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PAPER

Andreea R. Schmitzer *et al.*
Benzimidazolium-based synthetic chloride and calcium transporters in bacterial membranes



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Cover

See Andreea R. Schmitzer *et al.*, pp. 923–928.

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Inside cover

See Noriho Kamiya *et al.*, pp. 914–922.

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EMERGING AREA

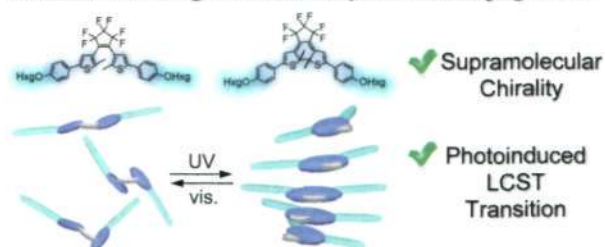
873

Photoswitching of chiral supramolecular environments and photoinduced lower critical solution temperature transitions in aqueous media following a supramolecular approach

Takashi Hirose and Kenji Matsuda*

The changes in flexibility of frameworks and topology of π -conjugation are a potential candidate to control supramolecular environments by photoirradiation.

Photoswitching of Flexibility and π -conjugation



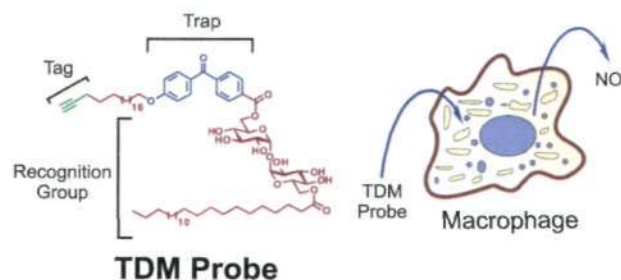
COMMUNICATIONS

881

Development of a benzophenone and alkyne functionalised trehalose probe to study trehalose dimycolate binding proteins

Ashna A. Khan, Faustin Kamena, Mattie S. M. Timmer* and Bridget L. Stocker*

Herein, we report on the first synthesis and provisional biological evaluation of an affinity based TDM-probe containing a benzophenone 'trap', alkyne 'tag' and trehalose recognition group.



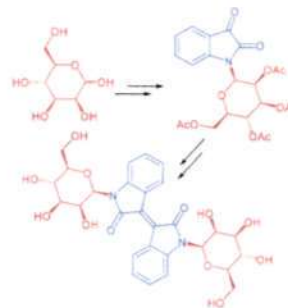
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Уральского отделения
Российской академии наук (ЦНБ УрО РАН)

886

Synthesis of *N,N'*-diglycosylated isoindigos

Dennis Kleeblatt, Baraa Siyo, Martin Hein,
Viktor O. Iaroshenko, Jamshed Iqbal,
Alexander Villinger and Peter Langer*

The first *N,N'*-diglycosylated isoindigos were prepared by $P(\text{NEt}_2)_3$ -mediated dimerization of acetyl protected *N*-glycosyl-5-alkylisatins.



896

Enantioselective α -hydroxylation of β -ketoamides

Claudia De Fusco, Sara Meninno, Consiglia Tedesco and
Alessandra Lattanzi*

The first enantioselective α -hydroxylation reaction of α -substituted β -ketoamides has been developed by using the commercially available HQN/TBHP system. The functionalised tertiary alcohols are obtained in good to high yield and up to 83% ee.

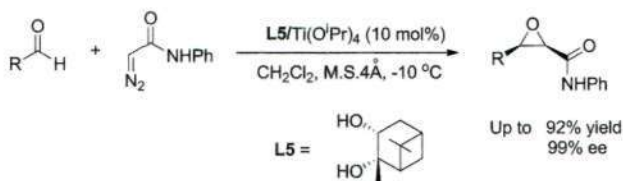


900

A highly enantioselective Darzens reaction between diazoacetamides and aldehydes catalyzed by a (+)-pinanediol-Ti(OⁱPr)₄ system

Gang Liu, Daming Zhang, Jian Li, Guangyang Xu and
Jiangtao Sun*

A highly efficient enantioselective Darzens reaction of aldehydes with diazoacetamides catalyzed by a (+)-pinanediol-Ti(OⁱPr)₄ system has been developed.



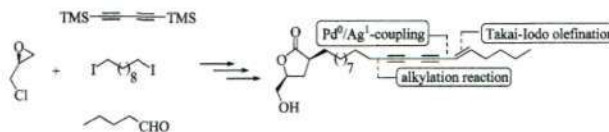
PAPERS

905

First total synthesis of Debilisone C

Bishwajit Saikia, Thongam Joymati Devi and
Nabin C. Barua*

The total synthesis of Debilisone C, a lactone containing conjugated endiyne has been achieved. The adopted strategy involves the stereoselective construction of the five membered lactone ring and the C20 endiyne chain followed by regioselective coupling of both the parts.

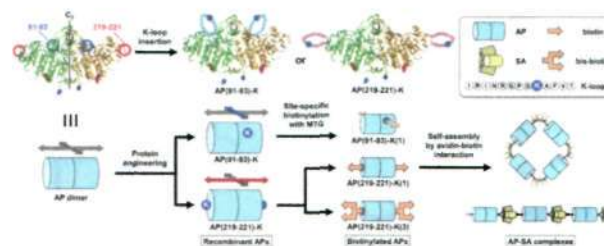


914

Protein supramolecular complex formation by site-specific avidin–biotin interactions

Yutaro Mori, Rie Wakabayashi, Masahiro Goto and Noriho Kamiya*

The precise positioning of ligand labeling sites on a symmetric protein and the linker flexibility between a ligand and the protein control the growth of protein supramolecular complexes.

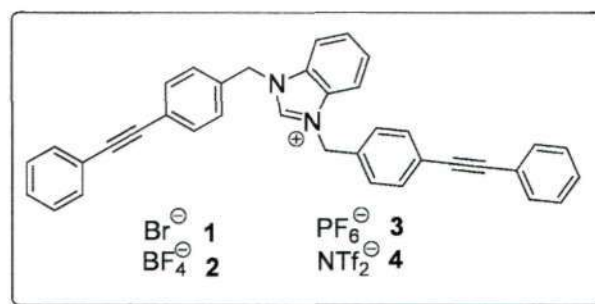


923

Benzimidazolium-based synthetic chloride and calcium transporters in bacterial membranes

Claude-Rosny Elie, Audrey Hébert, Mathieu Charbonneau, Adam Haiun and Andreea R. Schmitzer*

Herein, we present the first example of a benzimidazolium-based artificial transmembrane chloride transporter and a synthetic calcium ionophore that can regulate intracellular calcium concentrations in bacteria.

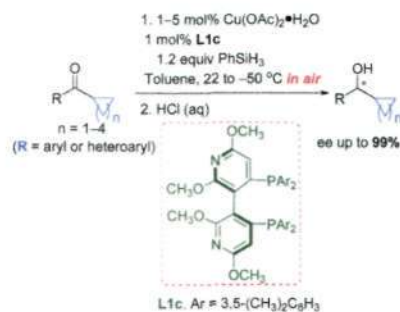


929

Copper-dipyridylphosphine-catalyzed hydrosilylation: enantioselective synthesis of aryl- and heteroaryl cycloalkyl alcohols

Shan-Bin Qi, Min Li, Shijun Li, Ji-Ning Zhou, Jun-Wen Wu, Feng Yu, Xi-Chang Zhang, Albert S. C. Chan and Jing Wu*

Copper-catalyzed enantioselective hydrosilylation of aryl- or heteroaryl cycloalkyl ketones with different ring sizes proceeded uneventfully in air with up to 99% ee.

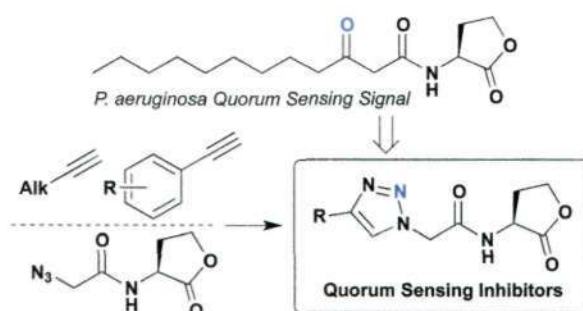


938

Synthesis and biological evaluation of triazole-containing *N*-acyl homoserine lactones as quorum sensing modulators

Danielle M. Stacy, Sebastian T. Le Quement, Casper L. Hansen, Janie W. Clausen, Tim Tolker-Nielsen, Jacob W. Brummond, Michael Givskov, Thomas E. Nielsen* and Helen E. Blackwell*

A series of triazole AHL analogs have been identified that are capable of modulating LuxR-type quorum sensing in Gram-negative bacteria.

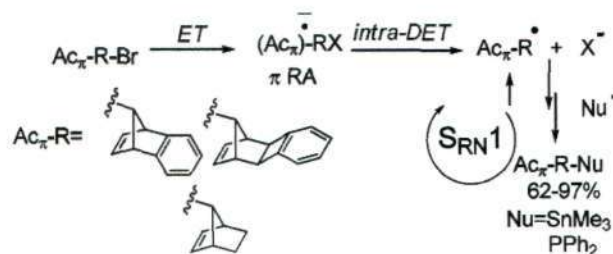


955

Nucleophilic substitution of bromonorbornenes and derivatives by electron transfer reactions

Karina F. Crespo Andrada, Lucas E. Peisino, Murat Güney, Arif Daştan* and Adriana B. Pierini*

The photoinitiated substitution reactions of *anti*- and *syn*-7-bromobenzonorbornadienes, *exo-anti*-13-bromobenzocyclobutanorbornene, *syn*-7-bromonorbornene and 7-bromonorbornane with Me_3Sn^- and Ph_2P^- anions, in liquid ammonia, are here shown to occur with good yields of substitution.

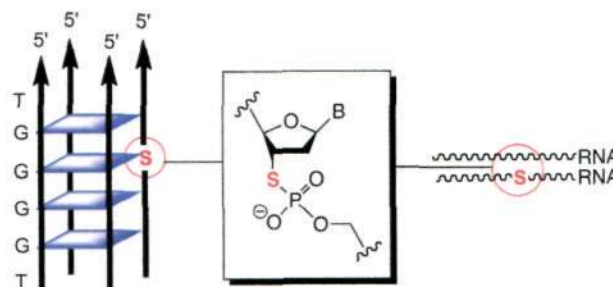


966

Thermal stabilisation of RNA-RNA duplexes and G-quadruplexes by phosphorothiolate linkages

Michael M. Piperakis, James W. Gaynor, Julie Fisher and Richard Cosstick*

Phosphorothiolate linkages are now shown to stabilise RNA-RNA duplexes and G-quadruplex structures.

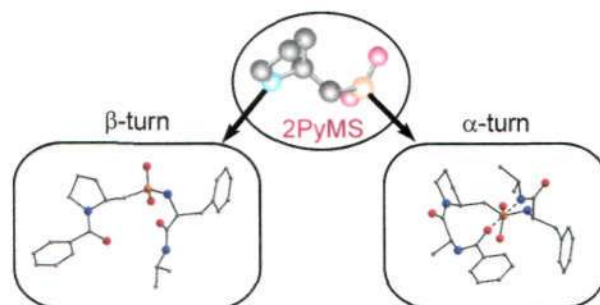


975

Conformational behaviour of peptides containing a 2-pyrrolidinemethanesulfonic acid (2PyMS) residue

Oleksandr O. Grygorenko,* Sergey Zheresh, Bohdan V. Oliinyk, Oleg V. Shishkin and Andrey A. Tolmachev

Model peptides containing a 2-pyrrolidine-methanesulfonic acid (2PyMS) residue have adopted α - and β -turn conformations, which could be attributed to intrinsic conformational properties of the 2PyMS residue.

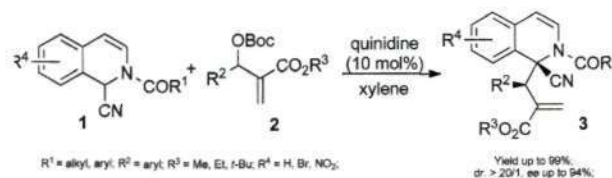


984

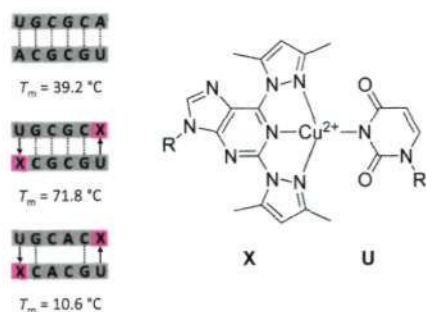
Asymmetric organocatalytic allylic alkylation of Reissert compounds: a facile access to chiral 1,1-disubstituted 1,2-dihydroisoquinolines

Tian-You Qin, Wei-Wei Liao,* Yan-Jing Zhang and Sean Xiao-An Zhang*

The first metal-free asymmetric catalytic allylic alkylation of Reissert compounds and MBH carbonates has been developed, which provides a facile access to enantioenriched functionalized 1,2-dihydroisoquinolines bearing vicinal quaternary and tertiary chiral centers.



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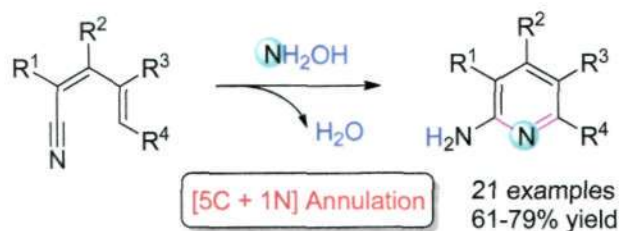


2,6-Bis(functionalized) purines as metal-ion-binding surrogate nucleobases that enhance hybridization with unmodified 2'-O-methyl oligoribonucleotides

Sharmin Taherpour,* Harri Lönnberg and Tuomas Lönnberg*

Terminal Cu^{2+} -mediated base pairs dramatically stabilize short oligonucleotide duplexes, without compromising sequence-selectivity.

1001

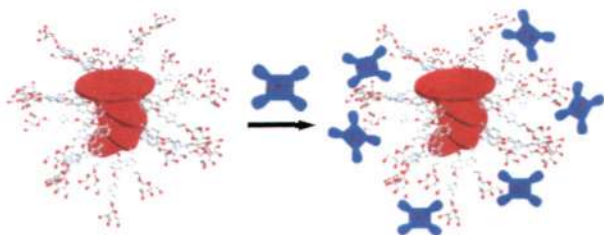


[5C + 1N] Annulation of 2,4-pentadienenitriles with hydroxylamine: a synthetic route to multi-substituted 2-aminopyridines

Xiaoqing Xin, Peng Huang, Dexuan Xiang, Rui Zhang,* Fengyu Zhao, Ning Zhang and Dewen Dong*

A facile and efficient synthesis of multi-substituted 2-aminopyridines has been developed *via* a formal [5C + 1N] annulation of readily available 2,4-pentadienenitriles with hydroxylamine (NH_2OH) under very mild conditions.

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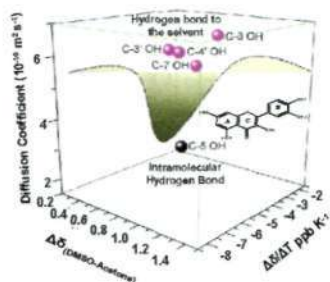


Multivalent glycoclusters constructed by chiral self-assembly of mannose functionalized perylene bisimide

Ke-Rang Wang,* Hong-Wei An, Yue-Qing Wang, Jin-Chao Zhang and Xiao-Liu Li*

Multivalent glycoclusters constructed by mannose-modified perylene bisimide derivative, which revealed an interesting self-assembly with a solvent-tuning chiral conformation in H_2O -DMSO solution, and exhibited specific and selective binding properties with Con A.

1013



Hydrogen bonding probes of phenol -OH groups

Vassiliki G. Kontogianni, Pantelis Charisiadis, Alexandra Primikyri, Charalambos G. Pappas, Vassiliki Exarchou, Andreas G. Tzakos and Ioannis P. Gerothanassis*

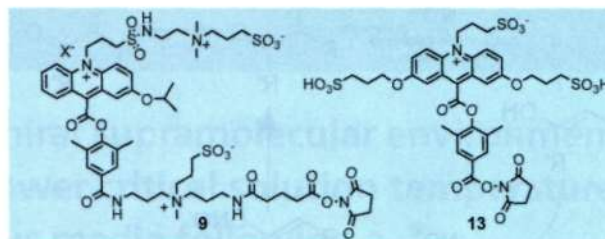
Solvent dependent $-\text{OH}$ ^1H shieldings, temperature coefficients $\Delta\delta/\Delta T$, and $-\text{OH}$ diffusion coefficients can be a direct indicator of solvation changes and inter- and intramolecular hydrogen bond interactions in polyphenol compounds.

1026

Synthesis and properties of differently charged chemiluminescent acridinium ester labels

Anand Natrajan* and David Sharpe

Chemiluminescent acridinium esters with charge-neutral (**9**) and strongly anionic (**13**) acridine rings in their respective pseudobases show significant differences in their chemiluminescence stability, their impact on protein *pl* and non-specific binding of their protein conjugates to microparticles.

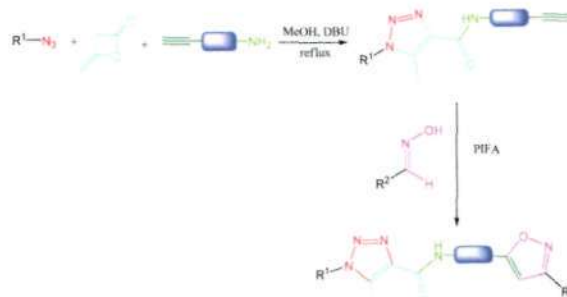


1040

Chemoselective preparation of 1,2,3-triazole–isoxazole bifunctional derivatives and their application in peptidomimetic synthesis

Teng-fei Niu, Mei-fang Lv, Liang wang, Wen-bin Yi and Chun Cai*

An efficient chemoselective approach to synthesize novel bisfunctional molecules which contain both 1,2,3-triazole and isoxazole motifs has been developed. This method was also exemplified in the construction of bisfunctional-modified peptidomimetics.

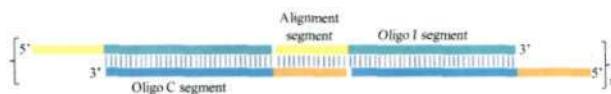


1049

Design of synthetic oligoribonucleotide-based agonists of Toll-like receptor 3 and their immune response profiles *in vitro* and *in vivo*

Tao Lan, Daqing Wang, Lakshmi Bhagat, Victoria J. Philbin, Dong Yu, Jimmy X. Tang, Mallikarjuna R. Putta, Tim Sullivan, Nicola La Monica, Ekambar R. Kandimalla and Sudhir Agrawal*

Double-stranded synthetic oligoribonucleotides (dsORNs) of 50-mer length show potent TLR3 activation *in vitro* and *in vivo* in mice and non-human primates.

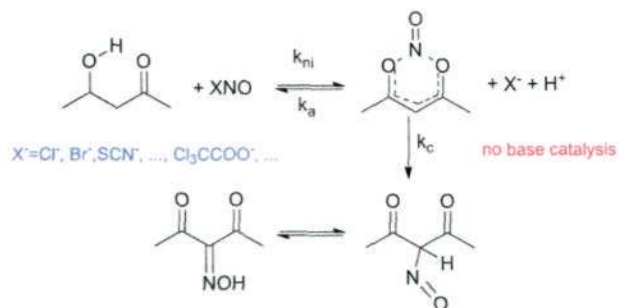


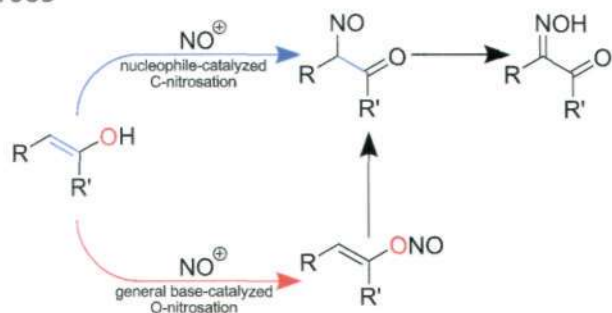
1059

A further study of acetylacetone nitrosation

Emilia Iglesias* and Isabel Brandariz

The nitrosation of acetylacetone in an aqueous acid medium of either perchloric acid or in buffer solutions of tri-, di- or monochloroacetic acid goes through a reaction mechanism that involves the formation of a chelate nitrosyl complex in steady-state, which is kinetically detected at high $[X^-]$ and/or $[H^+]$.





Reply to "A further study of acetylacetone nitrosation"

Luis García-Río,* Mercedes Parajó and Moisés Pérez-Lorenzo*

This work constitutes a reply to the comments raised by Iglesias *et al.* on the mechanistic nature of acetylacetone nitrosation.

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