

JOURNAL OF THE CHEMICAL SOCIETY

**Perkin Transactions 1**

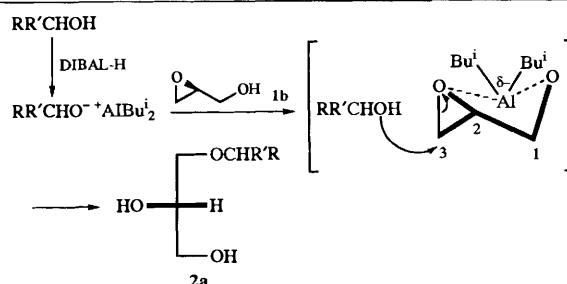
Organic and Bio-organic Chemistry

**CONTENTS**

## Perkin Communications

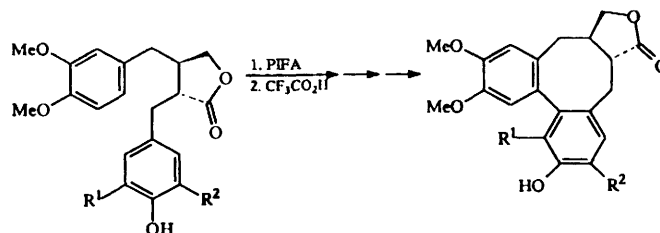
- 2199 **Stereospecific and regiospecific ring opening of glycidol with primary and secondary alcohols mediated by diisobutylaluminium hydride**

Ravi Kumar Erukulla, Hoe-Sup Byun, David C. Locke and Robert Bittman



- 2201 **Effective, direct biomimetic synthesis of dibenzocyclooctene lignans by hypervalent iodine oxidation of phenolic dibenzylbutyrolactones**

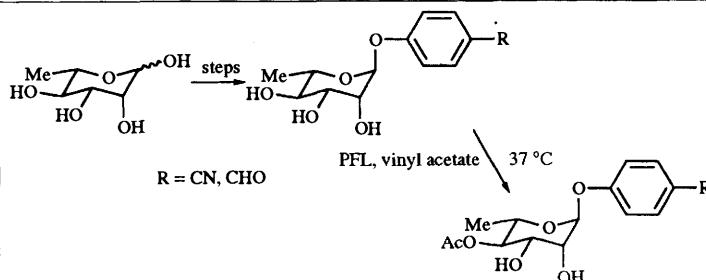
Andrew Pelter, Peter Satchwell, Robert S. Ward and Keith Blake



## Keynote Article

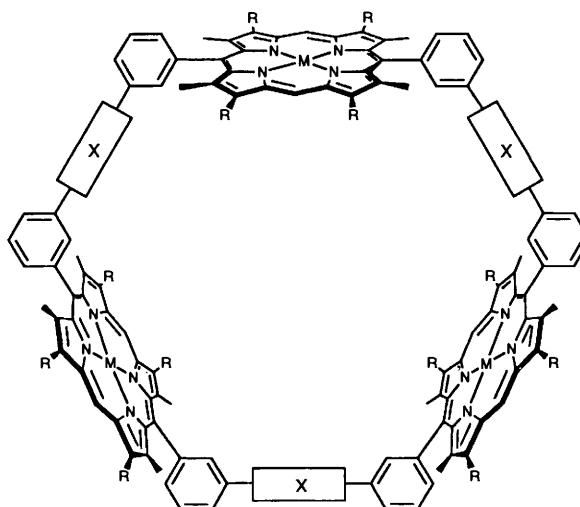
- 2203 **Enzymatic esterification and de-esterification of carbohydrates: synthesis of a naturally occurring rhamnopyranoside of *p*-hydroxybenzaldehyde and a systematic investigation of lipase-catalysed acylation of selected arylpyranosides**

Nazir B. Bashir, Sara J. Phythian, Andrew J. Reason and Stanley M. Roberts



## Articles

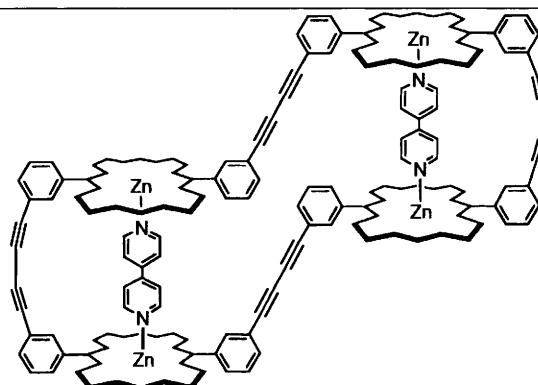
- 2223 **Enzyme mimics based on cyclic porphyrin oligomers: strategy, design and exploratory synthesis**



Harry L. Anderson and Jeremy K. M. Sanders

Cyclic porphyrin dimers, trimers and tetramers linked by butadiyne groups ( $X = -C\equiv C-C\equiv C-$ ) have been designed and synthesised as potential enzyme mimics

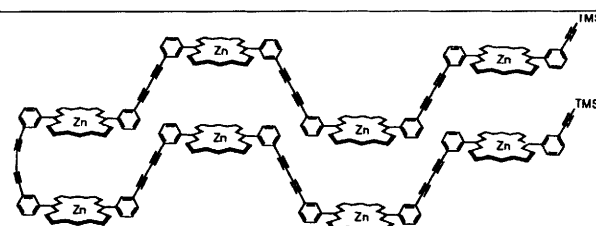
- 2231 **Ligand binding by butadiyne-linked porphyrin dimers, trimers and tetramers**



Harry L. Anderson, Sally Anderson and Jeremy K. M. Sanders

Some ligand binding properties of a series of cyclic butadiyne-linked porphyrin dimers, trimers and tetramers have been elucidated by electronic and NMR spectroscopy

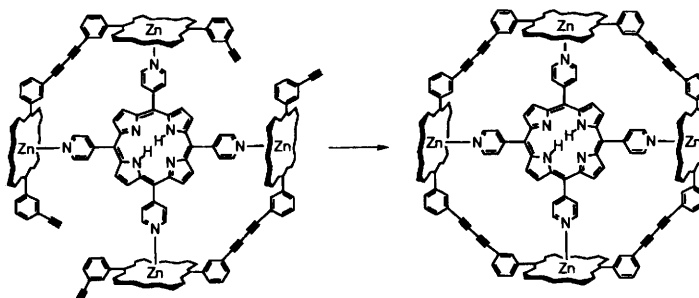
- 2247 **Template-directed synthesis of linear and cyclic butadiyne-linked porphyrin oligomers up to a linear octamer**



Sally Anderson, Harry L. Anderson and Jeremy K. M. Sanders

Positive, negative and scavenger templating approaches have been used to prepare linear and cyclic oligomers efficiently

- 2255 **The roles of templates in the syntheses of porphyrin oligomers**

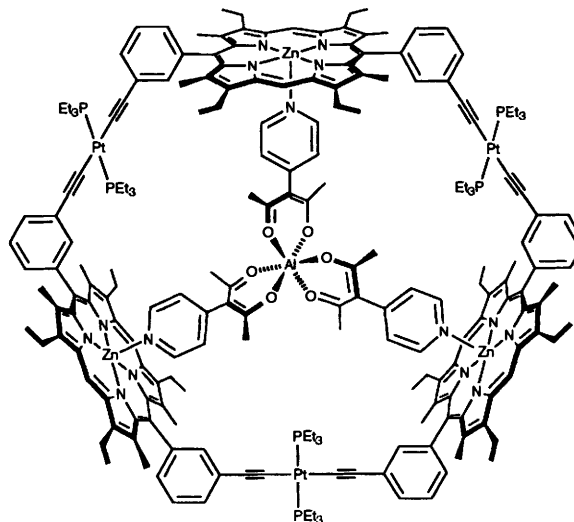


Sally Anderson, Harry L. Anderson and Jeremy K. M. Sanders

Templates are shown to take several different roles, sometimes simultaneously, during oxidative coupling of porphyrin oligomers

- 2269 A platinum-linked porphyrin trimer and a complementary aluminium tris[3-(4-pyridyl)acetylacetonate] guest

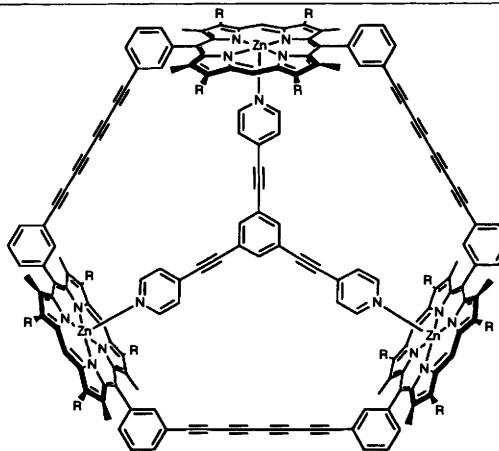
Lindsey G. Mackay, Harry L. Anderson and Jeremy K. M. Sanders



The chirality of the guest induces chemical shift inequivalence in the otherwise symmetrical Pt-linked host. Host-guest complementarity firmly establishes the structure of both, but template-assisted synthesis was unsuccessful

- 2275 Octatetrayne-linked porphyrins: 'stretched' cyclic dimers and trimers with very spacious cavities

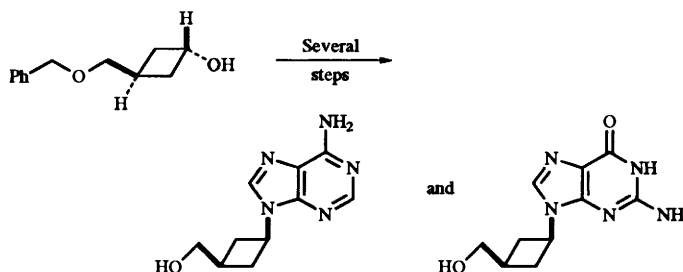
Harry L. Anderson, Christopher J. Walter, Anton Vidal-Ferran, Robert A. Hay, Philip A. Lowden and Jeremy K. M. Sanders



New complementary 'stretched' guests and hosts have been prepared and show good mutual recognition, but templating is ineffective

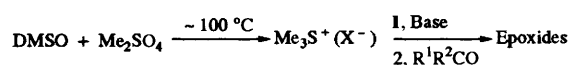
- 2281 Synthesis of 9-[*cis*-3-(hydroxymethyl)cyclobutyl]-adenine and -guanine

Vijay Kaiwar, Colin B. Reese, Emily J. Gray and Stephen Neidle



- 2289 Generation of trimethylsulfonium cation from dimethyl sulfoxide and dimethyl sulfate: implications for the synthesis of epoxides from aldehydes and ketones

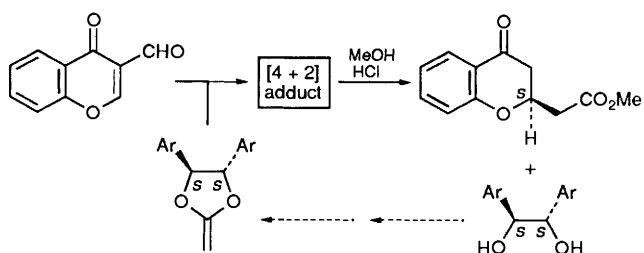
Julie Forrester, Ray V. H. Jones, Peter N. Preston and Elizabeth S. C. Simpson



The thermal reaction of DMSO and  $\text{Me}_2\text{SO}_4$  at *ca.* 100 °C gives a trimethylsulfonium salt which can be used *in situ* for ylide generation, thence epoxidation of carbonyl-containing compounds

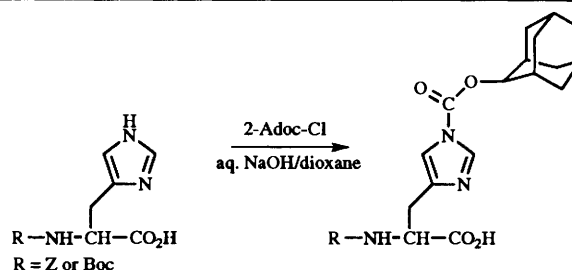
- 2393 **Heterodiene cycloadditions of  $C_2$  symmetric 4,5-disubstituted ketene acetals: the net asymmetric conjugate addition of recyclable acetic ester enolate equivalents to an activated enone**

Timothy W. Wallace, Ian Wardell, Ke-Dong Li, Peter Leeming, Alan D. Redhouse and S. Richard Challand



- 2309 **Amino acids and peptides. Part 42. Application of the 2-adamantyloxycarbonyl (2-Adoc) group to the protection of the imidazole function of histidine in peptide synthesis**

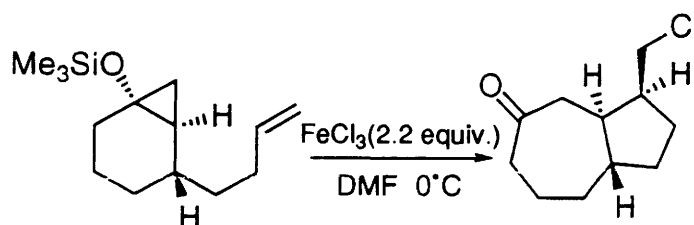
Yasuhiro Nishiyama, Noriyuki Shintomi, Yukihiro Kondo, Takako Izumi and Yoshio Okada



$N^{im}$ -2-Adamantyloxycarbonyl (2-Adoc) group has been found suitable for the protection of the imidazole function of histidine residue in peptide synthesis in terms of its stability to trifluoroacetic acid, tertiary amines and 1-hydroxybenzotriazole, and its reduction of racemization rate during the coupling reaction. It has been applied successfully to the solid-phase synthesis of thyrotropin-releasing hormone depending on *tert*-butoxycarbonyl-chemistry

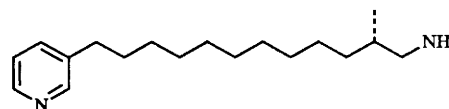
- 2315 **Iron(III) mediated transformations of cyclopropyltrimethylsilyl ethers. Part 1. Free radical tandem ring expansion-cyclisation reactions for the rapid construction of  $[n.3.0]$  bicyclic ring systems**

Kevin I. Booker-Milburn and David F. Thompson



- 2323 **Synthesis of 3-alkylpyridines. Part 2. Synthesis of both enantiomers of niphatesine C**

Franz Bracher and Thomas Papke

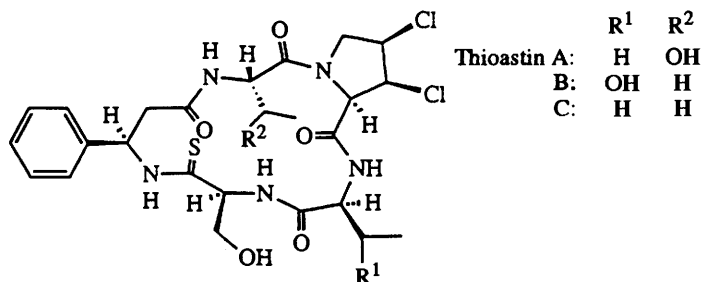


1

The total synthesis of the marine alkaloid niphatesine C and its enantiomer are presented

- 2327 **Cyclic peptides from higher plants. Part 21. Thionation of the antitumour cyclic pentapeptides, astins A, B and C, from *Aster tataricus***

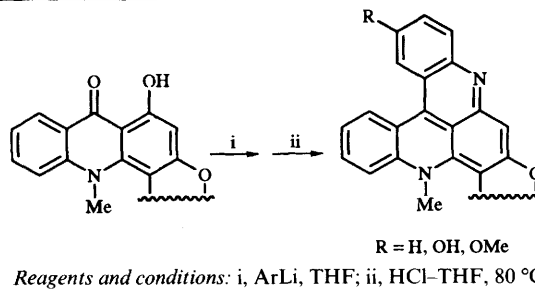
Hiroshi Morita, Shinji Nagashima, Koichi Takeya and Hideji Itokawa



Thioastins showed antitumour activity more promising than the corresponding astins

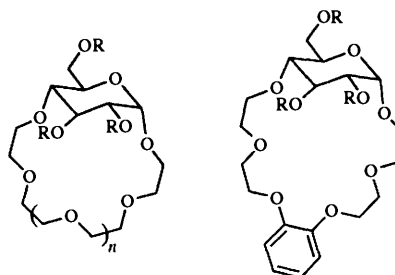
2333 Reaction of *ortho*-lithiated protected anilines with *o*-hydroxycarbonyl compounds: formation of quino- and pyranoquino-acridines

Catherine Jolivet, Christian Rivalle, Christiane Huel and Emile Bisagni



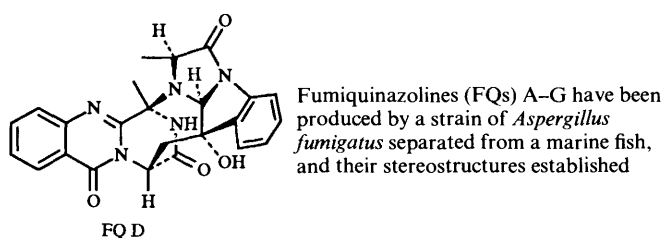
2339 Chiral crown ethers incorporating D-glucose

Puthuparampil P. Kanakamma, Neelakandha S. Mani, Uday Maitra and Vijay Nair



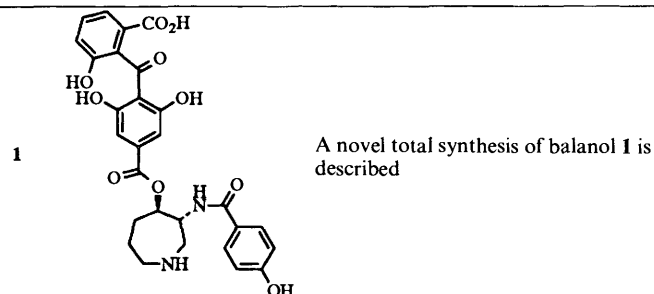
2345 Fumiquinazolines A–G, novel metabolites of a fungus separated from a *Pseudolabrus* marine fish

Chika Takahashi, Tomochika Matsushita, Mitsunobu Doi, Katsuhiko Minoura, Tetsuro Shingu, Yuko Kumeda and Atsushi Numata



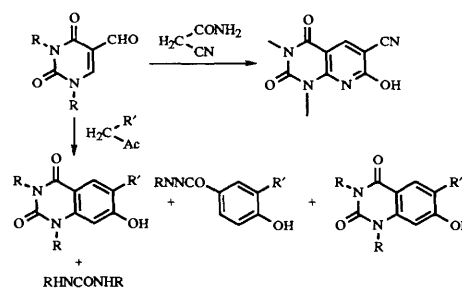
2355 Total synthesis of balanol: a potent protein kinase C inhibitor of fungal origin

C. P. Adams, S. M. Fairway, C. J. Hardy, D. E. Hibbs, M. B. Hursthouse, A. D. Morley, B. W. Sharp, N. Vicker and I. Warner



2363 Heterocyclic transformations. Part 7. Unprecedented transformations of 1,3-dialkyl-5-formyluracils to 1,3-dialkyl-7-hydroxyquinazolines

Harjit Singh, Palwinder Singh, Swapandeep Singh Chimni and Subodh Kumar



Under PTC conditions, 1,3-dialkyl-5-formyluracil undergoes unique ring annulation with  $\alpha$ -substituted acetones and cyanoacetamide

# AUTHOR INDEX

- Adams, C. P., 2355  
Anderson, Harry L., 2223, 2231, 2247, 2255, 2269, 2275  
Anderson, Sally, 2231, 2247, 2255  
Bashir, Nazir B., 2203  
Bisagni, Emile, 2333  
Bittman, Robert, 2199  
Blake, Keith, 2201  
Booker-Milburn, Kevin I., 2315  
Bracher, Franz, 2323  
Byun, Hoe-Sup, 2199  
Challand, S. Richard, 2293  
Chimni, Swapandeep Singh, 2363  
Doi, Mitsunobu, 2345  
Erukulla, Ravi Kumar, 2199  
Fairway, S. M., 2355  
Forrester, Julie, 2289  
Gray, Emily J., 2281  
Hardy, C. J., 2355  
Hay, Robert A., 2275  
Hibbs, D. E., 2355  
Huel, Christiane, 2333  
Hursthouse, M. B., 2355  
Itokawa, Hideji, 2327  
Izumi, Takako, 2309  
Jolivet, Catherine, 2333  
Jones, Ray V. H., 2289  
Kaiwar, Vijay, 2281  
Kanakamma, Puthuparampil P., 2339  
Kondo, Yukihiro, 2309  
Kumar, Subodh, 2363  
Kumeda, Yuko, 2345  
Leeming, Peter, 2293  
Li, Ke-Dong, 2293  
Locke, David C., 2199  
Lowden, Philip A., 2275  
Mackay, Lindsey G., 2269  
Maitra, Uday, 2339  
Mani, Neelakandha S., 2339  
Matsushita, Tomochika, 2345  
Minoura, Katsuhiko, 2345  
Morita, Hiroshi, 2327  
Morley, A. D., 2355  
Nagashima, Shinji, 2327  
Nair, Vijay, 2339  
Neidle, Stephen, 2281  
Nishiyama, Yasuhiro, 2309  
Numata, Atsushi, 2345  
Okada, Yoshio, 2309  
Papke, Thomas, 2323  
Pelter, Andrew, 2201  
Phythian, Sara J., 2203  
Preston, Peter N., 2289  
Reason, Andrew J., 2203  
Redhouse, Alan D., 2293  
Reese, Colin B., 2281  
Rivalle, Christian, 2333  
Roberts, Stanley M., 2203  
Sanders, Jeremy K. M., 2223, 2231, 2247, 2255, 2269, 2275  
Satchwell, Peter, 2201  
Sharp, B. W., 2355  
Shingu, Tetsuro, 2345  
Shintomi, Noriyuki, 2309  
Simpson, Elizabeth S. C., 2289  
Singh, Harjit, 2363  
Singh, Palwinder, 2363  
Takahashi, Chika, 2345  
Takeya, Koichi, 2327  
Thompson, David F., 2315  
Vicker, N., 2355  
Vidal-Ferran, Anton, 2275  
Wallace, Timothy W., 2293  
Walter, Christopher J., 2275  
Ward, Robert S., 2201  
Wardell, Ian, 2293  
Warner, I., 2355

---

NOTE: An asterisk in the heading of each paper indicates the author who is to receive any correspondence.

## Forthcoming Articles in *Perkin Transactions 1*

**Keynote Article:** Studies in the cycloproparene series: heterocyclic substituted methylenecyclopropa[*b*]naphthalenes  
**B. Halton, M.J. Cooney, T.W. Davey, G.S. Forman, Q. Lu, R. Boese, D. Blaser and A.H. Maulitz**

Diacetylenic sterols: new potentially photopolymerizable lipids **R. Bittman and C. Vilcheze**

Conversions of 2-aminopyridines into 5-substituted derivatives mediated by 1-hydroxymethylbenzotriazole  
**A.R. Katritzky, S. El-Zemity and H. Lang**

Preparation of (*Z*)-heptadec-8-eneboronic acid: a potential lipase inhibitor **V. Martichonok and J.B. Jones**

Simple and efficient strategy for making  $\beta$ -(1 $\rightarrow$ 6)-linked galactooligosaccharides using 'naked' galactopyranosides as acceptors  
**H.J. Jennings, K.P. Ravindranathan, K.P. Kartha, M. Kiso and A. Hasegawa**

Activity and enantioselectivity of serine proteases in transesterification reactions in organic media  
**D.N. Reinhoudt, J. Broos, J.F.J. Engbersen, I.K. Sakodinskaya and W. Verboom**

Synthesis of chiral diferrocenyl dichalocogenides and their application to asymmetric nucleophilic ring-opening of *meso*-epoxides  
**Y. Nishibayashi, J.D. Singh, S.-I. Fukuzawa and S. Uemura**

New entry to the *cis*-fused bicyclic ring system by the [2,3]sigmatropic rearrangement *via* cyclic allylsulfonium ylides. Synthesis of *cis*-2-oxa-9-vinyldecalin skeleton  
**M.Kato, F. Kido and T. Abiko**

Highly stereocontrolled total synthesis of (+)-bengamide **M. Hanaoka, C. Mukai, S.M. Moharram and O. Kataoka**

Rearrangement of 1-phenyl-3,4-dihydro-1*H*-2-benzothiinium 2-methylides  
**Y. Sato, T. Tanzawa, N. Shirai, K. Hatano and Y. Kurono**

Preparation of thiazolo-carbazoles *via* Fischer indole synthesis **G. Kirsch, L. Martarello and D. Joseph**

Three positional isomers of substituted triphenylmethanes from reactions of trityl anion with 1-acyl-2,2-dimethylaziridines  
**H. Stamm, J. Werry, P.-Y. Lin and P. Assithianakis**

Synthesis of cyclocholate-capped porphyrins **R.P. Bonar-Law and J.K.M. Sanders**

Synthesis and oxidative behaviour of reduced indeno[1,2-*b*]quinoxalines and benzo[*b*]phenazines  
**M. Sainsbury, D.W. Brown, M.F. Mahon and A. Ninan**

Aminolysis and alkaline hydrolysis of protected 1-hydroxybenzotriazol-1-yl esters of adenosine 5-phosphorothioate and phosphorodithioate  
**C.B. Reese, L.H.K. Shek and Z. Zhao**

New route to 1-formylalkylphosphonate using diethyl trichloromethylphosphonate as precursor  
**P. Savignac, Y. Zanella and S. Berte-Verrando**

Synthesis and application of pyrrole-based novel chiral aromatic diads and triads **T. Aida, Y. Furusho and A. Tsunoda**

On-resin solid phase synthesis of asparagine N-linked glycopeptides. Use of *N*-(2-acetoxy-4-methoxybenzyl) (AcHmb) aspartyl amide bond protection to prevent unwanted aspartimide formation **T. Johnson, J. Offer and M. Quibell**

Antitumour benzothiazoles. Part 2. Formation of 2,2-diaminobiphenyls from the decomposition of 2-(4-azidophenyl)benzazoles in trifluoromethanesulfonic acid **M.F.G. Stevens, D.-F. Shi and A. Castro**

Studies on the stereoselectivity of osmylation of *cis*-bicyclo[3.3.0]oct-6-enes  
**C.L. Willis, N. Broom, P.J. O'Hanlon, T.J. Simpson and R. Stephen**

Mechanistic Studies of Pummerer-type reactions in acyclic and rigid cyclic sulfoxides induced by *O*-silylated ketene acetal  
**Y. Kita, N. Shibata, N. Yoshida, N. Kawano, C. Fujimori, N. Yoshikawa and S. Fujita**

Regiospecific synthesis of 4-fluoro- $\Delta^4$ ,3-keto steroids using caesium fluoroxysulfate  
**H.F. Hodson, D.J. Madge and D.A. Widdowson**





JOURNAL OF THE CHEMICAL SOCIETY

**Perkin Transactions 1**  
**COMMUNICATIONS**

# NORTH AMERICAN AUTHORS

Please submit your Perkin Communications  
and Articles to

Professor Tomas Hudlicky  
*North American Associate Editor*  
Department of Chemistry  
University of Florida  
PO Box 117200  
Gainesville  
FL 32611-7200  
USA

## COPIES OF CITED ARTICLES

The Royal Society of Chemistry Library can usually supply copies of cited articles. For further details contact: The Library, Royal Society of Chemistry, Burlington House, Piccadilly, London UK W1V 0BN. Tel +44 (0) 171 437 8656. Fax: +44 (0) 171 287 9798. Telecom Gold 84: BUR210. Electronic Mailbox (Internet) LIBRARY@RSC.ORG  
If the material is not available from the Society's Library, the staff will be pleased to advise on its availability from other sources. Please note that copies are not available from the RSC at Thomas Graham House, Cambridge.