

The cover shows a model of an amyloid fibril and the energy landscape of a protein-folding pathway for the Current Chemistry article by Waterhouse and Gerrard (p. 519).

AUSTRALIAN JOURNAL OF CHEMISTRY

AN INTERNATIONAL JOURNAL FOR CHEMICAL SCIENCE

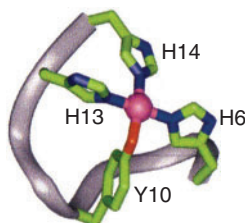
www.publish.csiro.au/journals/ajc

Review

Metal-Catalyzed Oxidative Damage and Oligomerization of the Amyloid- β Peptide of Alzheimer's Disease

Feda E. A. Ali, Kevin J. Barnham,
Colin J. Barrow, Frances Separovic

Aust. J. Chem. **2004**, 57, 511–518.



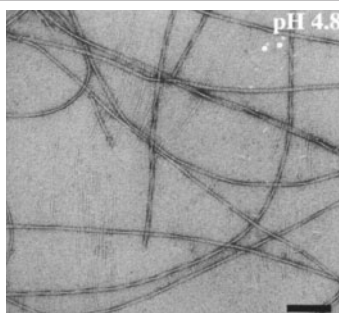
Amyloid- β peptide ($A\beta$) aggregates are associated with Alzheimer's disease. The aggregation process may involve metal coordination by $A\beta$, as shown, and metal coordination facilitates the generation of reactive oxygen species. In this review, the role of copper and zinc ions in $A\beta$ neurotoxicity is examined, especially with regards to the generation of free radicals.

Current Chemistry

Amyloid Fibrils in Bionanotechnology

Sarah H. Waterhouse, Juliet A. Gerrard

Aust. J. Chem. **2004**, 57, 519–523.



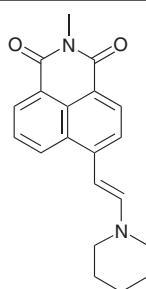
An amyloid fibril, an ordered but insoluble form of protein aggregated into a structured nanotube as shown, can now be routinely generated from purified proteins. Research on amyloid fibrils has investigated their role in disease; this article explores an alternative direction, that of exploiting them as scaffolding for bionanotechnology.

Full Papers

Synthesis and Fluorescence Properties of New Enaminenaphthalimides

C. John McAdam, Joy L. Morgan,
R. Eva Murray, Brian H. Robinson,
Jim Simpson

Aust. J. Chem. **2004**, 57, 525–530.

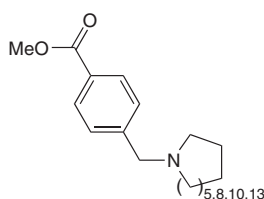


Enamine derivatives of the title compound (piperidino shown) possess a strong fluorescence, the quantum yield of which is invariant with the pK_b value of the amine. A significant charge separation is revealed for the excited state of these materials.

Synthesis of Nitrogen Heterocycles by Rhodium-Catalyzed Hydroformylation of Polymer-Attached Amino Alkenes with Syngas

Jayamini Illesinghe, Eva M. Campi,
W. Roy Jackson, Andrea J. Robinson

Aust. J. Chem. **2004**, 57, 531–536.



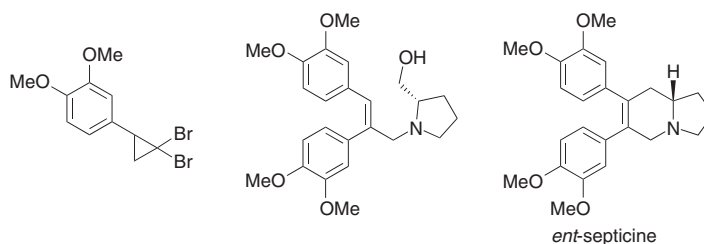
Metal-catalyzed tandem reaction sequences are an efficient means to form heterocycles. However, the formation of larger sized rings by this approach can be more challenging because of competing dimerization/polymerization processes. The use of resin-supported amino alkenes allows formation of a number of small to large nitrogen heterocycles (shown) by an intramolecular hydroaminomethylation sequence.

Utilization of 1-Aryl-2,2-dibromocyclopropanes in Synthetic Approaches to Phenanthroquinolizidine and Phenanthroindolizidine Alkaloids

Martin G. Banwell, Magne O. Sydnes

Aust. J. Chem. **2004**, 57, 537–548.

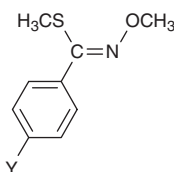
The illustrated arylcyclopropane has been converted, in over six steps, into the illustrated *cis*-stilbene. However, contrary to a literature report, a derivative of the latter compound failed to cyclize to give the expected phenanthroindolizidine *ent*-septicine.



The Preparation of Methyl (*E*)- and (*Z*)-*O*-Methylbenzothiohydroximates

James E. Johnson, Diana C. Canseco, Jeffrey E. Rowe

Aust. J. Chem. **2004**, 57, 549–552.



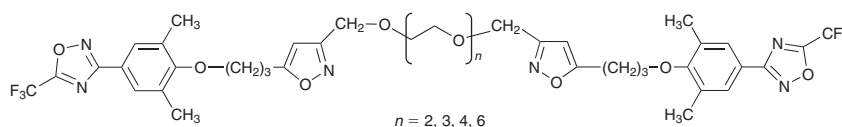
A series of methyl (*Z*)-*O*-methylbenzothiohydroximates (shown) were prepared by two independent methods. Irradiation of these *Z* isomers led to a photostationary state containing mixtures of approximately 40% *E* and 60% *Z*, from which the *E* isomers could be isolated.

Synthesis and Antiviral Activity of Dimeric Capsid-Binding Inhibitors of Human Rhinovirus (HRV)

Guy Y. Krippner, David K. Chalmers, Pauline C. Stanislawski, Simon P. Tucker, Keith G. Watson

Aust. J. Chem. **2004**, 57, 553–564.

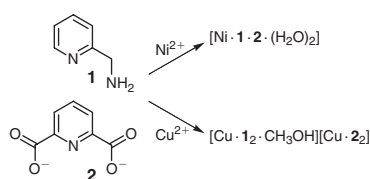
A variety of dimeric analogues of the known human rhinovirus (HRV) capsid-binder Pleconaril have been synthesized and tested against two representative HRV strains. Dimers with linker lengths ranging from five to about sixty atoms were prepared by coupling various monomeric precursors; the most active compounds generally possessed shorter linkages, such as the ones shown.



Metal-Mediated Pseudo Coordination Isomerism in Complexes of Mixed Neutral Didentate and Dianionic Tridentate Pyridine-Containing Ligands

Nathaniel W. Alcock, Guy J. Clarkson, Geoffrey A. Lawrance, Peter Moore

Aust. J. Chem. **2004**, 57, 565–570.

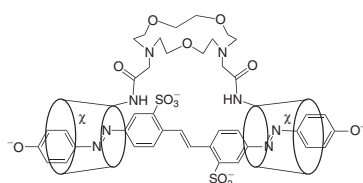


Treatment of nickel(II) and copper(II) with equimolar mixtures of **1** and **2** (shown) leads to pseudo coordination isomers (formally $[\text{Ni} \cdot \mathbf{1} \cdot \mathbf{2}]_2$ and $[\text{Cu} \cdot \mathbf{1}_2][\text{Cu} \cdot \mathbf{2}_2]$, ignoring coordinated solvents), characterized by crystal structure analyses.

Diazacoronand-Linked α - and β -Cyclodextrin Dimer Complexes of the Brilliant Yellow Tetraanion

Oska Wyness, Bruce L. May, Philip Clements, Stephen F. Lincoln, Christopher J. Easton

Aust. J. Chem. **2004**, 57, 571–576.

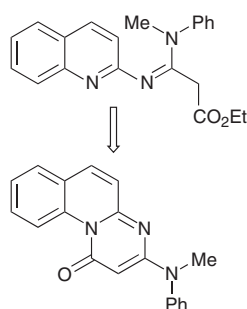


Complexation of the Brilliant Yellow tetraanion $\mathbf{1}^{4-}$ by the new coronand-linked α - and β -cyclodextrin dimers 4,13-bis(6^A-deoxy- α -cyclodextrin-6^A-ylamidomethyl)-4,13-diaza-1,7,10-trioxacyclodecapentane ($\chi = \alpha$) and its analogue ($\chi = \beta$), **2** and **3** respectively, has been studied in aqueous solution and is compared with similar complexations of $\mathbf{1}^{4-}$ by analogues of **3** incorporating longer linkers.

Thermal and Base-Induced Cyclizations of *N*-Heteroarylamidinopropanoates

Adrian Clark, Rolf H. Prager

Aust. J. Chem. **2004**, 57, 577–582.

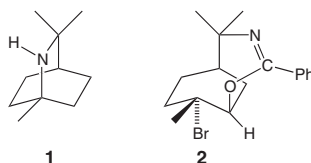


Cyclization of the title compounds to annulated 2-aminopyrimidines occurs on flash vacuum pyrolysis or, better, by treatment with sodium isopropoxide.

The Reaction of 8-Amino-*p*-menthene Derivatives with Electrophiles

Paul V. Bernhardt, Raymond M. Carman, Roger P. C. Derbyshire

Aust. J. Chem. **2004**, 57, 583–591.

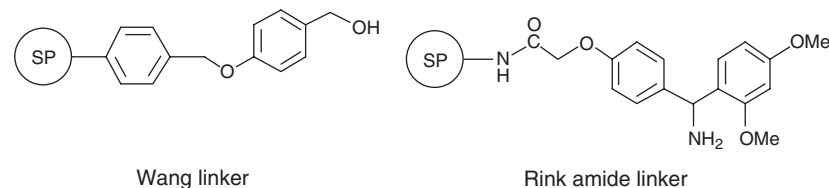


As part of a study towards the synthesis of a bicyclo[2.2.2]-1,8-azacineole skeleton **1**, the authors report attempts to ring-close the N atom of 8-amino-*p*-menth-1-ene and its *N*-substituted 8-amino-*p*-menth-1-enes onto their C1=C2 carbon atoms, using less nucleophilic *N*-substituents and by using mercury electrophiles. A range of bicyclo[2.2.2] and bicyclo[3.2.1] products, together with the novel bicyclo[4.3.1]-1,3-oxazepine **2**, resulted.

Solid-Phase Synthesis of some Linear and Cyclic Peptidomimetics Based on 2-Aminoalkyloxazole-4- and 5-carboxylates

Matthew O. Cox, Rolf H. Prager

Aust. J. Chem. **2004**, 57, 593–598.



Wang linker

Rink amide linker

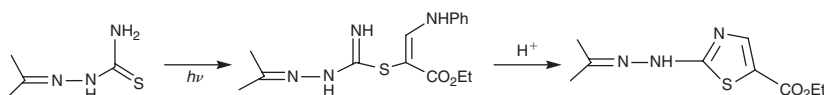
Cyclic peptides form the basis of many less toxic drugs, arising from their 'preorganized' receptor affinity. The synthesis of the title compounds is now extended to solid-phase syntheses. The Wang and Rink amide linkers are employed to this end.

A Convenient Synthesis of 2-Substituted Thiazole-5-carboxylates

Mei Fong, Wit K. Janowski, Rolf H. Prager, Max R. Taylor

Aust. J. Chem. **2004**, 57, 599–604.

In preparing cyclic peptide mimetics based on aminoalkylthiazole carboxylic acids, the reaction of thioamides with α -oxo or α -iminocarbenes proceeds only with certain substrates. However, photolysis of 2-phenyl-2,5-dihydroisoxazole-4-carboxylate in acetonitrile containing trifluoroacetic acid and thioamides gives moderate yields of thiazole-5-carboxylate esters, and, in the absence of trifluoroacetic acid, the intermediate vinyl thioesters can be isolated.

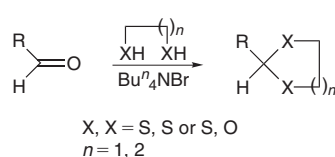


Short Communications

Molten Salt as a Green Reaction Medium: Efficient and Chemoselective Dithioacetalization and Oxathioacetalization of Aldehydes Mediated by Molten Tetrabutylammonium Bromide

Brindaban C. Ranu, Arijit Das

Aust. J. Chem. **2004**, 57, 605–608.



A simple and green procedure has been developed for efficient and chemoselective thioacetalization and oxathioacetalization of aldehydes using molten tetrabutylammonium bromide without any additional reagent and solvent.

Facile Synthesis of Azo Compounds from Aromatic Nitro Compounds using Magnesium and Triethylammonium Formate

*G. R. Srinivasa, K. Abiraj,
D. Channe Gowda*

Aust. J. Chem. **2004**, 57, 609–610.

Magnesium/triethylammonium formate is a convenient reagent for reducing aromatic nitro compounds to symmetrically substituted azo compounds. The conversion is reasonably fast, clean, high yielding, and occurs at room temperature in methanol.

Author Index

- | | | |
|----------------------|--------------------------|-----------------------------|
| Abiraj, K. 609 | Derbyshire, R. P. C. 583 | Murray, R. E. 525 |
| Alcock, N. W. 565 | Easton, C. J. 571 | Prager, R. H. 577, 593, 599 |
| Ali, F. E. A. 511 | Fong, M. 599 | Ranu, B. C. 605 |
| Banwell, M. G. 537 | Gerrard, J. A. 519 | Robinson, A. J. 531 |
| Barnham, K. J. 511 | Gowda, D. C. 609 | Robinson, B. H. 525 |
| Barrow, C. J. 511 | Illesinghe, J. 531 | Rowe, J. E. 549 |
| Bernhardt, P. V. 583 | Jackson, W. R. 531 | Separovic, F. 511 |
| Campi, E. M. 531 | Janowski, W. K. 599 | Simpson, J. 525 |
| Canseco, D. C. 549 | Johnson, J. E. 549 | Srinivasa, G. R. 609 |
| Carman, R. M. 583 | Krippner, G. Y. 553 | Stanislowski, P. C. 553 |
| Chalmers, D. K. 553 | Lawrance, G. A. 565 | Sydnese, M. O. 537 |
| Clark, A. 577 | Lincoln, S. F. 571 | Taylor, M. R. 599 |
| Clarkson, G. J. 565 | May, B. L. 571 | Tucker, S. P. 553 |
| Clements, P. 571 | McAdam, C. J. 525 | Waterhouse, S. H. 519 |
| Cox, M. O. 593 | Moore, P. 565 | Watson, K. G. 553 |
| Das, A. 605 | Morgan, J. L. 525 | Wyness, O. 571 |