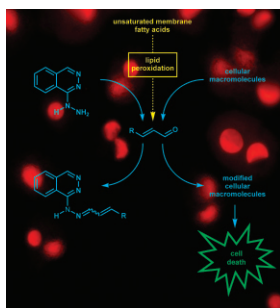


# Organic & Biomolecular Chemistry

INDEXED IN MEDLINE

Incorporating Acta Chemica Scandinavica

**Cover**

See Lisa M. Kaminskas, Simon M. Pyke and Philip C. Burcham, pp. 2578–2584.

Cell death in liver cells exposed to allyl alcohol, a metabolic precursor to the toxic lipid peroxidation product acrolein. Nonviable cells are visualised using fluorescent dyes that only access the DNA of nonviable cells. The paper by Kaminskas *et al.* reports pronounced cytoprotection and acrolein-scavenging by hydrazinophthalazine drugs, providing a novel strategy to minimise contributions by noxious aldehydes such as acrolein in diseases involving oxidative stress. Special thanks to Dr Tanya Lewanowitsch for help in obtaining the fluorescent image.

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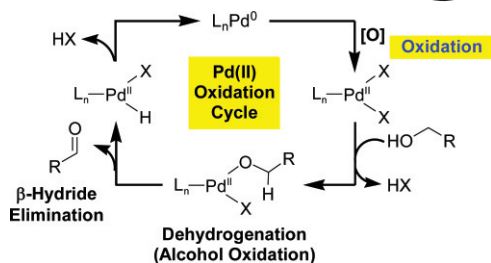


Chemical biology articles published in this journal also appear in the *Chemical Biology Virtual Journal*: [www.rsc.org/chembiol](http://www.rsc.org/chembiol)

## contents

## EMERGING AREA

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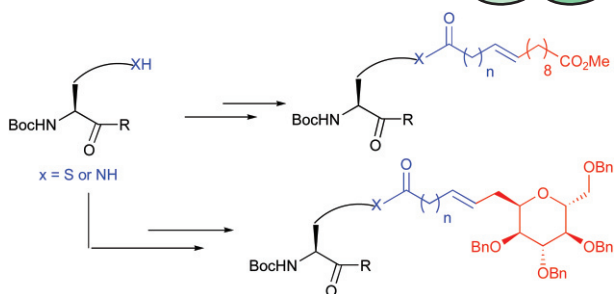
### The renaissance of palladium(II)-catalyzed oxidation chemistry

Matthew S. Sigman and Mitchell J. Schultz

This emerging area highlights the recent re-emergence of palladium(II)-catalyzed oxidation chemistry.

## COMMUNICATIONS

2555 2557



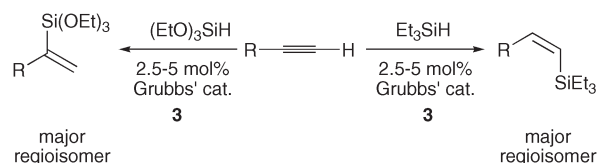
### Cross-metathesis coupling of sugars and fatty acids to lysine and cysteine

Andrea J. Vernal and Andrew D. Abell

Lysine and cysteine side chains are acylated with an olefin containing tether to which is conjugated a suitably functionalised fatty acid or sugar on treatment with Grubb's 2<sup>nd</sup> generation catalyst. The acylated cysteine derivative can also be dimerized to give a mimic of a disulfide linkage.



2558 2562



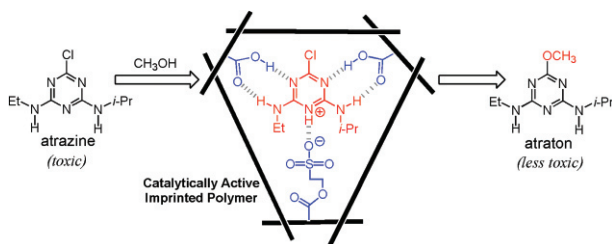
### Regio- and stereoselective hydrosilylation of terminal alkynes using Grubbs' first-generation olefin-metathesis catalyst

Caterina S. Aricó and Liam R. Cox

Grubbs' first-generation Ru metathesis complex **3** catalyses the hydrosilylation of terminal alkynes. The reaction exhibits an interesting selectivity profile that is dependent on the reaction concentration and more importantly on the silane employed.



2563 2566



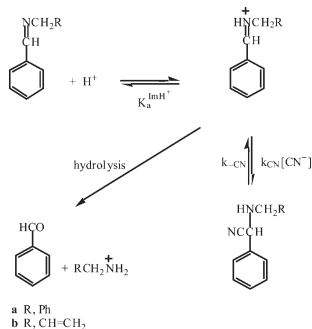
### Atrazine transformation using synthetic enzymes prepared by molecular imprinting

Toshifumi Takeuchi, Satoshi Ugata, Shuichi Masuda, Jun Matsui and Masayoshi Takase

Atrazine imprinted synthetic polymers prepared with a combined use of methacrylic acid and 2-sulfoethyl methacrylate bound triazine herbicides selectively and transformed 6-chlorotriazine herbicides into less toxic compounds.



2567 2571



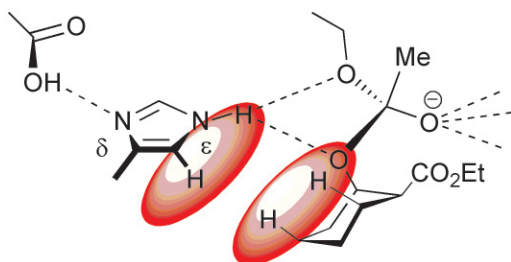
### The Strecker reaction: kinetic and equilibrium studies of cyanide addition to iminium ions

John H. Atherton, John Blacker, Michael R. Crampton and Christophe Grosjean

Rate and equilibrium constants are reported for reaction of cyanide ions with iminium ions in water.



2572 2577

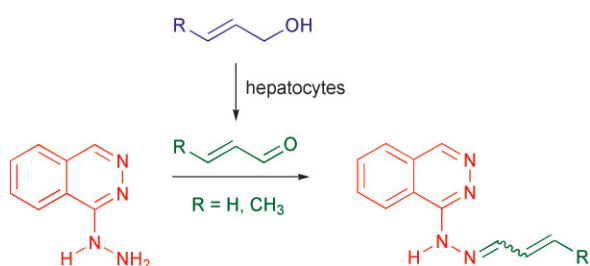


### Is the ring conformation the most critical parameter in lipase-catalysed acylation of cycloalkanols?

Laura M. Levy, Iván Lavandera and Vicente Gotor

Molecular modelling showed that conformation and ring size proved to be most crucial in the enzymatic acylation of cycloalkanols with CAL-B.

2578 2584

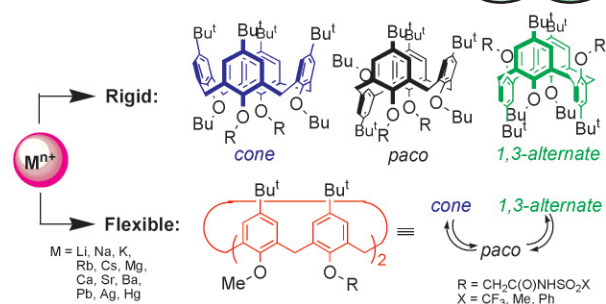


### Reactivity of hydrazinophthalazine drugs with the lipid peroxidation products acrolein and crotonaldehyde

Lisa M. Kaminskas, Simon M. Pyke and Philip C. Burcham

Trapping reactive lipid-derived aldehydes with nucleophilic hydrazine-containing drugs can protect cells during oxidative stress.

2585 2592

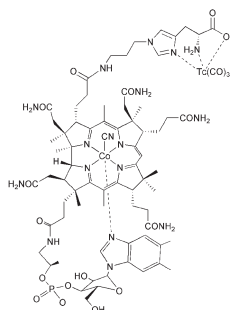


### Rigid versus flexible: how important is ligand “preorganization” for metal ion recognition by lower rim-functionalized calix[4]arenes?

Galina G. Talanova, Vladimir S. Talanov, Hong-Sik Hwang, Chunkyung Park, Kazimierz Surowiec and Richard A. Bartsch

Conformationally mobile lower rim-functionalized calix[4]arenes provide more selective recognition of different metal cations than their appropriately “preorganized” rigid analogs.

2593 2603

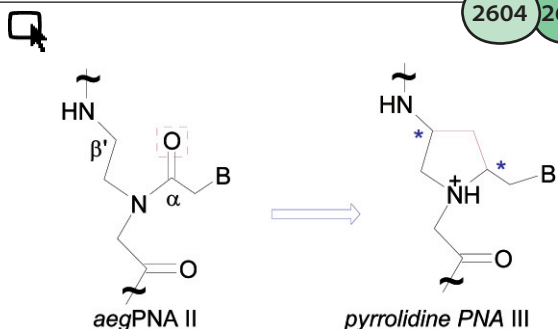


### Conjugation of a novel histidine derivative to biomolecules and labelling with [<sup>99m</sup>Tc(OH)<sub>2</sub>(CO)<sub>3</sub>]<sup>+</sup>

Dave R. van Staveren, Stefan Mundwiler, Ulrich Hoffmanns, Jae Kyoung Pak, Bernhard Spingler, Nils Metzler-Nolte and Roger Alberto

Efficient coupling of a newly synthesised histidine N<sub>ε</sub>-amine derivative to biotin, enkephalin and vitamin B12, and the labelling of the bioconjugates with [<sup>99m</sup>Tc(OH)<sub>2</sub>(CO)<sub>3</sub>]<sup>+</sup> is described.

2604 2611

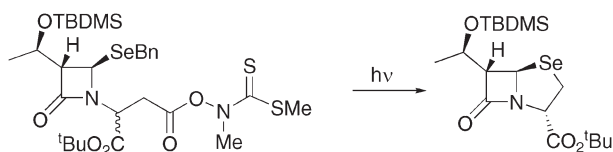


### Chimeric (aeg-pyrrolidine)PNAs: synthesis and stereo-discriminative duplex binding with DNA/RNA

Pallavi S. Lonkar, Krishna N. Ganesh and Vijayanti A. Kumar

Synthesis and nucleic acid recognition studies of diastereomeric pyrrolidine PNA reveal high sequence specific RNA binding.

2612 2618

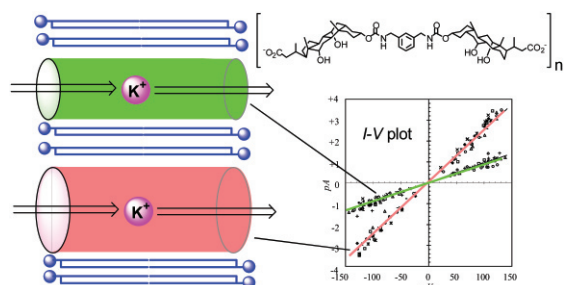


### Preparation of novel selenapenamams and selenacephemams by nucleophilic and radical chemistry involving benzyl selenides

Michael W. Carland, Robyn L. Martin and Carl H. Schiesser

Selenacephem and selenapenam nuclei are conveniently prepared by either intramolecular homolytic or nucleophilic substitution chemistry involving the benzylseleno moiety.

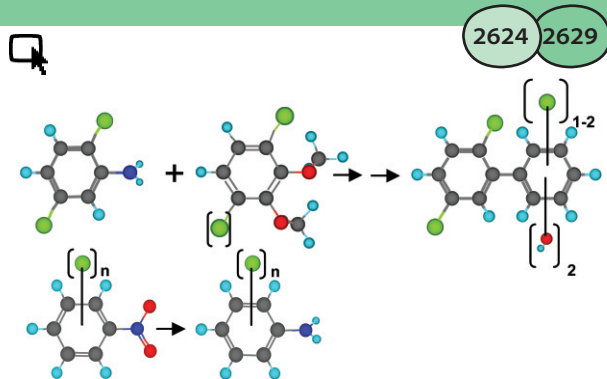
2619 2623



### Supramolecular ion channels from a transmembrane bischolic acid derivative showing two discrete conductances

Mami Yoshii, Mika Yamamura, Akiharu Satake and Yoshiaki Kobuke

Two specific single ion channels were observed in bischolic acid supramolecular channels.

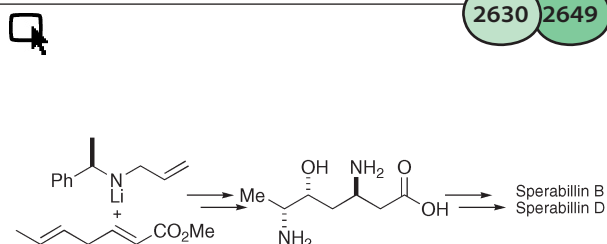


2624 2629

### Synthesis of chlorinated and non-chlorinated biphenyl-2,3- and 3,4-catechols and their [ $^2\text{H}_3$ ]-isotopomers

Po-Hsiung Lin, R. Sangaiah, Asoka Ranasinghe, Louise M. Ball, James A. Swenberg and Avram Gold

Biphenyl catechols chlorinated on both rings are synthesized and efficient reduction of nitrochlorobenzenes to chloroanilines without dechlorination is reported.

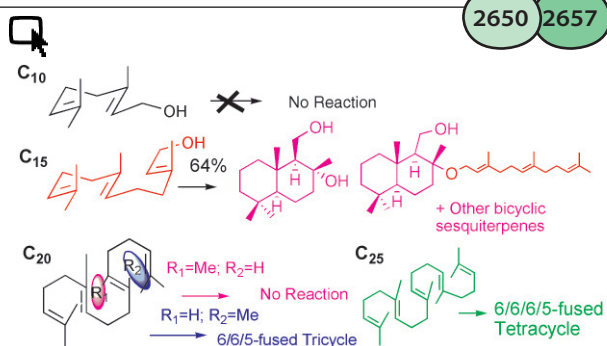


2630 2649

### Asymmetric total synthesis of sperabillins B and D via lithium amide conjugate addition

Stephen G. Davies, Jane R. Haggitt, Osamu Ichihara, Richard J. Kelly, Michael A. Leech, Anne J. Price Mortimer, Paul M. Roberts and Andrew D. Smith

The asymmetric syntheses of sperabillins B and D using the diastereoselective conjugate addition of homochiral lithium (*R*)-*N*-allyl-*N*- $\alpha$ -methylbenzylamide to methyl (*2E,5E*)-heptadienoate in 10.8% and 5.8% overall yield are described.



2650 2657

### Enzymatic cyclization reactions of geraniol, farnesol and geranylgeraniol, and those of truncated squalene analogs having $\text{C}_{20}$ and $\text{C}_{25}$ by recombinant squalene cyclase

Tsutomu Hoshino, Yuko Kumai, Isao Kudo, Shin-ichi Nakano and Shumi Ohashi

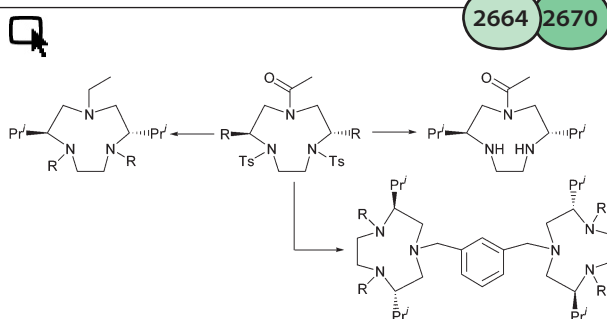
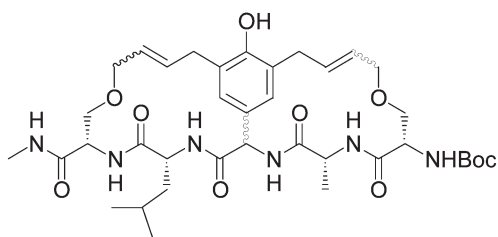
A minimum carbon length of  $\text{C}_{15}$  is required for the cyclization reaction by squalene cyclase.

2658 2663

### Ring-closing metathesis for the synthesis of side chain knotted pentapeptides inspired by vancomycin

Hefziba T. ten Brink, Dirk T. S. Rijkers, Johan Kemmink, Hans W. Hilbers and Rob M. J. Liskamp

A bicyclic pentapeptide inspired by the multiple side chain knotted structure of vancomycin was synthesized by tandem ring-closing metathesis.



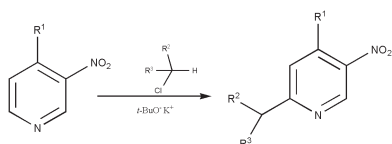
2664 2670

### The synthesis of unsymmetrically *N*-substituted chiral 1,4,7-triazacyclononanes

J. Erik W. Scheuermann, Kevin F. Sibbons, David M. Benoit, Majid Motevalli and Michael Watkinson

A number of chiral unsymmetrically *N*-substituted 1,4,7-triazacyclononane ligands have been prepared by modular methods.

2671 2676



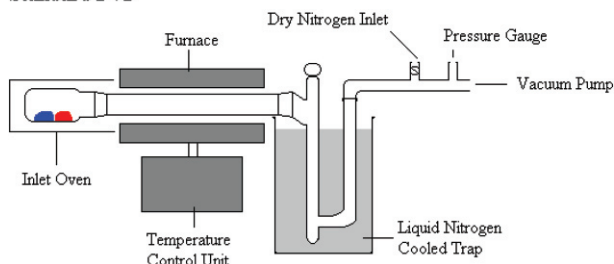
### Nucleophilic alkylations of 3-nitropyridines

Einar J. Andreassen, Jan M. Bakke, Ingrid Sletvold and Harald Svensen

3-Nitropyridines have been alkylated with chloroform and esters of  $\alpha$ -chlorocarboxylic acids by the VNS method.

2677 2683

#### Standard FVP

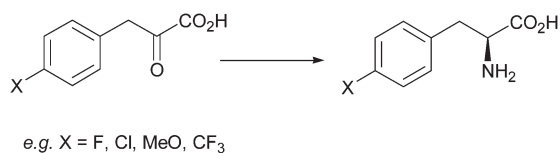


### An empirical study of the effect of the variables in a flash vacuum pyrolysis (FVP) experiment

Emma F. Duffy, Jonathan S. Foot, Hamish McNab and Andrew A. Milligan

This paper addresses: (i) the use of temperature-conversion plots in mechanistic studies, (ii) the effect of furnace temperature, inlet temperature, background pressure and furnace packing and (iii) the dimerisation of benzyl radicals, in FVP experiments.

2684 2691

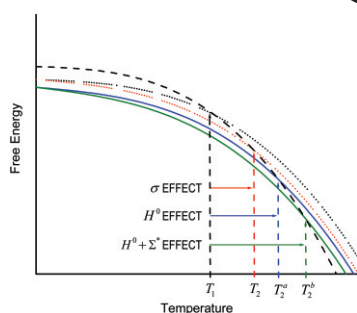


### Enantioselective synthesis of non-natural amino acids using phenylalanine dehydrogenases modified by site-directed mutagenesis

Patricia Busca, Francesca Paradisi, Eamonn Moynihan, Anita R. Maguire and Paul C. Engel

Three phenylalanine dehydrogenase mutants have been employed for the enantioselective synthesis of substituted analogues of phenylalanine.

2692 2699



### Effect of molecular symmetry on melting temperature and solubility

Rodolfo Pinal

A thermodynamic basis for why crystals of symmetrical molecules, which, compared with less symmetrical isomers, have entropies closer to those of their liquids, often exhibit higher entropies of melting.

2700

Moshe Nahmany and Artem Melman

### Chemoselectivity in reactions of esterification