of the total flavone of *Epimedium* can markedly influence the ageing process and shows anti-ageing effects in rats.



Metabolic trajectory of ageing in rat urine and the anti-ageing effect of TFE. Groups: 4 months (▲), 10 months (■), 18 months (▼) and 24 months (◆), and TFE intervention (●).



### Characterization of a randomized FRET library for protease specificity determination

Jonathan F. Fretwell, Shams M. K. Ismail, Jeffrey M. Cummings and Thomas L. Selby\*

We describe the construction and characterization of a FRET protease library using a randomized DNA region between two donor/acceptor proteins for use in both *in vivo* and *in vitro* applications.

# RSC eBook Collection

Access and download existing and new books from the RSC

- **Comprehensive:** covering all areas of the chemical sciences
- **Fully searchable:** advance search and filter options
- **Wide-ranging:** from research level monograph to popular science book

See for yourself – go online to search the collection and read selected chapters for free!



RSCPublishing

www.rsc.org/ebooks

Registered Charity Number 207890