

Organic & Biomolecular Chemistry

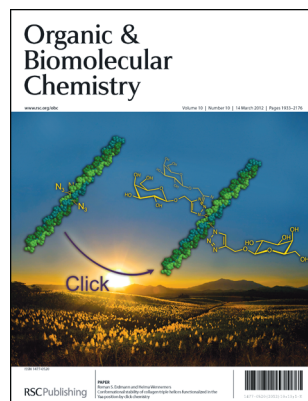
An international journal of synthetic, physical and biomolecular organic chemistry

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IN THIS ISSUE

ISSN 1477-0520 CODEN OBCRAK 10(10) 1933–2176 (2012)



Cover

See Roman S. Erdmann and Helma Wennemers, pp. 1982–1986.

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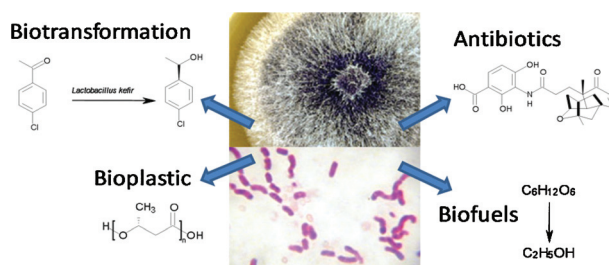
PERSPECTIVE

1949

The microbial cell factory

Cormac D. Murphy*

Microorganisms are involved in many applications; this review outlines some of the contemporary products arising from manipulation of bacteria and fungi.



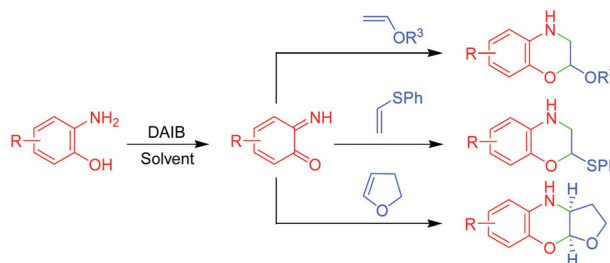
COMMUNICATIONS

1958

Chemical generation of *o*-quinone monoimines for the rapid construction of 1,4-benzoxazine derivatives

Naganjaneyulu Bodipati and Rama Krishna Peddinti*

Highly reactive *o*-benzoquinone monoimines were chemically generated by the oxidation of *o*-aminophenols with diacetoxyiodobenzene and successfully trapped with electron-rich vinylic ethers or thioethers to synthesize novel 1,4-benzoxazine derivatives.



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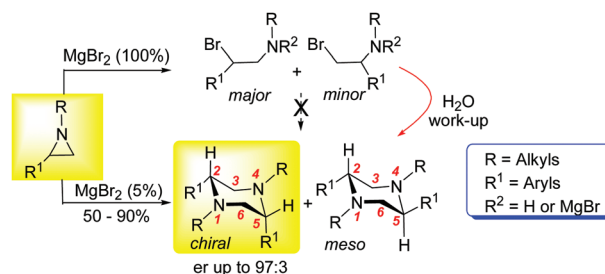
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1962

One-pot preparation of piperazines by regioselective ring-opening of non-activated arylaziridines

Piera Trinchera, Biagia Musio, Leonardo Degennaro, Anna Moliterni, Aurelia Falcicchio and Renzo Luisi*

A new straightforward synthesis of 2,5-disubstituted *N,N*-dialkylpiperazines starting from non-activated *N*-alkyl arylaziridines and a catalytic amount of Lewis acid is reported.

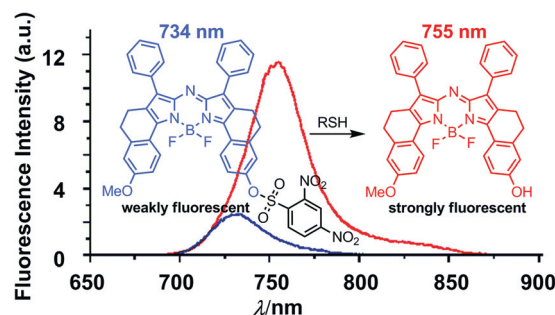


1966

A selective fluorescent turn-on NIR probe for cysteine

Xin-Dong Jiang,* Jian Zhang, Xiangmin Shao and Weili Zhao*

A selective and sensitive turn-on fluorescent NIR probe for cysteine has been developed.



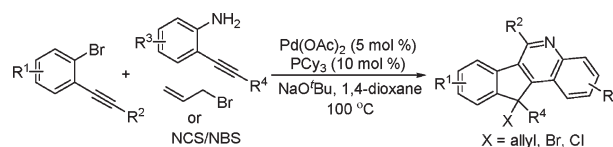
PAPERS

1969

Palladium-catalyzed three-component reaction of 2-alkynylbromobenzene, 2-alkynylaniline, and electrophile: an efficient pathway for the synthesis of diverse 11*H*-indeno[1,2-*c*]quinolines

Xiaolin Pan, Yong Luo and Jie Wu*

Diverse 11*H*-indeno[1,2-*c*]quinolines are produced *via* a palladium-catalyzed three-component reaction of 2-alkynylbromobenzene, 2-alkynylaniline, and electrophile.

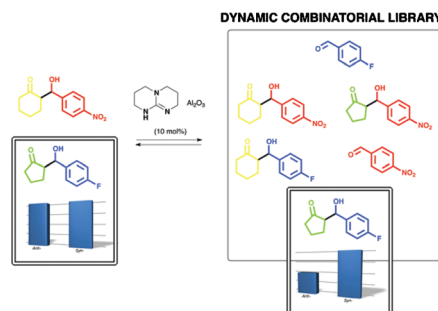


1976

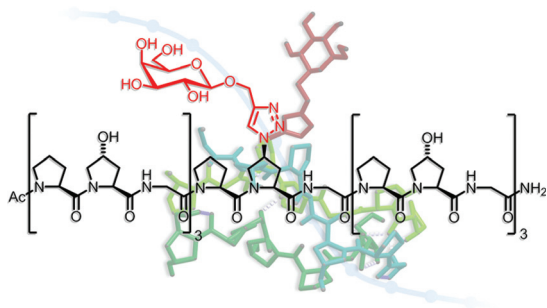
TBD/Al₂O₃: a novel catalytic system for dynamic intermolecular aldol reactions that exhibit complex system behaviour

Ángel Martínez-Castañeda, Humberto Rodríguez-Solla, Carmen Concellón* and Vicente del Amo*

The catalytic system TBD/Al₂O₃ allows the preparation of thermodynamically-controlled pools of aldols, interconverting through an aldol/retro-aldol sequence, from which moderate levels of diastereoselectivity can emerge.



1982

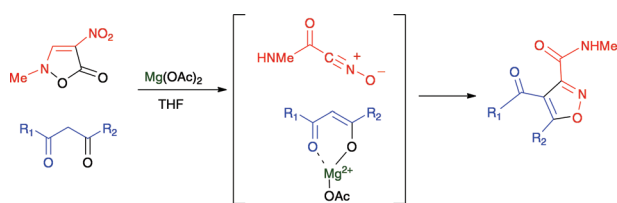


Conformational stability of collagen triple helices functionalized in the Yaa position by click chemistry

Roman S. Erdmann and Helma Wennemers*

Click chemistry was used to introduce moieties as sterically demanding as monosaccharides into the Yaa position of collagen model peptides. The effect of different triazolyl derivatives as well as the configuration of the functionalized proline residue on the thermal stability of the collagen triple helices was examined.

1987

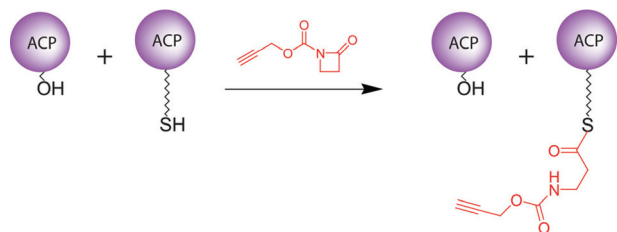


One-step synthesis of differently bis-functionalized isoxazoles by cycloaddition of carbamoylnitrile oxide with β -keto esters

Nagatoshi Nishiwaki,* Kazuya Kobiro, Shotaro Hirao, Jun Sawayama, Kazuhiko Saigo, Yumiko Ise, Maho Nishizawa and Masahiro Ariga

Carbamoylnitrile oxide underwent inverse electron-demand 1,3-dipolar cycloaddition with 1,3-dicarbonyl compounds in the presence of magnesium acetate to afford bis-functionalized isoxazoles.

1992

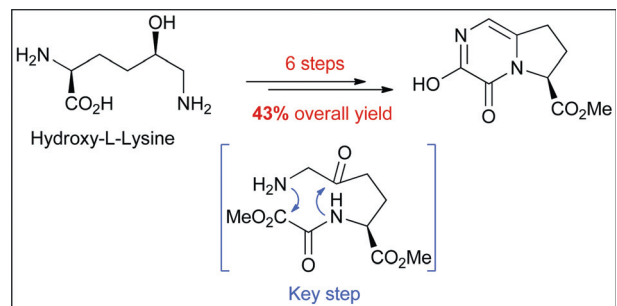


N-Activated β -lactams as versatile reagents for acyl carrier protein labeling

Gitanjali Prasad, Jon W. Amoroso, Lawrence S. Borketey and Nathan A. Schnarr*

A series of reactive β -lactams have been prepared for direct labeling of *holo*-acyl carrier proteins in site-selective fashion.

2003



Concise synthesis of an enantiopure bicyclic pyrazinone as constrained peptidomimetic building block

Vincent Gembus,* Solenn Janvier, Jean-Pierre Lecouvé, Lucile Vaysse-Ludot, Jean-François Brière and Vincent Levacher*

A concise synthetic route has been developed for the preparation of a constrained peptidomimetic pyrazinone building block.

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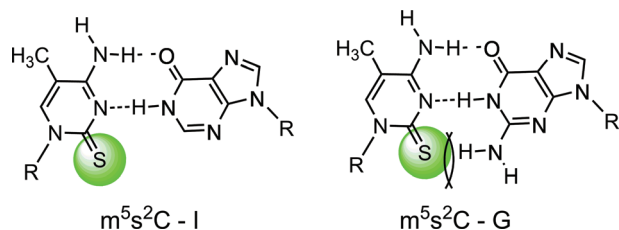
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2008

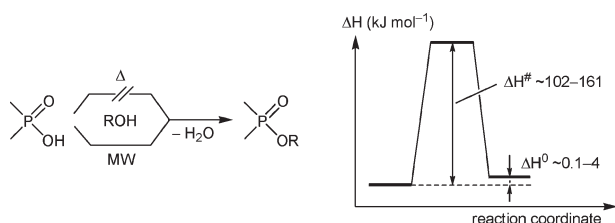


Formation of new base pairs between inosine and 5-methyl-2-thiocytidine derivatives

Akihiro Ohkubo, Yudai Nishino, Yu Ito, Hirosuke Tsunoda, Kohji Seio and Mitsuo Sekine*

DNA and 2'-OMe-RNA probes containing 5-methyl-2-thiocytidine (m^5s^2C) residues that can bind selectively and strongly to the corresponding RNA targets containing inosine residues by the significant stacking effect and steric hindrance of the 2-thiocarbonyl group are reported.

2011

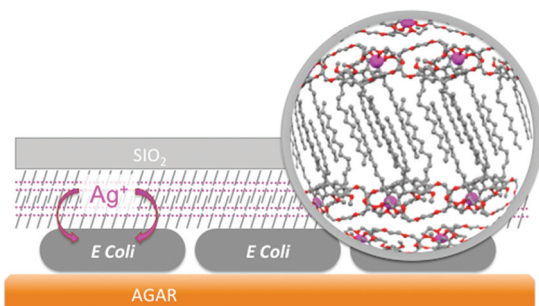


Insights into a surprising reaction: The microwave-assisted direct esterification of phosphinic acids

György Keglevich,* Nóra Zsuzsa Kiss, Zoltán Mucsi and Tamás Körtvélyesi

New synthetic results and theoretical data including the thermodynamic and kinetic parameters are discussed for the direct esterification of phosphinic acids that is reluctant on heating, but takes place quantitatively on MW irradiation.

2019

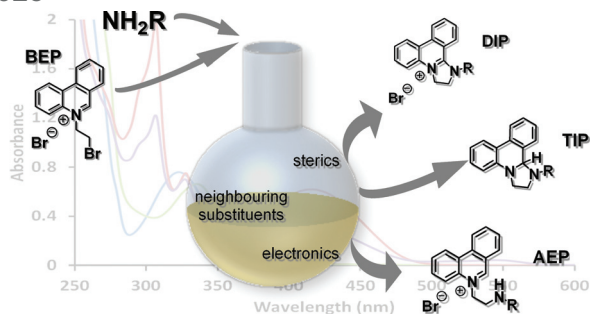


Resorcinarene bis-crown silver complexes and their application as antibacterial Langmuir–Blodgett films

Kaisa Helttunen, Negar Moridi, Patrick Shahgaldian* and Maija Nissinen*

Antibacterial coatings based on LB films of supramolecular resorcinarene bis-crown Ag(I) complex inhibit *E. coli* growth with only nanomolar Ag⁺ concentration.

2026



Switching between ring closed and open N-incorporated heterocycles with tuneable charges and modular reactivity based upon 5-(2-bromoethyl)phenanthridinium bromide

Roslyn Eadie, Craig Richmond, Samantha Moreton and Leroy Cronin*

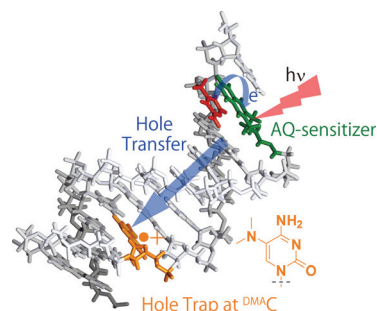
5-(2-bromoethyl)phenanthridinium bromide undergoes a 3-step-one-pot cyclisation reaction with primary amines allowing the facile synthesis of a vast library of heterocycles.

2035

Synthesis and photooxidation of oligodeoxynucleotides containing 5-dimethylaminocytosine as an efficient hole-trapping site in the positive-charge transfer through DNA duplexes

Hisatsugu Yamada,* Masayuki Kurata, Kazuhito Tanabe, Takeo Ito and Sei-ichi Nishimoto*

5-Dimethylaminocytosine (^{DMAC}) can function as an efficient hole-trapping site in the anthraquinone (AQ) photosensitizer-injected positive-charge transfer through DNA duplexes.

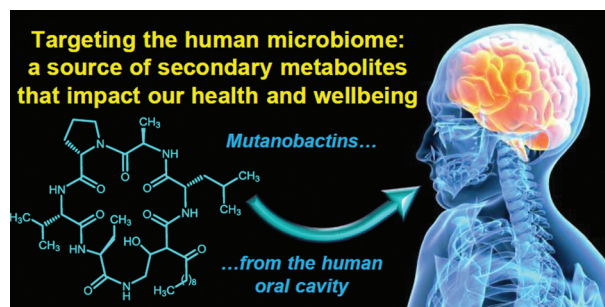


2044

Fungal biofilm inhibitors from a human oral microbiome-derived bacterium

Xiaoru Wang, Lin Du, Jianlan You, Jarrod B. King and Robert H. Cichewicz*

Mutanobactins from an oral-cavity-derived bacterium offer insight into how the human microbiome may afford protection against disease.

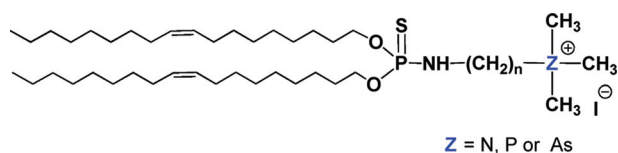


2051

Lipothiophosphoramidates for gene delivery: critical role of the cationic polar headgroup

Aurore Fraix, Tristan Montier, Tony Le Gall, Charlotte M. Sevrain, Nathalie Carmoy, Mattias F. Lindberg, Pierre Lehn and Paul-Alain Jaffrès*

The synthesis of cationic lipothiophosphoramidates possessing different cationic groups (ammonium, phosphonium or arsonium) is reported. Transfection experiments showed that the arsonium-containing lipid ($Z^+ = \text{As}^+$) is globally the most efficient on the three cell lines tested.

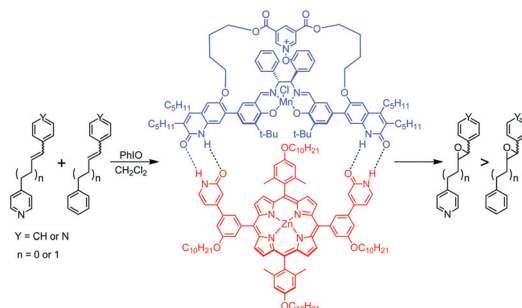


2059

Conformationally restricted dynamic supramolecular catalysts for substrate-selective epoxidations

Esmaeil Sheibani and Kenneth Wärnmark*

A second generation of supramolecular catalysts has been developed displaying increased substrate selectivity in epoxidations of styrene and stilbene derivatives.



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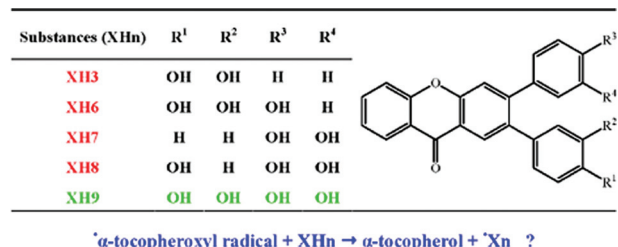
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2068

The dependence of α -tocopheroxyl radical reduction by hydroxy-2,3-diaryl-xanthenes on structure and micro-environment

Patrice Morlière,* Larry K. Patterson, Clementina M. M. Santos, Artur M. S. Silva, Jean-Claude Mazière, Paulo Filipe, Ana Gomes, Eduarda Fernandes, M. Beatriz Q. Garcia and René Santos

Four hydroxyl groups are required for the repair of α -tocopheroxyl radical by hydroxy-2,3-diaryl-xanthenes.

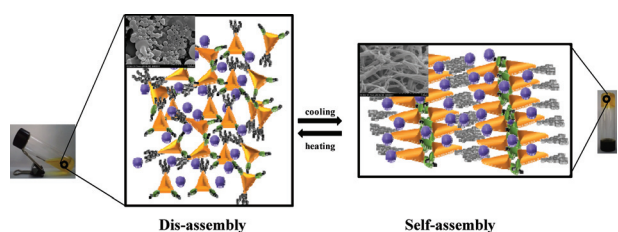


2077

Studies on a novel class of triaryl pyridine *N*-glycosylamine amphiphiles as super gelators

Manivannan Kalavathi Dhinakaran and Thangamuthu Mohan Das*

A novel class of six different triaryl pyridine *N*-glycosylamine amphiphiles was synthesised and characterized based on different spectral techniques, such as NMR and mass analysis. Gelation was observed predominantly in aliphatic solvents and is due to the presence of the alkyl chain. All the gels thus obtained were studied using powder XRD and FE-SEM techniques which reveal fibrous entanglement of the molecules in the gel state.

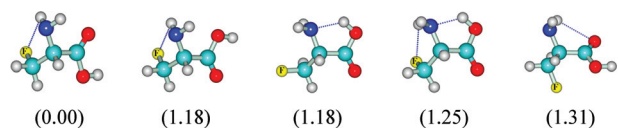


2084

The conformers of 3-fluoroalanine. A theoretical study

Ionel Humelnicu,* Ernst-Ulrich Würthwein* and Günter Haufe*

The relative energies (kcal mol⁻¹) of 3-fluoroalanine conformers in the gas phase and in water were calculated (DFT, SCS-MP2) and compared to those of alanine.

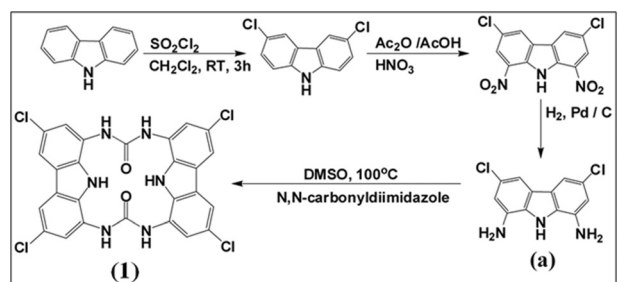


2094

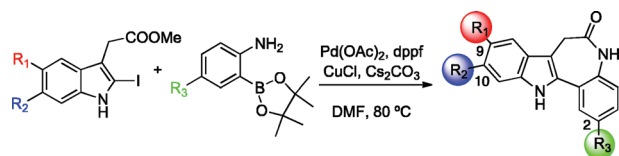
Fluorogenic sensing of CH₃CO₂⁻ and H₂PO₄⁻ by ditopic receptor through conformational change

Nisar Ahmed,* Vangaru Suresh, Bahareh Shirinfar, Inacrist Geronimo, Amita Bist, In-Chul Hwang and Kwang S. Kim*

Cyclo-bis-(urea-3,6-dichlorocarbazole) (**1**) forms a 1 : 2 complex with CH₃CO₂⁻ and H₂PO₄⁻ through hydrogen bonding with the two urea moieties, resulting in fluorescence enhancement via a combined photoinduced electron transfer (PET) and energy transfer mechanism.



2101

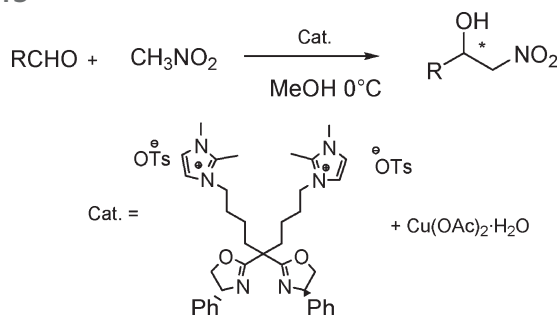


New synthetic approach to paullones and characterization of their SIRT1 inhibitory activity

Sara Soto, Esther Vaz, Carmela Dell'Aversana, Rosana Álvarez,* Lucia Altucci* and Ángel R. de Lera*

New paullones, synthesized by a one-pot Suzuki–Miyaura intramolecular amidation, strongly inhibited hSIRT-1 and induced granulocyte differentiation of the U937 leukemia cell line.

2113

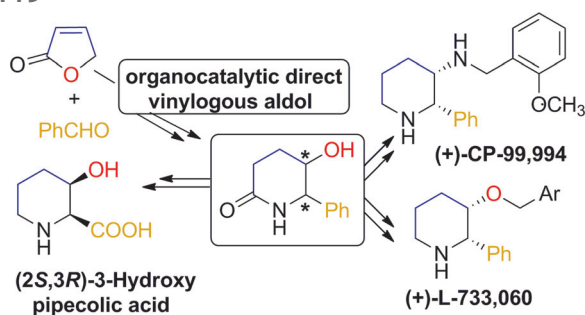


Catalytic effect and recyclability of imidazolium-tagged bis(oxazoline) based catalysts in asymmetric Henry reactions

Zhi-Ming Zhou,* Zhi-Huai Li, Xiao-Yan Hao, Jun Zhang, Xiao Dong, Ying-Qiang Liu, Wen-Wen Sun, Dan Cao and Jin-Liang Wang

C_2 -symmetric imidazolium-tagged bis(oxazoline) ligands were prepared, with an *ee* of up to 94%, and the catalyst could be reused 6 times without loss of activity/enantioselectivity.

2119

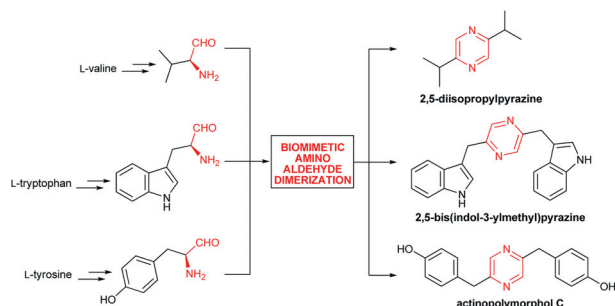


Synthesis of (+)-L-733,060, (+)-CP-99,994 and (2S,3R)-3-hydroxypipercolic acid: Application of an organocatalytic direct vinylogous aldol reaction

Sunil V. Pansare* and Eldho K. Paul

The enantioselective synthesis of 2,3-disubstituted piperidines was achieved by employing an organocatalytic direct vinylogous aldol reaction as the key step.

2126

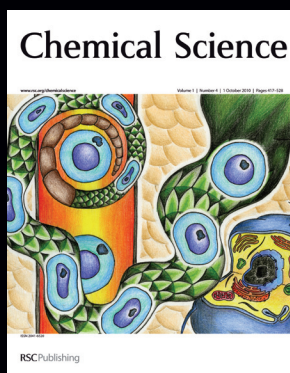


Pyrazine alkaloids *via* dimerization of amino acid-derived α -amino aldehydes: biomimetic synthesis of 2,5-diisopropylpyrazine, 2,5-bis(3-indolylmethyl)pyrazine and actinopolymorphol C

Sandhya Badrinarayanan and Jonathan Sperry*

The dimerization of amino acid-derived α -amino aldehydes provides a short, biomimetic synthesis of several 2,5-disubstituted pyrazine natural products.

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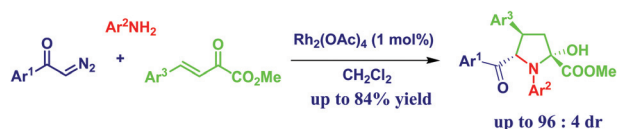
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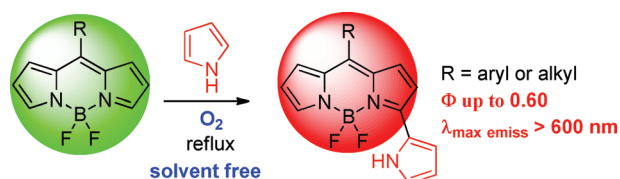


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Xia Zhang, Jingjing Ji, Yingguang Zhu, Changcheng Jing, Ming Li and Wenhao Hu*

Three-component reactions of diazoacetophenones with anilines and unsaturated ketoesters afford multisubstituted pyrrolidines in good yield with high diastereoselectivity.

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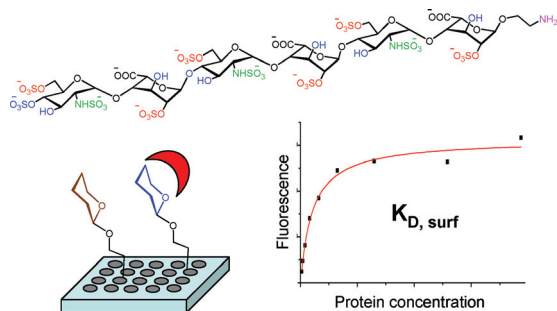


Synthesis of pyrrolyldipyrrinato BF₂ complexes by oxidative nucleophilic substitution of boron dipyrromethene with pyrrole

Min Zhang, Erhong Hao,* Jinyuan Zhou, Changjiang Yu, Guifeng Bai, Fengyun Wang and Lijuan Jiao*

Pyrrolyldipyrrinato BF₂ complexes have been synthesized *via* a direct oxidative nucleophilic substitution of the 3-hydrogen of BODIPY dyes by pyrrole.

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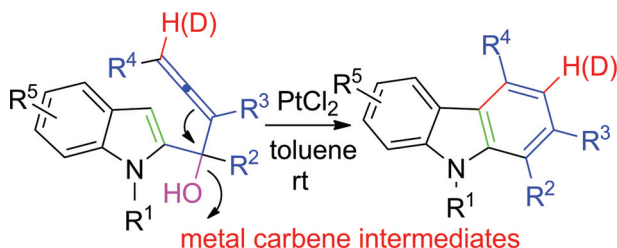


Synthesis of amine-functionalized heparin oligosaccharides for the investigation of carbohydrate–protein interactions in microtiter plates

Susana Maza, Giuseppe Macchione, Rafael Ojeda, Javier López-Prados, Jesús Angulo, José L. de Paz* and Pedro M. Nieto*

A series of amine-functionalized heparin oligosaccharides were efficiently synthesized and attached to microplates for the qualitative and quantitative analysis of their interactions with proteins.

2164



Efficient synthesis of carbazoles *via* PtCl₂-catalyzed RT cyclization of 1-(indol-2-yl)-2,3-allenols: scope and mechanism

Wangqing Kong, Chunling Fu and Shengming Ma*

The efficient PtCl₂-catalyzed synthesis of carbazoles from 1-(indol-2-yl)-2,3-allenols through a unique metal carbene intermediate is described.



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Marie Curie (Maria Skłodowska)

Born in Warsaw, Poland, 7 November 1867 – 4 July 1934

French physicist and chemist – pioneer in the field of radioactivity and winner of the Nobel Prize in Physics 1903 (with husband Pierre Curie and Antoine Henri Becquerel) and the Nobel Prize in Chemistry 1911

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