

The Analyst

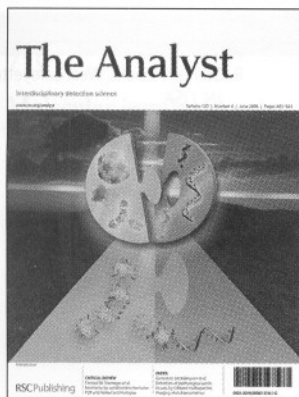
Interdisciplinary detection science

www.rsc.org/analyst

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 0003-2654 CODEN ANALAO 133(6) 685–824 (2008)



Cover

See M. Adler, R. Wacker and C. M. Niemeyer, pp. 702–718. New horizons in bioanalytics: the combination of proteins and DNA enables highly sensitive detection reagents.

Image reproduced by permission of Christof M. Niemeyer from *Analyst*, 2008, **133**, 702.

CHEMICAL TECHNOLOGY

T41

Drawing together research highlights and news from all RSC publications, *Chemical Technology* provides a 'snapshot' of the latest applications and technological aspects of research across the chemical sciences, showcasing newsworthy articles and significant scientific advances.

Chemical Technology

June 2008/Volume 5/Issue 6

www.rsc.org/chemicaltechnology

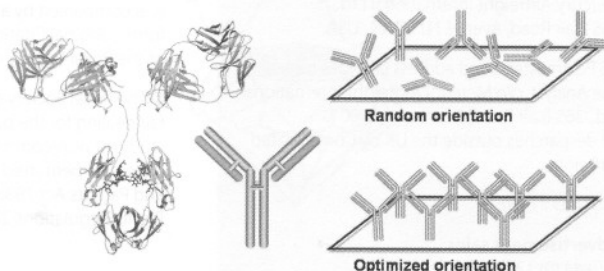
I-SECTION: HIGHLIGHT

697

Recent advances in immobilization methods of antibodies on solid supports

Yongwon Jung, Jin Young Jeong and Bong Hyun Chung*

The choice of antibody immobilization method greatly affects antibody–antigen interactions on the assay surface. The process has been optimized, mainly by directing the orientation, stability, and density of bound antibodies.

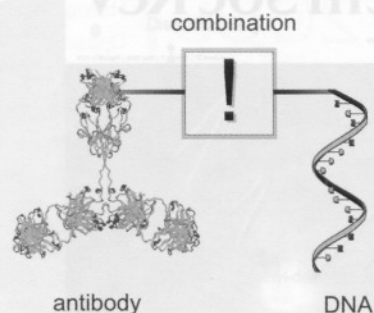


702

Sensitivity by combination: immuno-PCR and related technologies

Michael Adler, Ron Wacker* and Christof M. Niemeyer*

The combination of immunoassays with DNA as the marker molecule for signal generation opens up new ways for highly sensitive analytical applications.

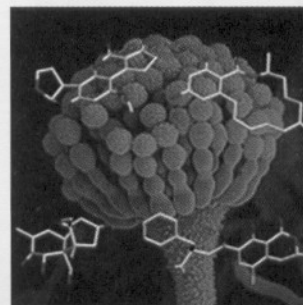


719

Molecular imprinted polymers as synthetic receptors for the analysis of myco- and phyco-toxins

Claudio Baggiani,* Laura Anfossi and Cristina Giovannoli

Recent years have seen the increasing use of molecular imprinted polymers in contaminant analysis because these materials are suitable for applications where selectivity is essential. In this review, applications of molecular imprinted polymers in myco- and phyco-toxin contamination analysis will be discussed

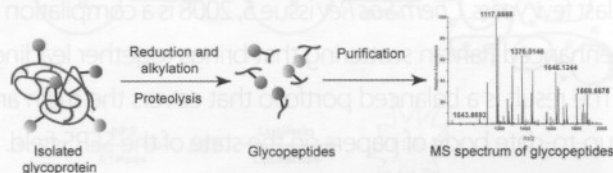


731

Glycopeptide analysis by mass spectrometry

Dilusha S. Dalpathado and Heather Desaire*

Glycopeptide analysis is an emerging method of analyzing glycosylation on proteins. Using this method, glycans can be mapped to their original glycosylation sites. This review describes the state-of-the-art for this technique.

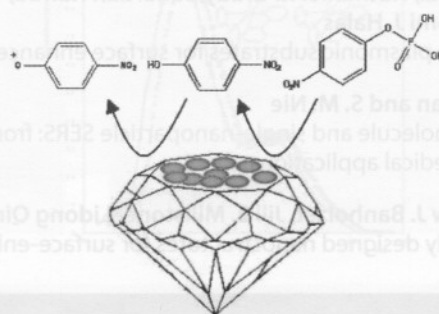


739

Whole cell environmental biosensor on diamond

Kwok Feng Chong, Kian Ping Loh,* Kailian Ang and Yen Peng Ting

This work highlights the immobilization of unicellular microalgae *Chlorella vulgaris* on a diamond surface, with *p*-nitrophenyl phosphate as substrate for enzyme activity. The diamond surface displays anti-fouling resistance and stability over a long period of time.

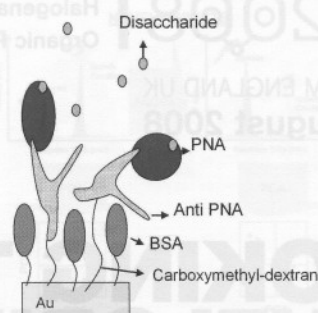


744

Detection of lectin–glycan interaction using high resolution surface plasmon resonance

Kyle J. Foley, Erica S. Forzani, Lokesh Joshi* and Nongjian Tao*

We report the real-time and label-free detection of direct disaccharide binding to a lectin using a differential surface plasmon resonance detection method that allows measurement of nanomolar concentrations of disaccharides.

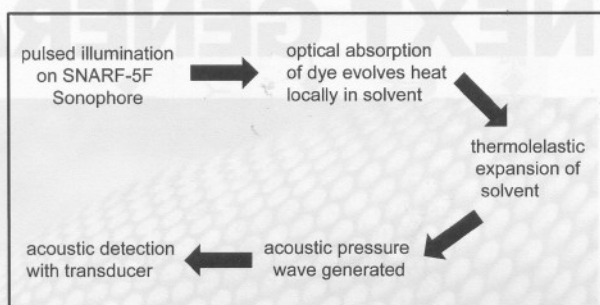


747

Ratiometric photoacoustic sensing of pH using a “sonophore”

Thomas D. Horvath, Gwangseong Kim, Raoul Kopelman* and Shai Ashkenazi*

This work describes ratiometric photoacoustic chemical sensing of pH, and describes how these measurements can be applied as a ratiometric biomedical imaging modality to image pH in intact biological tissue.

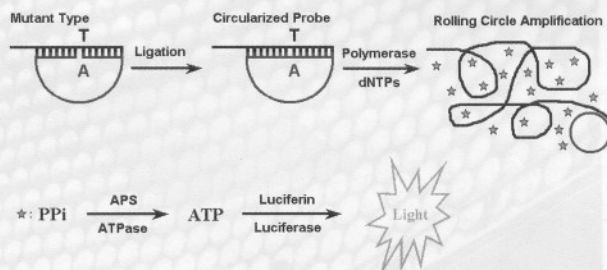


750

Homogeneous and label-free bioluminescence detection of single nucleotide polymorphism with rolling circle amplification

Yongqiang Cheng, Zhengping Li,* Baoan Du and Xian Zhang

Based on sensitive detection of pyrophosphate produced by rolling circle amplification with luciferin bioluminescent reaction, a homogeneous and label-free method has been developed for detecting single nucleotide polymorphism.



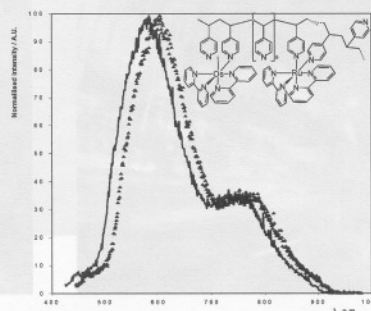
PAPERS

753

Surface confinement and its effects on the luminescence quenching of a ruthenium-containing metallopolymer

Lynn Dennany,* Tia E. Keyes and Robert J. Forster

The photophysical properties of a metallopolymer containing both ruthenium and osmium are discussed. The results imply that mixed metal systems can be created in which the individual luminophores communicate only weakly, opening up new possibilities for multi-analyte sensing.

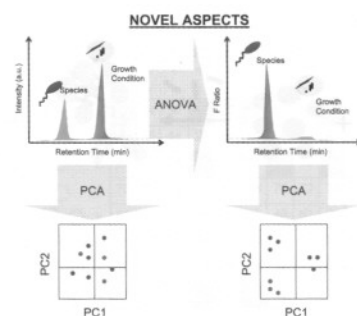


760

Constituents with independence from growth temperature for bacteria using pyrolysis-gas chromatography/differential mobility spectrometry with analysis of variance and principal component analysis

S. Prasad, K. M. Pierce, H. Schmidt, J. V. Rao, R. Güth, R. E. Synovec, G. B. Smith and G. A. Eiceman*

Peaks associated with growth conditions of bacteria that mask species discriminative peaks can be suppressed with ANOVA making py-GC/DMS fingerprints suitable for bacterial taxonomy.

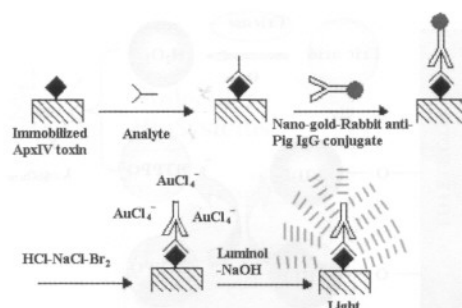


768

Gold(III) enhanced chemiluminescence immunoassay for detection of antibody against ApxIV of *Actinobacillus pleuropneumoniae*

Dehong Hu, Heyou Han,* Rui Zhou, Fei Dong, Weicheng Bei, Fan Jia and Huanchun Chen

The paper reports a chemiluminescence immunoassay (CLIA) method based on AuCl_4^- -enhanced luminol chemiluminescence (CL) reaction for the highly sensitive detection of ApxIV antibody of *Actinobacillus pleuropneumoniae* (APP).

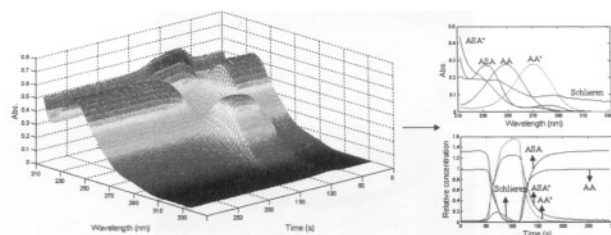


774

Multivariate curve resolution of pH gradient flow injection mixture analysis with correction of the Schlieren effect

Renato L. Carneiro, Jez Willian B. Braga, Ronei J. Poppi and Romã Tauler*

Multivariate curve resolution of pH gradient flow injection mixture analysis with Schlieren effect correction.



784

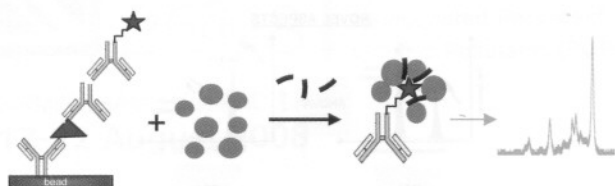
Detection of pathological aortic tissues by infrared multispectral imaging and chemometrics

F. Bonnier, D. Bertrand, S. Rubin, L. Ventéo, M. Pluot, B. Baehrel, M. Manfait and G. D. Sockalingum*

The combination of infrared spectral imaging with high performance data analytical methods allows extraction of relevant disease-related biochemical information that is of substantial help to surgeons for the diagnosis of aneurysms in human aortic tissues.



791

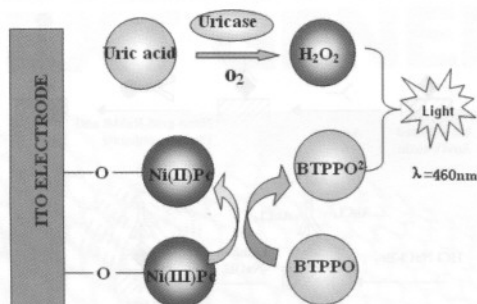


Immunoassay for P38 MAPK using surface enhanced resonance Raman spectroscopy (SERRS)

Phil Douglas, Robert J. Stokes, Duncan Graham and W. Ewen Smith*

SERRS detection of a dye-labelled P38 mitogen-activated protein kinase using magnetic beads and colloidal nanoparticles is reported.

797

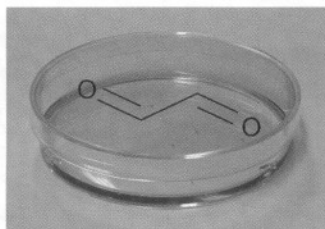


An electrochemiluminescent biosensor for uric acid based on the electrochemiluminescence of bis-[3,4,6-trichloro-2-(pentyloxycarbonyl)-phenyl] oxalate on an ITO electrode modified by an electropolymerized nickel phthalocyanine film

Z. Lin, Z. Chen, Y. Liu, J. Wang and G. Chen*

Based on the fact that BTPPO can react with H_2O_2 to produce ECL and polyNiTSPc film modified ITO can catalyze the ECL of BTPPO greatly, a sensitive uric acid ECL biosensor has been developed.

802

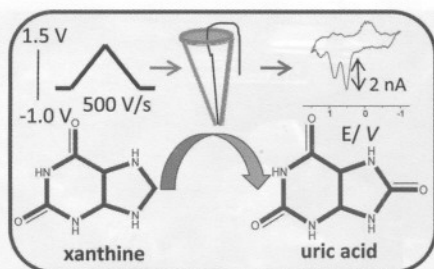


Sensitive determination of a glyoxal-DNA adduct biomarker candidate by column switching capillary liquid chromatography electrospray ionization mass spectrometry

R. Olsen,* S. Øvrebø, S. Thorud, E. Lundanes, Y. Thomassen, T. Greibrokk and P. Molander

A sensitive and selective miniaturized liquid chromatography method of the determination of glyoxal-deoxyguanosine from DNA hydrolysate solutions using a robust sample enrichment methodology with the potential of compatibility with most biological matrices is described.

810



Direct measurements of xanthine in 2000-fold diluted xanthinuric urine with a nanoporous carbon fiber sensor

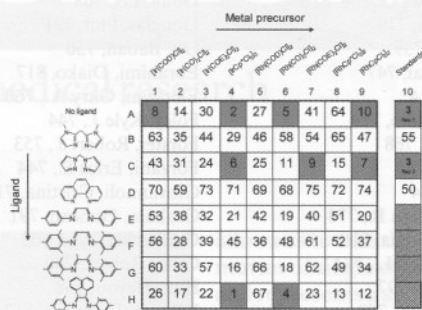
Mehjabin Kathiwal, Andrews Obeng Affum, Jason Perry and Anna Brajter-Toth*

A nanostructured carbon fiber sensor and fast scan cyclic voltammetry allow direct measurements of purine metabolites in dilute urine samples. The speed and sensitivity of the electrochemical sensor-based method is demonstrated.

High throughput screening arrays of rhodium and iridium complexes as catalysts for intramolecular hydroamination using parallel factor analysis

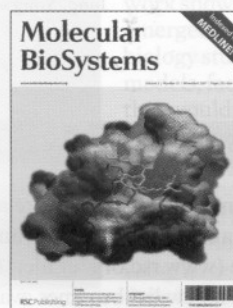
Diako Ebrahimi, Danielle F. Kennedy, Barbara A. Messerle and D. Brynn Hibbert*

Parallel factor analysis (PARAFAC) has identified the optimum metal and ligand combination for an intramolecular hydroamination catalyst in a combinatorial screen of 72 catalysts.



MOLECULAR BIOSYSTEMS

It's official, *Molecular BioSystems* has separated from host journal, *Chemical Communications*, and is now a fully fledged solo publication. Its availability since launch to readers of *Chemical Communications* and the online hosts, *Organic & Biomolecular Chemistry*, *Lab on a Chip*, *The Analyst* and *Analytical Abstracts*, has ensured that *Molecular BioSystems* received a large and interdisciplinary audience from the outset. *Analyst* readers wishing to continue to read *Molecular BioSystems* now need to recommend the journal to their librarian. Fill in the online recommendation form at www.rsc.org/libraryrecommendation



www.molecularbiosystems.org

Analytical Abstracts...



...the first stop
for analytical
scientists

Analytical Abstracts covers all areas of analytical and bioanalytical science

New and improved features include:

- Improved search features
- Results sorted and displayed in different formats
- Results exported to email or reference management software

RSCPublishing

www.rsc.org/aa

Registered Charity Number 207890