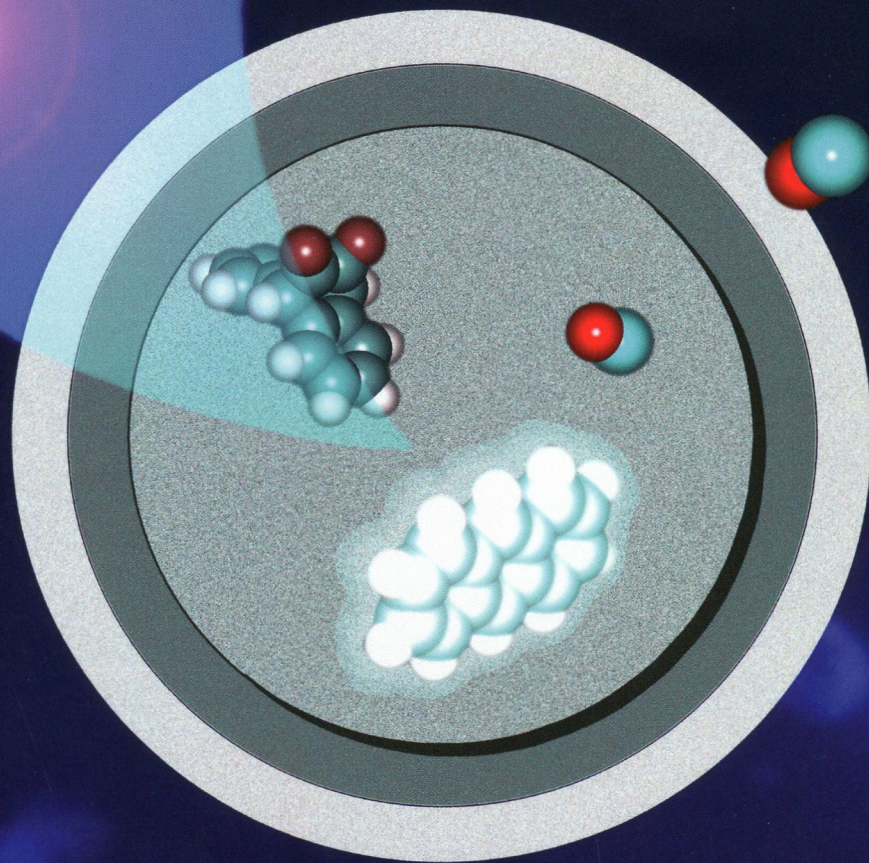


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# Organic & Biomolecular Chemistry

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RSC Publishing

**COMMUNICATION**

Yi Liao *et al.*

Visible-light activatable organic CO-releasing molecules (PhotoCORMs) that simultaneously generate fluorophores



1477-0520(2013)11:39;1-1

# Organic & Biomolecular Chemistry

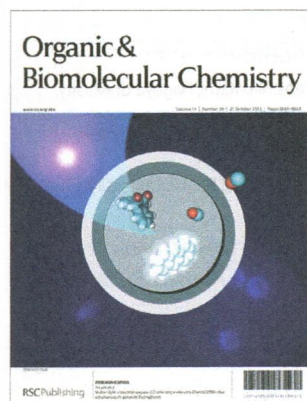
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## IN THIS ISSUE

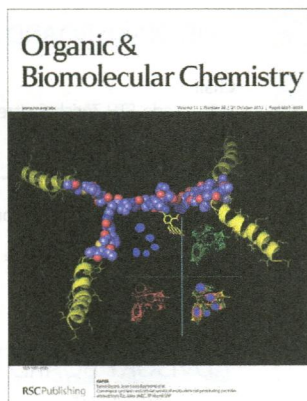
ISSN 1477-0520 CODEN OBCRAK 11(39) 6661–6864 (2013)



### Cover

See Yi Liao *et al.*,  
pp. 6671–6674.

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Chem.*, 2013, **11**, 6671.



### Inside cover

See Tamis Darbre,  
Jean-Louis Reymond *et al.*,  
pp. 6717–6733.

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6717.

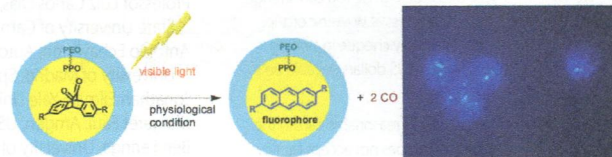
## COMMUNICATIONS

6671

### Visible-light activatable organic CO-releasing molecules (PhotoCORMs) that simultaneously generate fluorophores

Ping Peng, Chaoming Wang, Zheng Shi,  
Valentine K. Johns, Liyuan Ma, Jeremiah Oyer,  
Alicja Copik, Robert Igarashi and Yi Liao\*

Organic photoCORMs release CO under visible light and allow the delivery of CO to be monitored by fluorescence imaging techniques.

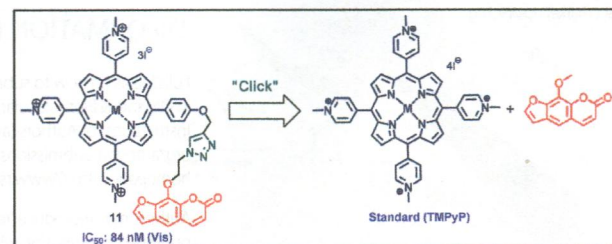


6675

### Novel porphyrin–psoralen conjugates: synthesis, DNA interaction and cytotoxicity studies

Dalip Kumar,\* Bhupendra A. Mishra,  
K. P. Chandra Shekar, Anil Kumar, Kanako Akamatsu,  
Ryohsuke Kurihara and Takeo Ito\*

A Cu(I)-catalyzed azide–alkyne cycloaddition reaction (CuAAC) has been utilized to prepare novel triazole-linked cationic porphyrin–psoralen conjugates that exhibited significant photocytotoxicity against A549 cancer cells ( $IC_{50} = 84$  nM).

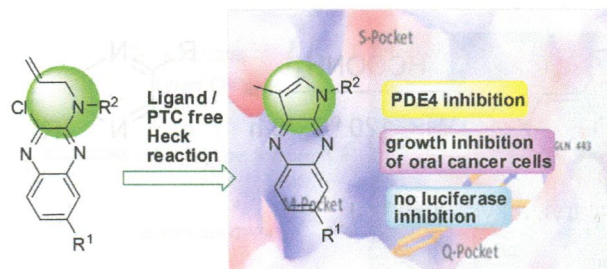


6680

### Ligand/PTC-free intramolecular Heck reaction: synthesis of pyrroloquinoxalines and their evaluation against PDE4/luciferase/oral cancer cell growth *in vitro* and zebrafish *in vivo*

P. V. Babu, S. Mukherjee, G. S. Deora, K. S. Chennubhotla, R. Mediseti, S. Yellanki, P. Kulkarni, S. Sripelly, K. V. L. Parsa, K. Chatti, K. Mukkanti and M. Pal\*

A strategy for the inhibition of PDE4/oral cancer cell growth but not luciferase is described.

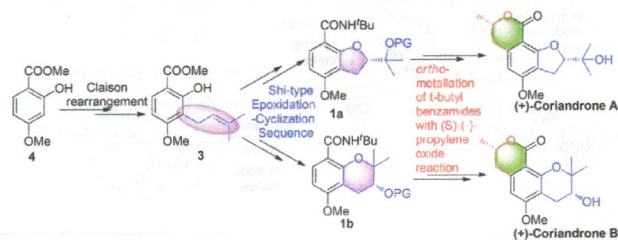


6686

### The first asymmetric total synthesis of (+)-coriandrone A and B

Wenjing Wang, Jijun Xue,\* Tian Tian, Yingdong Jiao and Ying Li\*

The first enantioselective total synthesis of (+)-coriandrone A and B, two bioactive natural products, has been achieved in 10 steps and 11 steps starting from commercially available methyl 2-hydroxy-4-methoxybenzoate.

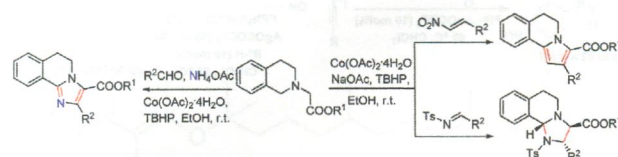


6691

### Cobalt-catalyzed oxidative [3 + 2] cycloaddition reactions: an efficient synthesis of pyrrolo- and imidazo-[2,1-a]isoquinolines

Chengtao Feng, Ji-Hu Su, Yizhe Yan, Fengfeng Guo and Zhiyong Wang\*

A cobalt-catalyzed oxidative [3 + 2] cycloaddition cascades of dihydroisoquinoline esters with nitroolefins or *N*-sulfuryl aldimines were developed at room temperature.

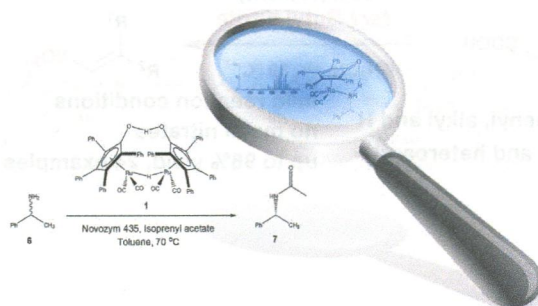


6695

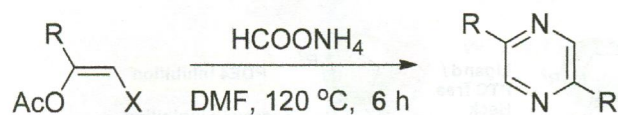
### Shvo's catalyst in chemoenzymatic dynamic kinetic resolution of amines – inner or outer sphere mechanism?

Boniek G. Vaz, Cintia D. F. Milagre, Marcos N. Eberlin\* and Humberto M. S. Milagre\*

Evidence for the inner-sphere mechanism with actual metal coordination of the racemic amine in the crucial hydrogen transfer step promoted by Shvo's catalyst of chemoenzymatic dynamic kinetic resolution (DKR) of amines is provided.



6699



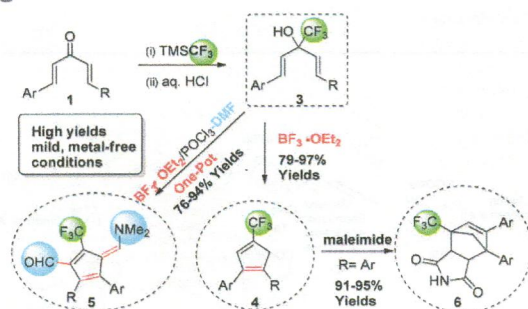
R = aryl, alkyl; X = Br, I

### Highly efficient synthesis of 2,5-disubstituted pyrazines from (Z)-β-haloenol acetates

Zhengwang Chen,\* Dongnai Ye, Guohai Xu, Min Ye and Liangxian Liu\*

A highly efficient synthesis of a wide range of 2,5-disubstituted pyrazines from (Z)-β-haloenol acetates is described. The reactions are conducted under convenient conditions and provide products with excellent regioselectivity in moderate to excellent yields with a broad substrate scope.

6703

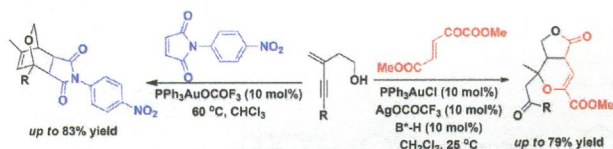


### Efficient synthesis of trifluoromethylated cyclopentadienes/fulvenes/norbornenes from divinyl ketones

Xiao Liu, Xianxiu Xu, Ling Pan,\* Qian Zhang and Qun Liu\*

Efficient access to trifluoromethylated cyclopentadienes/fulvenes/norbornenes has been developed using 3-CF<sub>3</sub>-1,4-dien-3-ols which are prepared from TMSCF<sub>3</sub> and divinyl ketones.

6707

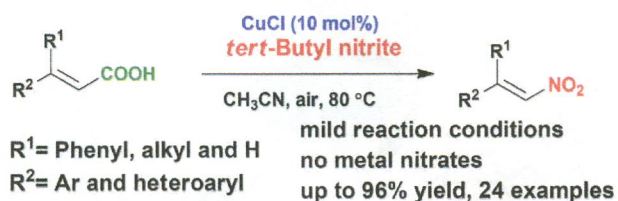


### Catalytic cascade hydroalkoxylation/ isomerization/[4 + 2] cycloaddition using enyne alcohols as latent dienes or dienophiles

Rui Guo, Kang-Nan Li and Liu-Zhu Gong\*

Enyne alcohols can react as precursors of either dienes or dienophiles with different substrates after hydroxylation and isomerization by gold catalysis.

6713



### Synthesis of substituted nitroolefins: a copper catalyzed nitrodecarboxylation of unsaturated carboxylic acids

Balaji V. Rokade and Kandikere Ramaiah Prabhu\*

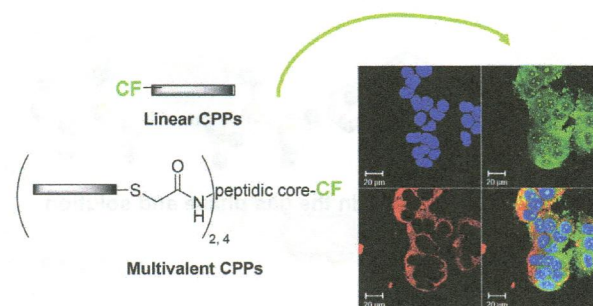
A novel, mild and convenient method for the nitrodecarboxylation of substituted cinnamic acid derivatives to their nitroolefins is achieved using a catalytic amount of CuCl (10 mol%) and *tert*-butyl nitrite (2 equiv.) as a nitrating agent in the presence of air.

6717

### Convergent synthesis and cellular uptake of multivalent cell penetrating peptides derived from Tat, Antp, pVEC, TP10 and SAP

Gabriela A. Eggimann, Stefanie Buschor, Tamis Darbre\* and Jean-Louis Reymond\*

Multivalency strongly increased cellular uptake of polycationic and some amphipathic cell penetrating peptides but had no effect on poly-proline helices.

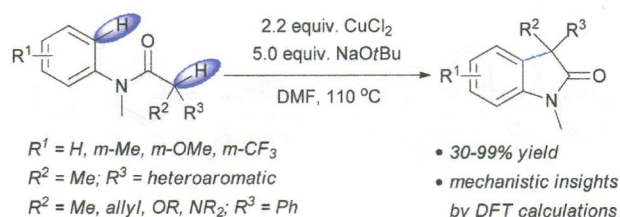


6734

### Copper(II) chloride mediated (aza)oxindole synthesis by oxidative coupling of C<sub>sp<sup>2</sup></sub>-H and C<sub>sp<sup>3</sup></sub>-H centers: substrate scope and DFT study

Chandan Dey, Evgeny Larionov and E. Peter Kündig\*

A CuCl<sub>2</sub> mediated oxidative coupling gives access to 3,3-disubstituted oxindoles in good to excellent yields. Computational results are in agreement with the experimentally observed relative reactivity and regioselectivity.

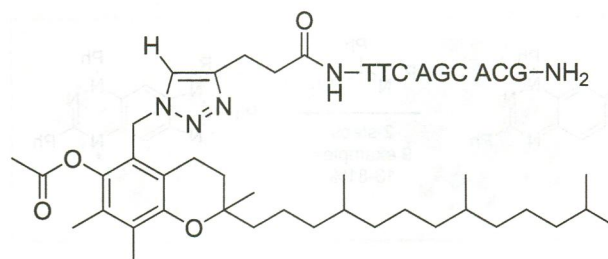


6744

### Synthesis and effects of conjugated tocopherol analogues on peptide nucleic acid hybridisation

Elisse C. Browne, Steven J. Langford and Belinda M. Abbott\*

The synthesis of a number of tocopherol analogues for attachment to peptide nucleic acid (PNA) is described. Hybridisation studies of these conjugated molecules using the techniques of UV monitored melting curves and isothermal calorimetry have given important insights into the effects of conjugates on PNA.

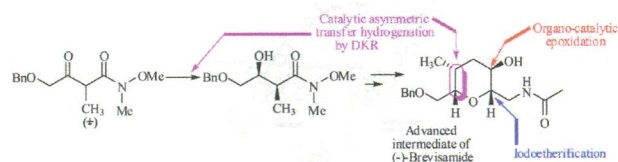


6751

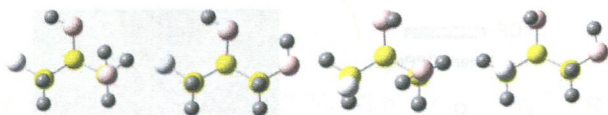
### Enantioselective synthesis of δ-/γ-alkoxy-β-hydroxy-α-alkyl-substituted Weinreb amides via DKR-ATH: application to the synthesis of advanced intermediate of (-)-brevisamide

Gullapalli Kumaraswamy,\* Akula Narayana Murthy, Vykunthapu Narayanarao, Sahithya Phani Babu Vemulapalli and Jagadeesh Bharatam

An enantioenriched δ-/γ-alkoxy-β-hydroxy-α-alkyl-substituted Weinreb amides have been synthesized by means of DKR assisted asymmetric transfer hydrogenation.



6766



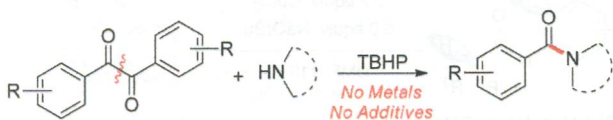
Preferred conformations in the gas phase and solution

### The preferred all-*gauche* conformations in 3-fluoro-1,2-propanediol

Laize A. F. Andrade, Josué M. Silla, Claudimar J. Duarte, Roberto Rittner and Matheus P. Freitas\*

All-*gauche* conformations in 3-fluoro-1,2-propanediol were found to be preferential both in the gas phase and solution, because of hyperconjugation and, less importantly, because of an intramolecular hydrogen bond.

6772

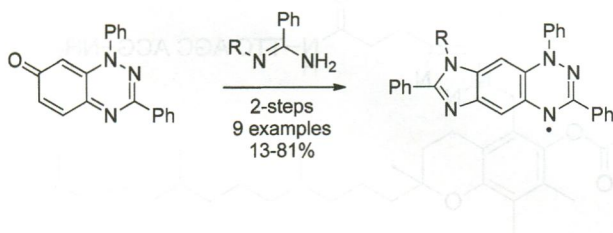


### The direct amidation of $\alpha$ -diketones with amines via TBHP-promoted oxidative cleavage of $C(sp^2)-C(sp^2)$ bonds

Qiong Zhao, Hongji Li and Lei Wang\*

A novel and efficient direct amidation of  $\alpha$ -diketones with amines via TBHP-promoted oxidative cleavage of  $C(sp^2)-C(sp^2)$  bonds has been developed.

6780

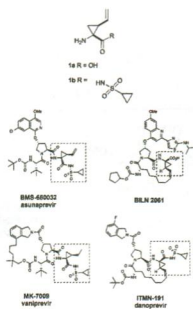


### Synthesis and properties of imidazolo-fused benzotriazinyl radicals

Andrey A. Berezin, Christos P. Constantinides, Styliana I. Mirallai, Maria Manoli, Levy L. Cao, Jeremy M. Rawson and Panayiotis A. Koutentis\*

Benzotriazinone, the oxidation product of Blatter's radical, finds use as a scaffold for  $\pi$ -extended imidazolo- and oxazolo-fused benzotriazinyl radical.

6796



### Concise asymmetric synthesis of a (1*R*,2*S*)-1-amino-2-vinylcyclopropanecarboxylic acid-derived sulfonamide and ethyl ester

Sha Lou,\* Nicolas Cuniere, Bao-Ning Su and Lindsay A. Hobson

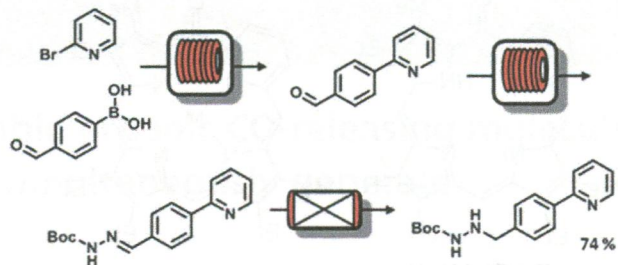
The development and demonstration of short, robust and chromatography-free sequences for the preparation of a (1*R*,2*S*)-1-amino-2-vinylcyclopropane-carboxylic acid-derived sulfonamide and ethyl ester in  $\geq 99\%$  ee are described.

6806

### A three step continuous flow synthesis of the biaryl unit of the HIV protease inhibitor Atazanavir

Luciana Dalla-Vechia, Benedikt Reichart, Toma Glasnov, Leandro S. M. Miranda, C. Oliver Kappe\* and Rodrigo O. M. A. de Souza\*

Towards a continuous synthesis of the HIV protease inhibitor Atazanavir a key building block is prepared in a three step sequence.

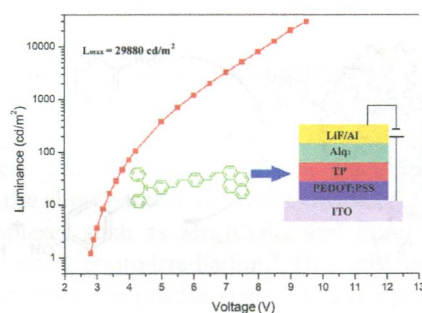


6814

### Pyrene functionalized triphenylamine-based dyes: synthesis, photophysical properties and applications in OLEDs

Yong Zhan, Jiang Peng, Kaiqi Ye,\* Pengchong Xue and Ran Lu\*

Pyrene functionalized triphenylamine-based dyes **TP**, **TCP** and **TCCP** were synthesized *via* alternate Heck and Wittig reactions.

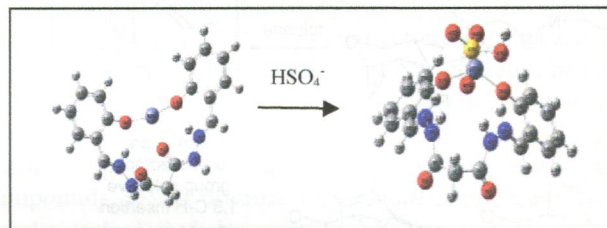


6824

### An amide based dipodal Zn<sup>2+</sup> complex: nano-molar detection of HSO<sub>4</sub><sup>-</sup> in a semi-aqueous system

Umesh Fegade, Hemant Sharma, Kundan Tayade, Sanjay Attarde, Narinder Singh\* and Anil Kuwar\*

A new chromogenic dipodal Zn<sup>2+</sup> complex (**4**) bearing an amide group has been synthesized. The receptor **4** has high affinity for HSO<sub>4</sub><sup>-</sup> with a binding constant of 3.5 × 10<sup>4</sup> M<sup>-1</sup> and a detection limit of 50 nM.

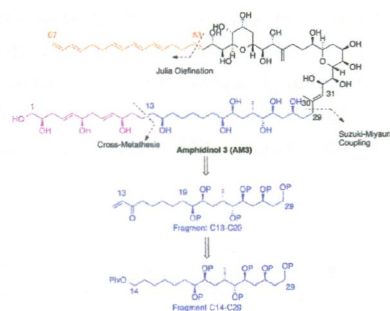


6829

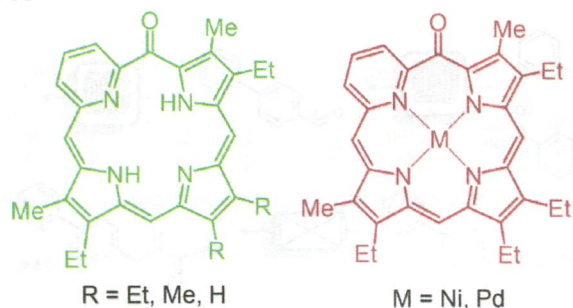
### Diastereoselective synthesis of the C14–C29 fragment of amphidinol 3

Nicolas Rival, Gilles Hanquet,\* Charlelie Bensoussan, Sébastien Reymond, Janine Cossy and Françoise Colobert\*

This article describes the diastereoselective synthesis of the C14–C29 fragment of amphidinol 3 highlighting a coupling reaction between a 1,3-dithiane derivative and an  $\alpha$ -branched aldehyde.



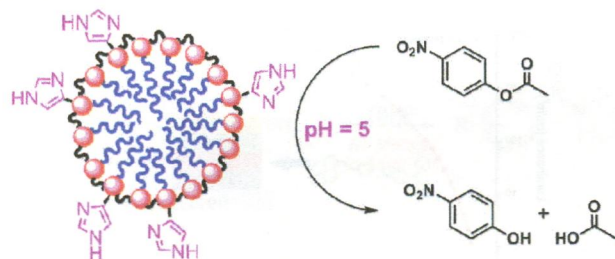
6841

**6-Oxopyrriphlorins**

Alexandra M. Young and Timothy D. Lash\*

Acid catalyzed condensation of 2,6-pyridinedicarb-aldehyde with tripyrranes, followed by oxidation with silver(I) acetate, gave oxophlorin analogues.

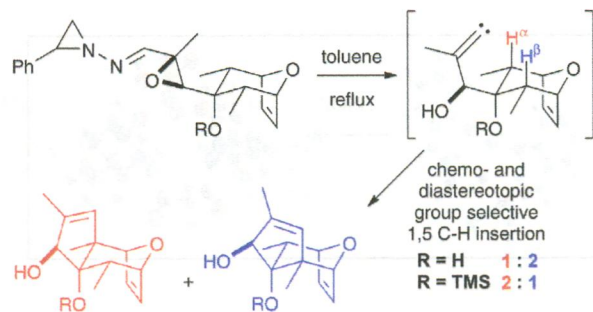
6849

**Histidine-functionalized water-soluble nanoparticles for biomimetic nucleophilic/general-base catalysis under acidic conditions**

Geetika Chadha and Yan Zhao\*

Imidazoles located in a relatively hydrophobic microenvironment near positive charges resist protonation and could perform nucleophilic/general-base catalysis in acidic solutions.

6856

**Diastereotopic group selectivity and chemoselectivity of alkylidene carbene reactions on 8-oxabicyclo[3.2.1]oct-6-ene ring systems**

Kevin R. Munro, Louise Male, Neil Spencer and Richard S. Grainger\*

Alkylidene carbenes undergo unexpectedly diverse reactions on 8-oxabicyclo[3.2.1]oct-6-ene ring systems, including 1,5 C-H insertion, dihydrofuran formation, 1,2-rearrangement and fragmentation to a ketone, depending on conditions and substitution on the ring.