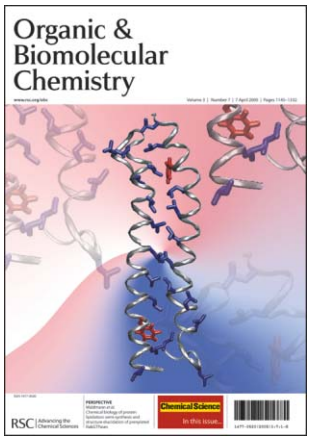
ISSN 1477-0520 CODEN OBCRAK 3(7) 1145–1332 (2005)



Cover

See K. Pagel, K. Seeger, B. Seiwert, A. Villa, A. E. Mark, S. Berger and B. Koksch, pp. 1189–1194. Modelling structure of a *de novo* designed antiparallel α-helical coiled coil peptide.

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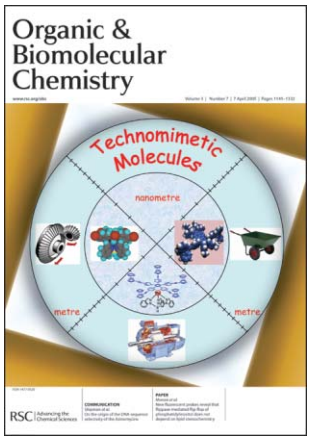

Inside Cover

See G. Rapenne, pp. 1165–1169. Technomimetic molecules are molecules designed to imitate and transpose the motions of objects at the molecular level. On this cover are presented three macroscopic objects, a gear, a motor and a wheelbarrow with their molecular analogues in the centre of the viewfinder.

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CHEMICAL SCIENCE

C25

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Chemical Science

April 2005/Volume 2/Issue 4

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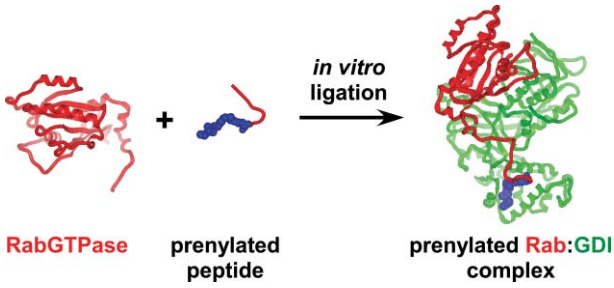
PERSPECTIVE

1157

Chemical biology of protein lipidation: semi-synthesis and structure elucidation of prenylated RabGTPases

Anja Watzke, Luc Brunsveld, Thomas Durek, Kirill Alexandrov, Alexey Rak, Roger S. Goody and Herbert Waldmann*

The semi-synthetic approach *via* Expressed Protein Ligation provides a powerful tool to get access to lipid-modified Rab proteins in amounts sufficient for structure elucidation.



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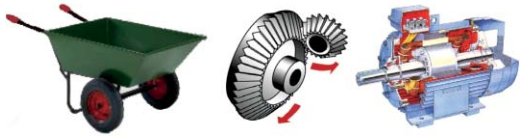
EMERGING AREA

1165

Synthesis of technomimetic molecules: towards rotation control in single-molecular machines and motors

Gwénaël Rapenne*

Following the bottom-up approach, the synthesis of technomimetic molecules grants access to the study of rotary motion at the molecular level.



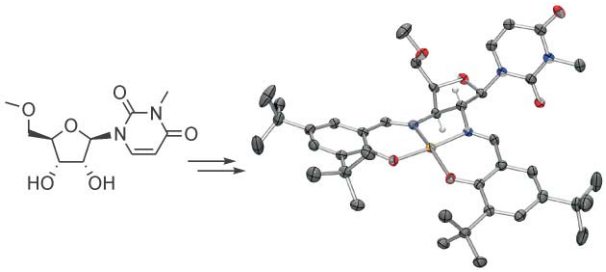
COMMUNICATIONS

1170

Synthesis and crystal structure of a salen-type copper(II) complex derived from 3,5′-*O*-dimethyl-2′,3′-diamino-2′,3′-dideoxy-β-D-*xylo*-uridine

Michael Gottschaldt,* Daniel Koth and Helmar Görls

Starting from uridine the first copper(II) complex of a *xylo*-2′,3′-diamino substituted nucleoside was synthesised and structurally characterised.

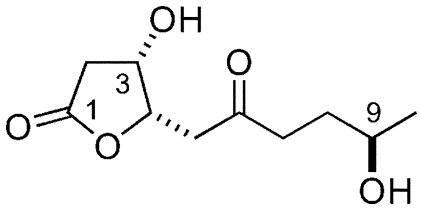


1172

Bassianolone: an antimicrobial precursor of cephalosporolides E and F from the entomoparasitic fungus *Beauveria bassiana*

Juan L. Oller-López, María Iranzo, Salvador Mormeneo, Eulalia Oliver, Juan M. Cuerva and J. Enrique Oltra*

The chemical structures of (+)-bassianolone and a furan derivative, from the fungus *Beauveria bassiana*, are presented.

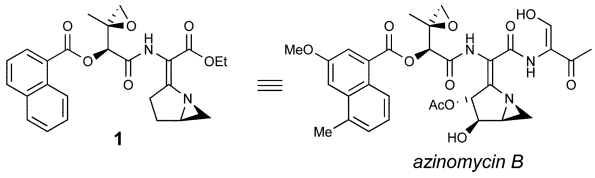


1174

On the origin of the DNA sequence selectivity of the azinomycins

Rachel C. LePla, Cyrille A. S. Landreau, Michael Shipman* and George D. D. Jones

Azinomycin analogue **1** preferentially induces DNA interstrand cross-links at the same sequence as azinomycin B indicating that noncovalent association between the drug and DNA duplex has little impact on sequence specificity.

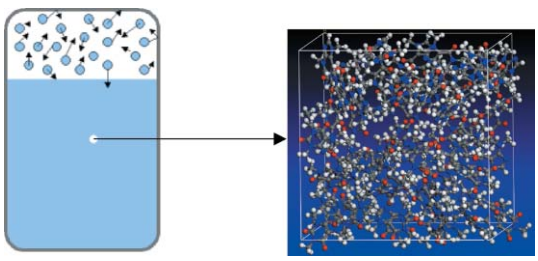


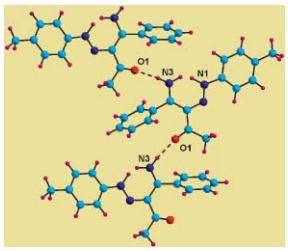
1176

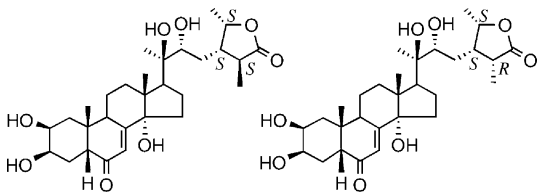
Prediction of vapour pressure using descriptors derived from molecular dynamics

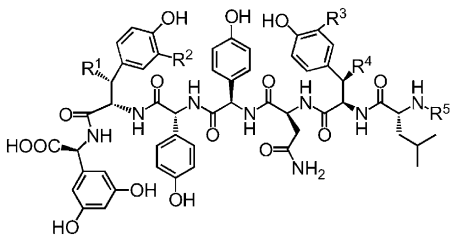
Prem KC Paul

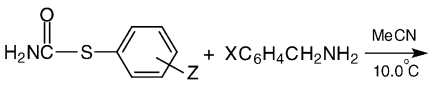
Vapour pressures of organic molecules can be predicted to a high degree of accuracy using solubility parameters derived from molecular dynamics simulations.

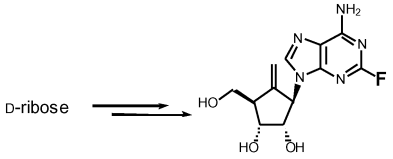


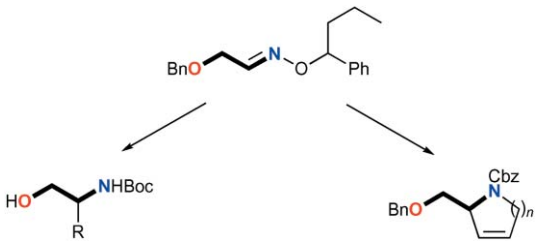








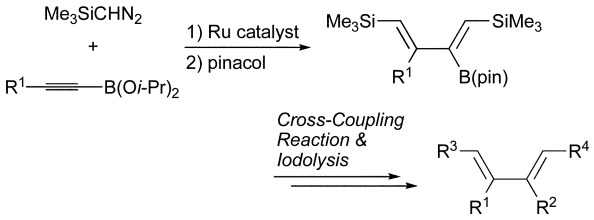




Chiral oxime ethers in asymmetric synthesis. *O*-(1-Phenylbutyl)-benzyloxyacetaldoxime, a versatile reagent for the asymmetric synthesis of protected 1,2-aminoalcohols, α-amino acid derivatives, and 2-hydroxymethyl nitrogen heterocycles including iminosugars

Tracey S. Cooper, Alexander S. Larigo, Pierre Laurent, Christopher J. Moody* and Andrew K. Takle

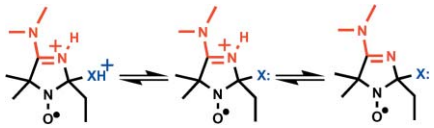
O-(1-Phenylbutyl)benzyloxyacetaldoxime is a versatile reagent for the asymmetric synthesis of protected 1,2-aminoalcohols, α-amino acid derivatives, and 2-hydroxymethyl nitrogen heterocycles including iminosugars.



Synthesis of multisubstituted 1,3-butadienes using the ruthenium-catalysed double addition of trimethylsilyldiazomethane to alkynylboronates

Ryotaro Morita, Eiji Shirakawa,* Teruhisa Tsuchimoto and Yusuke Kawakami

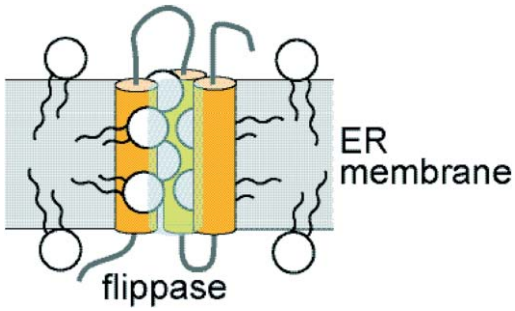
Double addition of trimethylsilyldiazomethane to C≡C bonds was applied to alkynylboronates. The boryl and silyl groups of the products could be converted to organic groups to give multisubstituted 1,3-butadienes.



Nitroxides with two p*K* values—useful spin probes for pH monitoring within a broad range

Igor A. Kirilyuk,* Andrey A. Bobko, Valery V. Khramtsov and Igor A. Grigor'ev

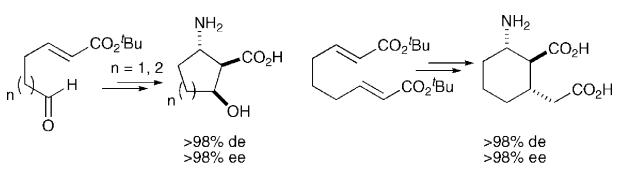
4-Dialkylamino-2,5-dihydroimidazole nitroxides modified at the 2 position of the imidazole ring were prepared. The EPR spectra of the nitroxides undergo changes in the nitrogen hyperfine coupling constant over a broad pH-range.



New fluorescent probes reveal that flippase-mediated flip-flop of phosphatidylinositol across the endoplasmic reticulum membrane does *not* depend on the stereochemistry of the lipid

Ram A. Vishwakarma,* Stefanie Vehring, Anuradha Mehta, Archana Sinha, Thomas Pomorski, Andreas Herrmann and Anant K. Menon*

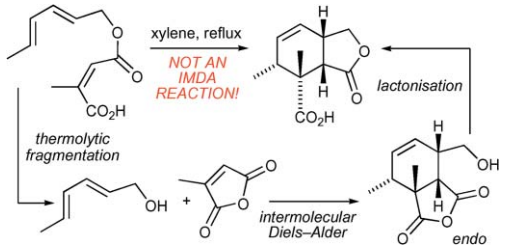
Fluorescence-labeled forms of all four diastereoisomers of phosphatidylinositol have been synthesized and their flippase catalyzed transport across biological membranes evaluated.

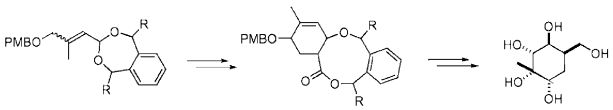


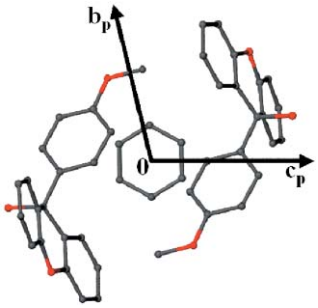
Cyclic β-amino acid derivatives: synthesis *via* lithium amide promoted tandem asymmetric conjugate addition–cyclisation reactions

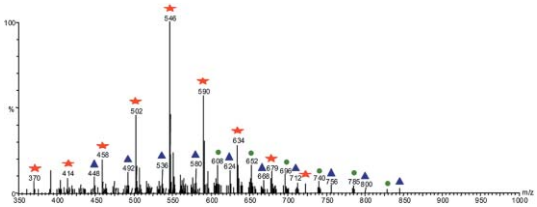
Stephen G. Davies,* David Díez, Sara H. Dominguez, Narciso M. Garrido, Dennis Kruchinin, Paul D. Price and Andrew D. Smith

Tandem double conjugate addition and conjugate addition–aldol reactions initiated by a homochiral lithium amide proceed with high stereoselectivity, giving a range of functionalised cyclic β-amino esters in high de and ee after deprotection.









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Joseph P. A. Harrity and Olivier Provoost (**DOI**: 10.1039/b502349c)

Ethyl (benzothiazol-2-ylsulfonyl)acetate: a new reagent for the stereoselective synthesis of α,β-unsaturated esters from aldehydes
Paul R. Blakemore, Danny K. H. Ho and W. Mieke Nap (**DOI**: 10.1039/b500713e)

A chiral molecular recognition approach to the formation of optically active quaternary centres in aza-Henry reactions
Kristian Rahbek Knudsen and Karl Anker Jørgensen (**DOI**: 10.1039/b500618j)

Synthesis of heteroarenes using cascade radical cyclisation *via* iminyl radicals
W. Russell Bowman, Martin O. Cloonan, Anthony J. Fletcher and Tobias Stein (**DOI**: 10.1039/b501509j)

Urea *vs.* thiourea in anion recognition
David Esteban Gómez, Luigi Fabbrizzi, Maurizio Licchelli and Enrico Monzani (**DOI**: 10.1039/b500123d)

Cyclodextrin and modified cyclodextrin complexes of *E*-4-*tert*-butylphenyl-4′-oxyazobenzene: UV-visible, ^{1}H NMR and *ab initio* studies
Bruce L. May, Jacobus Gerber, Philip Clements, Mark A. Buntine, David R. B. Brittain, Stephen F. Lincoln and Christopher J. Easton (**DOI**: 10.1039/b415594g)

The neomycin biosynthetic gene cluster of *Streptomyces fradiae* NCIMB 8233: characterisation of an aminotransferase involved in the formation of 2-deoxystreptamine
Fanglu Huang, Stephen F. Haydock, Tatiana Mironenko, Dieter Spiteller, Yanyan Li and Jonathan B. Spencer (**DOI**: 10.1039/b501199j)

Carboxylate-stabilised sulfur ylides (thetin salts) in asymmetric epoxidation for the synthesis of glycidic acids. Mechanism and implications
Varinder K. Aggarwal and Christina Hebach (**DOI**: 10.1039/b418740g)

Asymmetric conjugate reductions with samarium diiodide: asymmetric synthesis of (2*S*,3*R*)- and (2*S*,3*S*)-[2-^{2}H,3-^{2}H]-leucine-(*S*)-phenylalanine dipeptides and (2*S*,3*R*)-[2-^{2}H,3-^{2}H]-phenylalanine methyl ester
Stephen G. Davies, Humberto Rodríguez-Solla, Juan A. Tamayo, Andrew R. Cowley, Carmen Concellón, A. Christopher Garner, Alastair L. Parkes and Andrew D. Smith (**DOI**: 10.1039/b500566c)

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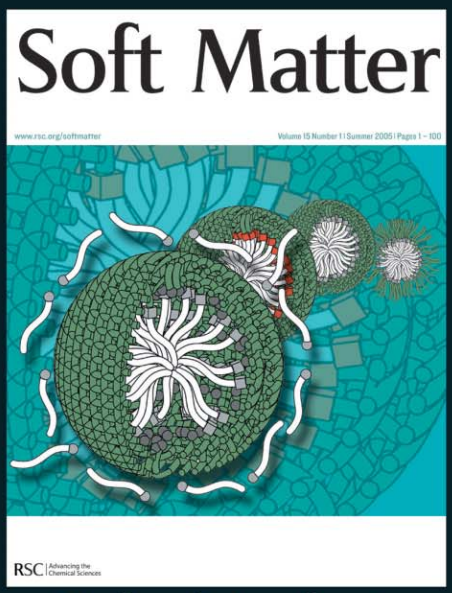

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