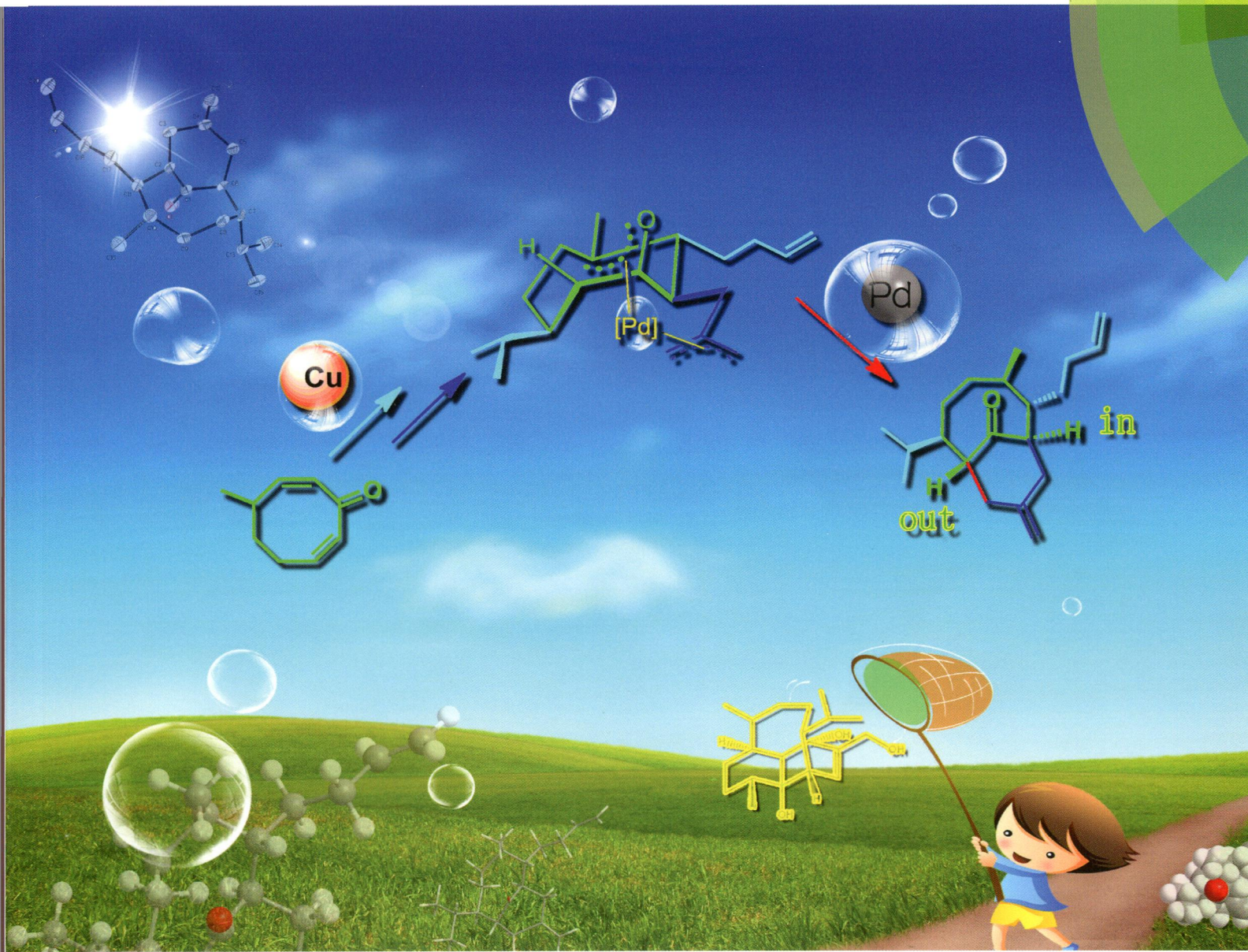


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Volume 12 | Number 22 | 14 June 2014 | Pages 3515–3756

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COMMUNICATION

Bing-Feng Sun *et al.*

A novel synthetic approach to the bicyclo[5.3.1]undecan-11-one framework of vinigrol

Organic & Biomolecular Chemistry

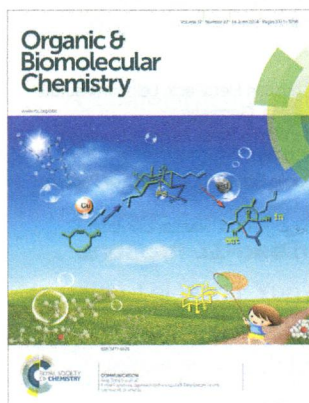
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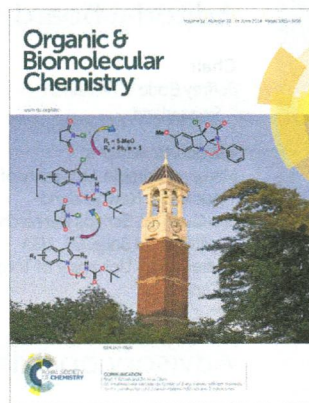
ISSN 1477-0520 CODEN OBCRAK 12(22) 3515–3756 (2014)



Cover

See Bing-Feng Sun *et al.*, pp. 3562–3566.

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Inside cover

See Arun K. Ghosh and Zhi-Hua Chen, pp. 3567–3571.

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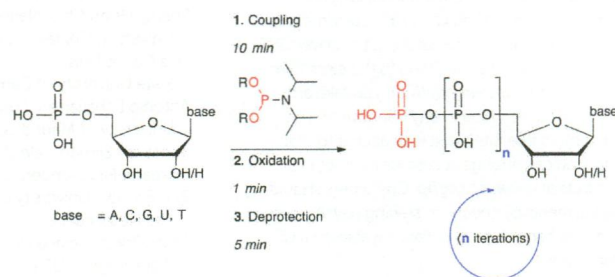
PERSPECTIVE

3526

Phosphate esters and anhydrides – recent strategies targeting nature's favoured modifications

Henning J. Jessen,* Nisar Ahmed and Alexandre Hofer

This perspective highlights some recently developed phosphorylation methodologies focusing on a three-step procedure using P(III) chemistry (P-amidite coupling, oxidation, deprotection) that allows for the iterative homology of nucleotides.



Chemoselective P-anhydride bond formation with P-amidites under ambient conditions

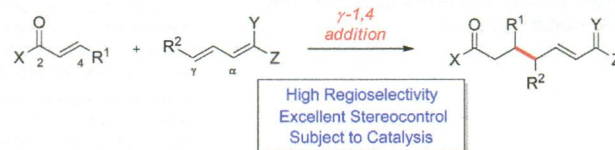
REVIEWS

3531

Catalytic, enantioselective vinylogous Michael reactions

Christoph Schneider* and Falko Abels

Recent progress towards catalytic, enantioselective vinylogous Michael reactions is presented which deliver optically highly enriched 1,7-dioxo compounds of great utility in organic synthesis.



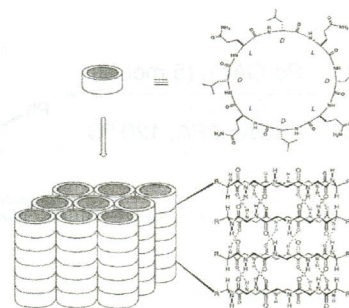
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Центральная научная библиотека
Уральского отделения
Российской академии наук (ЦНБ УрО РАН)

3544

Self-assembly of peptides to nanostructures

Dindyal Mandal,* Amir Nasrolahi Shirazi and Keykavous Parang*

The formation of well-ordered nanostructures through self-assembly of diverse organic and inorganic building blocks has drawn much attention owing to their potential applications in biology and chemistry.



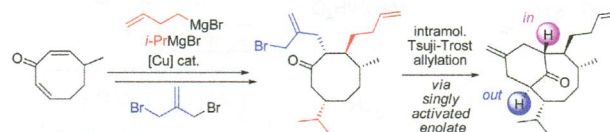
COMMUNICATIONS

3562

A novel synthetic approach to the bicyclo[5.3.1]-undecan-11-one framework of vinigrol

Xian-Lei Wang, Yun-Yu Lu, Jie Wang, Xuan Wang, He-Quan Yao, Guo-Qiang Lin and Bing-Feng Sun*

A unique approach to the [5.3.1] bicyclic core of vinigrol is described featuring highly stereoselective C–C bond forming reactions through exploring the inherent conformational bias of the cyclooctane-ring system.

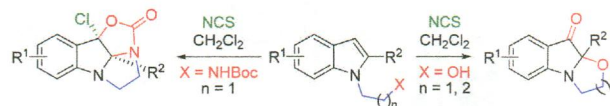


3567

An intramolecular cascade cyclization of 2-aryl indoles: efficient methods for the construction of 2,3-functionalized indolines and 3-indolinones

Arun K. Ghosh* and Zhi-Hua Chen

Practical and convenient intramolecular *N/O*-nucleophilic cyclization of 2-aryl indoles has been developed to afford the corresponding 2-aza-3-oxa indolines and 3-indolinones in 80–95% yield.

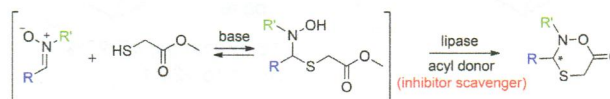


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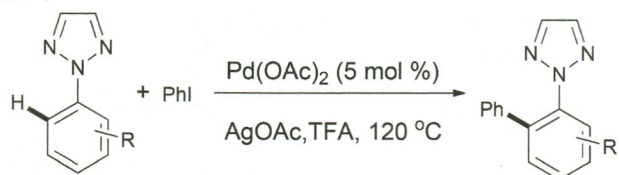
Lipase-catalyzed asymmetric synthesis of oxathiazinanones through dynamic covalent kinetic resolution

Lei Hu, Yan Zhang and Olof Ramström*

A domino addition–lactonization pathway has been applied to a dynamic covalent resolution protocol, leading to efficient asymmetric synthesis of oxathiazinanones.



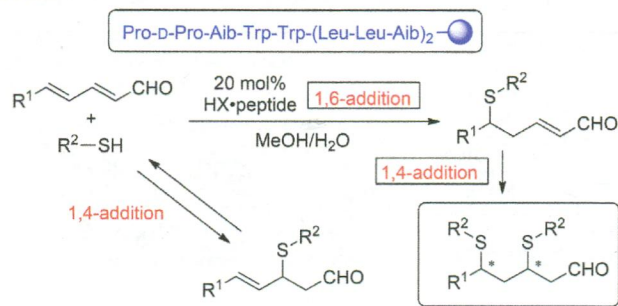
3576

**An easy arylation of 2-substituted 1,2,3-triazoles**

Suping Shi, Wei Liu, Ping He and Chunxiang Kuang*

A selective, efficient and catalytic ligand-free method for the direct arylation of 2-aryl-1,2,3-triazoles via Pd-catalyzed C–H bond activation is described.

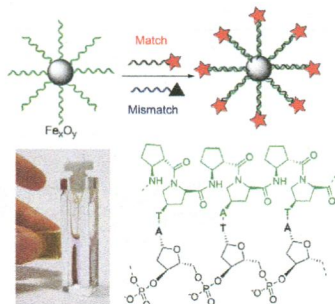
3581

**Peptide-catalyzed consecutive 1,6- and 1,4-additions of thiols to $\alpha,\beta,\gamma,\delta$ -unsaturated aldehydes**

Kengo Akagawa, Nobuhiro Nishi, Jun Sen and Kazuaki Kudo*

Addition of thiols to 2,4-dienals catalyzed by a resin-supported peptide gave thermodynamically favorable 1,6- and 1,4-diadducts in an enantioselective manner.

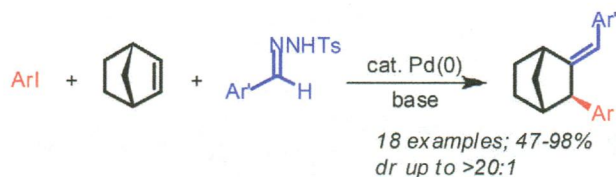
3586

**The base discriminating potential of pyrrolidinyl PNA demonstrated by magnetic Fe₃O₄ particles**

Claudia Stubinitzky, Tirayut Vilaivan* and Hans-Achim Wagenknecht*

Pyrrolidinyl PNA was immobilized on Fe₃O₄ magnetic particles and was able to capture and thereby discriminate single base alterations in DNA counterstrands better than DNA.

3590

**Palladium-catalyzed three-component reaction of *N*-tosylhydrazone, norbornene and aryl halide**

Fangdong Hu, Ying Xia, Zhenxing Liu, Chen Ma,* Yan Zhang and Jianbo Wang*

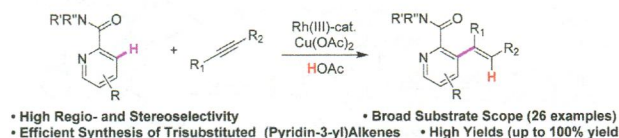
A palladium-catalyzed three-component reaction that involves an intermolecular Heck-type reaction and alkyl palladium carbene migratory insertion has been demonstrated.

3594

Rh(III)-catalyzed regioselective hydroarylation of alkynes via directed C–H functionalization of pyridines

Zhen-Chao Qian, Jun Zhou, Bo Li, Fang Hu and Bing-Feng Shi*

Rh(III)-catalyzed C-3 selective alkenylation of pyridines via hydroarylation of alkynes has been developed. The reaction shows high regioselectivity, high yield and good functional group tolerance, providing a convenient strategy for the synthesis of trisubstituted alkenes.



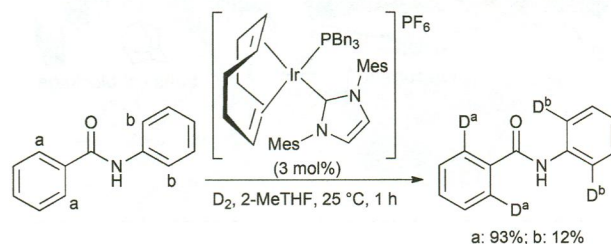
PAPERS

3598

Practically convenient and industrially-aligned methods for iridium-catalysed hydrogen isotope exchange processes

A. R. Cochrane, C. Idziak, W. J. Kerr,* B. Mondal, L. C. Paterson, T. Tuttle, S. Andersson and G. N. Nilsson

The use of alternative solvents in the iridium-catalysed hydrogen isotope exchange reaction with developing phosphine/NHC Ir(I) complexes has identified reaction media which are more widely applicable than the commonly employed chlorinated solvent, dichloromethane.

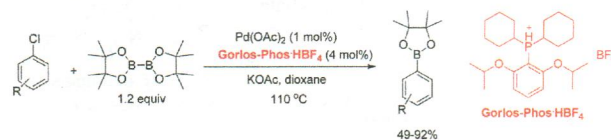


3604

Gorlos-Phos for palladium-catalyzed borylation of aryl chlorides

Pengbin Li, Chunling Fu and Shengming Ma*

Using a readily available form of the mono-phosphine ligand, **Gorlos-Phos-HBF₄**, Pd-catalyzed borylation of aryl chlorides afforded aryl boronates in high yields.

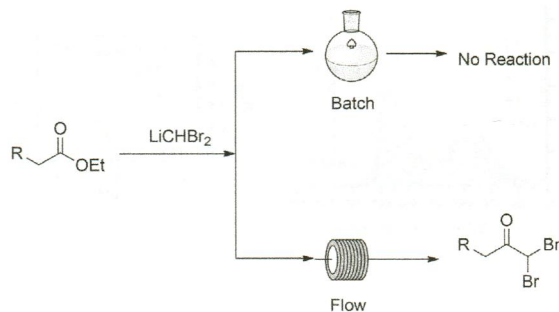


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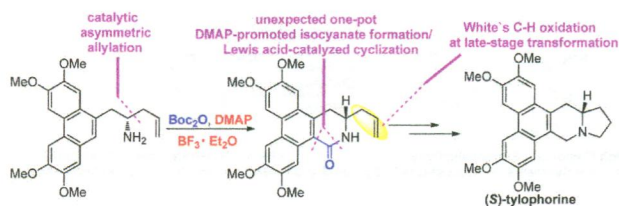
Continuous flow chemistry: a discovery tool for new chemical reactivity patterns

Jan Hartwig, Jan B. Metternich, Nikzad Nikbin, Andreas Kirschning and Steven V. Ley*

A new reactivity pattern and extended reaction scope has been obtained by transferring a reaction from batch mode to flow.



3616

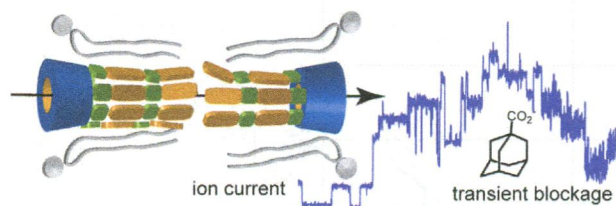


An enantioselective strategy for the total synthesis of (S)-tylophorine via catalytic asymmetric allylation and a one-pot DMAP-promoted isocyanate formation/Lewis acid catalyzed cyclization sequence

Bo Su, Hui Zhang, Meng Deng and Qingmin Wang*

A novel total synthesis of (S)-tylophorine is reported, featuring asymmetric allylation and cascade isocyanate formation and cyclization.

3622

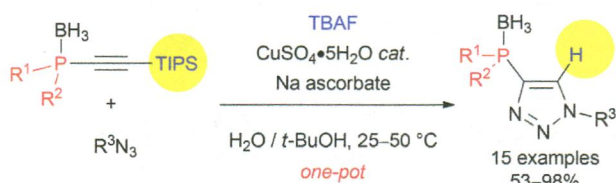


Cyclodextrin ion channels

Jonathan K. W. Chui and T. M. Fyles

Cyclodextrin ion channels, assembled by click chemistry, exhibit mechanistically diverse behaviors including transient blockage by hydrophobic guests.

3635

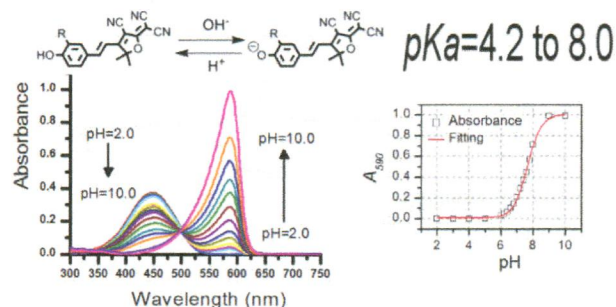


Silyl alkynylphosphine-boranes: key precursors of triazolylphosphines via tandem desilylation-Click chemistry

Romain Veillard, Elise Bernoud, Ibrahim Abdellah, Jean-François Lohier, Carole Alayrac* and Annie-Claude Gaumont*

A versatile synthesis of P-stereogenic 1,2,3-triazolyl-4-phosphines from the borane complexes of phosphino-alkynes has been developed.

3641



Fluorescent push-pull pH-responsive probes for ratiometric detection of intracellular pH

Martin Ipuy, Cyrielle Billon, Guillaume Micouin, Jacques Samarut, Chantal Andraud and Yann Bretonnière*

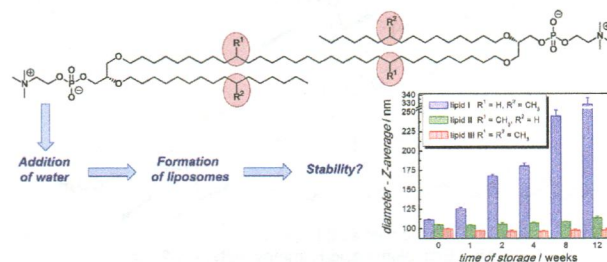
Fluorophores displaying a sensitive response to pH are reported. Structural variations allow fine tuning of pK_a and ratiometric intracellular pH imaging.

3649

Structure–property relationships in a series of diglycerol tetraether model lipids and their lyotropic assemblies: the effect of branching topology and chirality

Thomas Markowski, Simon Drescher,* Annette Meister, Alfred Blume and Bodo Dobner*

The syntheses of diglycerol tetraether lipids with a discrete number of racemic methyl branches are described and investigations of their lyotropic behaviour of aqueous suspensions compared to the optically pure ones are reported.

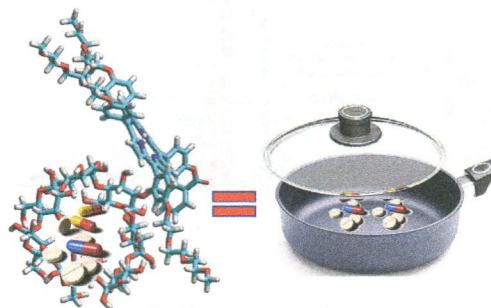


3663

A porphyrin/ β -cyclodextrin conjugated nano-system having a pan–lid molecular structure for smart drug carrier applications

Placido Mineo*

In this study, 5,10,15-tri[*p*(9-methoxy-triethyleneoxy)-phenyl]-20-[*p*-phenylisophthalate- β -cyclodextrin]-porphyrin, a compound containing a porphyrin and a β -cyclodextrin unit covalently linked by means of an isophthalic bridge, was synthesized and characterized by NMR, MALDI-TOF, UV-vis and CD techniques.



3671

Microwave-assisted one-pot synthesis and anti-biofilm activity of 2-amino-1*H*-imidazole/triazole conjugates

Hans Steenackers, Denis Ermolat'ev, Tran Thi Thu Trang, Bharat Savalia, Upendra K. Sharma, Ami De Weerd, Anamik Shah, Jozef Vanderleyden* and Erik V. Van der Eycken*

A microwave-assisted protocol was developed for the construction of 2-amino-1*H*-imidazole/triazole conjugates with anti-biofilm activity.

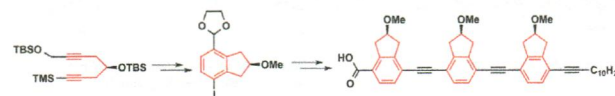


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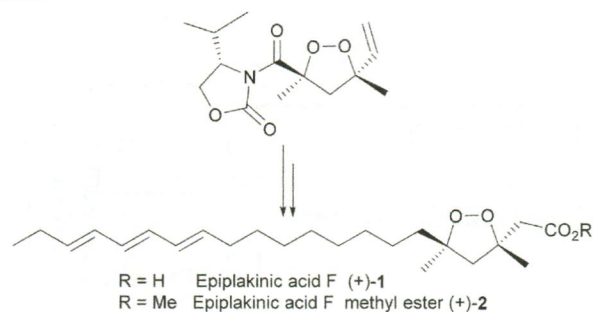
Synthesis of homochiral tris-indanyl molecular rods

Niels Due Kjeldsen, Erik Daa Funder and Kurt V. Gothelf*

By Ti-mediated alkyne trimerization and subsequent Sonogashira and Ohira–Bestman reactions, homochiral molecular rod molecules were prepared for surface self-assembly studies.



3686

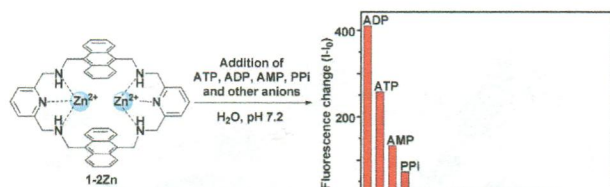


Asymmetric synthesis of 3,3,5,5-tetrasubstituted 1,2-dioxolanes: total synthesis of epiplakinic acid F

Xiang-Yin Tian, Jian-Wei Han, Qiong Zhao and Henry N. C. Wong*

The first enantioselective total synthesis of epiplakinic acid F (**1**) was achieved through a pivotal step involving a radical-mediated asymmetric peroxidation of vinylcyclopropanes with molecular oxygen to construct highly substituted 1,2-dioxolanes.

3701

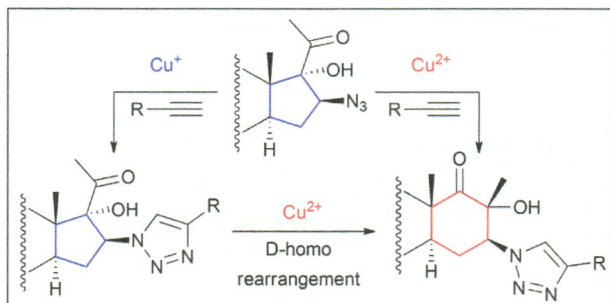


Discrimination of adenine nucleotides and pyrophosphate in water by a zinc complex of an anthracene-based cyclophane

Ping Hu, Shengjun Yang and Guoqiang Feng*

A zinc complex of an anthracene-based cyclophane was found to be a fluorescent sensor for ADP, ATP AMP and PPI in water at neutral pH.

3707

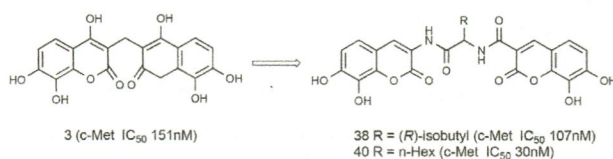


Synthesis of novel 1,2,3-triazolyl derivatives of pregnane, androstane and D-homoandrostane. Tandem "click" reaction/Cu-catalyzed D-homo rearrangement

Yury N. Kotovshchikov, Gennadij V. Latyshev, Nikolay V. Lukashev* and Irina P. Beletskaya

Copper-catalyzed 1,3-dipolar cycloaddition has been employed in the reaction of steroidal azides with various terminal alkynes.

3721



Design and synthesis of 3,3'-biscoumarin-based c-Met inhibitors

Jimin Xu, Jing Ai, Sheng Liu, Xia Peng, Linqian Yu, Meiyu Geng* and Fajun Nan*

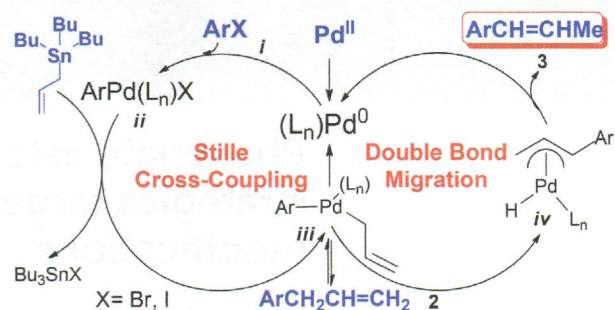
A series of 3,3'-biscoumarin analogues were synthesized as non-ATP competitive c-Met inhibitors.

3735

A facile and convenient sequential homobimetallic catalytic approach towards β -methylstyrenes. A one-pot Stille cross-coupling/isomerization strategy

Sebastián O. Simonetti, Enrique L. Larghi and Teodoro S. Kaufman*

A one-pot approach towards β -methylstyrenes is reported. The transformation involves a Stille cross-coupling reaction of aryl halides with allyltributylstannane, followed by an *in situ* Pd-catalyzed double bond conjugative migration.



3744

Aryl ethynyl anthraquinones: a useful platform for targeting telomeric G-quadruplex structures

Claudia Percivalle, Claudia Sissi, Maria Laura Greco, Caterina Musetti, Angelica Mariani, Anna Artese, Giosuè Costa, Maria Lucia Perrone, Stefano Alcaro and Mauro Freccero*

2,7-Diaryl ethynyl anthraquinones have been synthesized by Sonogashira cross-coupling and evaluated as telomeric G-quadruplex ligands, with good G-quadruplex/duplex selectivity.

