Review

**ω-Conotoxins and Approaches to Their Non-Peptide Mimetics**

Jonathan B. Baell, Peter J. Duggan, Y. Phei Lok


The venom found in *Conus* snails contains different sets of disulfide-rich peptides, termed conotoxins. The ω-conotoxins have been considered as potential therapeutics for the treatment of chronic pain. However, their mode of administration (spinal injection) has led to the quest for non-peptidic mimetics, which could ultimately provide a means for oral administration.

Rapid Communications

**The Synthesis of 3-O-(β-D-Glucopyranosyl)- and 3-O-(β-Laminaribiosyl)-isofagomines, Potent Inhibitors of a 1,3-β-D-Glucan endo-Hydrolase**

James M. Macdonald, Maria Hrnova, Geoffrey B. Fincher, Robert V. Stick


4-O-(β-Cellobiosyl)isofagomine is a striking inhibitor against the *endo*-cellulase Cel5A from *Bacillus agaradhaerens*. This paper describes the synthesis of two other such inhibitors, an example of which is shown here, by glycosylation of isofagomine at the C3 hydroxyl. The compound pictured was found to be a potent inhibitor of a barley 1,3-β-D-glucan *endo*-hydrolase (ID$_{50}$ 3.1 μM).

The Selective Binding of Anions to Gemini and Trimeric Surfactants at Air/Solution Interfaces

Betty Thalody, Gregory G. Warr


Halide and nitrate ions bind to gemini and trimer surfactants at an interface nearly independent of the degree of oligomerization of the surfactant. However, salicylate, shown in the graphic, markedly decreases in its uptake with increasing surfactant oligomerization but increases with increasing surfactant spacer length.

Full Papers

**Some Approaches to Glycosylated Versions of Methyl β-Acarviosin**

Jon K. Fairweather, Matthew J. McDonough, Robert V. Stick, D. Matthew G. Tilbrook


The inhibitory action of various imino sugars against some cellulases can be markedly improved upon by glycosylation. The authors describe their approaches toward the synthesis of a glycosylated version (such as that shown in the figure) of methyl β-acarviosin, in the hope of developing a potent inhibitor of cellulases.
Synthesis and Electrochemical Characterization of New Thioether- and Ferrocene-Containing Copolymers

Murray V. Baker, Jinzhen Lu, Touma B. Issa, Pritam Singh, Jelica Strauch


Evidence for Au(I)…Au(I) Interactions in a Sterically Congested Environment: Two-Coordinate Gold(I) Halide Phosphine Complexes

Raymond C. Bott, Peter C. Healy, Graham Smith


Biomimetic Synthesis of Ag2CrO4 Quasi-Nanorods and Nanowires by Emulsion Liquid Membranes

Lu Liu, Qingsheng Wu, Yaping Ding, Huajie Liu, Jingyu Qi, Qian Liu


A New Ring-Reduced Tetratrepynyltoluquinone and a Prenylated Xanthone from *Garcinia cowa*

Fatma Sri Wahyuni, Lindsay T. Byrne, Dachriyanus, Roza Dianita, Januarti Jabbar, Nordin H. Lajis, Melvyn V. Sargent


Synthesis of a Novel Pyrrole Oxazole Analogue of the Insecticide Pirate

Wendy A. Loughlin, Michelle E. Murphy, Kathryn E. Elson, Luke C. Henderson


An Investigation into the Synthesis of Some Molecules Related to Methyl Acarviosin

Matthew J. McDonough, Robert V. Stick, D. Matthew G. Tilbrook, Andrew G. Watts


Surface-modified electrodes (SMEs) and their application in such areas as electrocatalysis, sensors, and energy conversion and storage constitute an active research area. Here, the synthesis of several new ferrocenyl copolymers is described, in the hope of developing sufficiently robust SMEs to serve as reference electrodes in acidic media.

The two-coordinate complexes of gold(I) halides with the phosphine ligands tris(n-methylphenyl)phosphine \((n = 2, 4)\) yield a diversity of polymorphic structures and crystal packing arrangements. Despite the bulkiness of the ligand, one polymorph of \([AuP(ptol)3Cl]\) exhibits a short intermolecular Au(I)…Au(I) distance of 3.375(1) Å, indicative of a significant aurophilic interaction.

One-dimensional nanoscale semiconductor and photosensitive materials are currently of great interest due to their unique properties and potential applications. The authors report the first synthesis of the novel semiconductor and photosensitive material Ag2CrO4 (nanowires of which are shown) by emulsion–liquid membrane technology.

The isolation and structural elucidation of two new natural products from the stem bark of the tree *Garcinia cowa* are described. The reduced toluquinone pictured is particularly interesting since it appears to be the first time that this type of compound has been isolated from a terrestrial source.

The expedient synthesis of the novel pyrrole oxazole 1 via the N-dealkylated pyrrole oxazole 2 in six steps from pyrrole is reported using a synthetic route that could have potential for the solution-phase combinatorial synthesis of analogues.

Acarbose is an impressive inhibitor of several enzymes that process substrates containing \(\alpha\)-D-glucosidic linkages and, as such, is used in the treatment of various forms of diabetes. In an attempt to produce putative inhibitors for enzymes that process \(\beta\)-D-glucosidic linkages, the authors report an improved synthesis of a hydroxylated derivative of methyl \(\beta\)-acarviosin (shown).
DNA Scission Chemistry and EPR Studies of Four New Bis(2,6-Dimethoxyhydroquinone–3-Mercaptoaetic Acid)–Peptide Conjugates
Yu-Fei Song

A Study of Raman Excitation Profiles for Soluble cis-Polyacetylene
Gia G. Maisuradze

Quantitative Determination of Aqueous Dodecatungstophosphoric Acid Speciation by NMR Spectroscopy
Bradley J. Smith, Vincent A. Patrick

Short Communications
Tp*WIVO(S2CNEt2): the Missing Member of the Series
Aston A. Eagle, Charles G. Young, Edward R. T. Tiekink

A Revised Structure for the Alkaloid, Tribulusterine, from Tribulus terrestris L.
John B. Bremner, Waya Sengpracha, Ian Southwell, Chris Bourke, Brian W. Skelton, Allan H. White

Focus
The Production of Designer Enzymes
Victoria McCarl

Book Review page 278
Author Index

Baell, J. B. 179
Baker, M. V. 207
Bott, R. C. 213
Bourke, C. 273
Bremner, J. B. 273
Burns, C. 278
Byrne, L. T. 223
Dachriyanus, 223
Dianita, R. 223
Ding, Y. 219
Duggan, P. I. 179
Eagle, A. A. 269
Elson, K. E. 227
Fairweather, J. K. 197
Fincher, G. B. 187
Healy, P. C. 213
Henderson, L. C. 227
Hrmova, M. 187
Issa, T. B. 207
Jubahar, J. 223
Lajis, N. H. 223
Liu, H. 219
Liu, L. 219
Liu, Q. 219
Lok, Y. P. 179
Loughlin, W. A. 227
Lu, J. 207
Macdonald, J. M. 187
Maisuradze, G. G. 253
McCarl, V. 277
McDonough, M. J. 197, 233
Murphy, M. E. 227
Patrick, V. A. 261
Qi, J. 219
Sargent, M. V. 223
Sengpracha, W. 273
Singh, P. 207
Skelton, B. W. 273
Smith, B. J. 261
Smith, G. 213
Song, Y.-F. 243
Southwell, I. 273
Stick, R. V. 187, 197, 233
Strauch, J. 207
Thalody, B. 193
Tiekink, E. R. T. 269
Tilbrook, D. M. G. 197, 233
Wahyuni, F. S. 223
Warr, G. G. 193
Watts, A. G. 233
White, A. H. 273
Wu, Q. 219
Young, C. G. 269