

# Organic & Biomolecular Chemistry

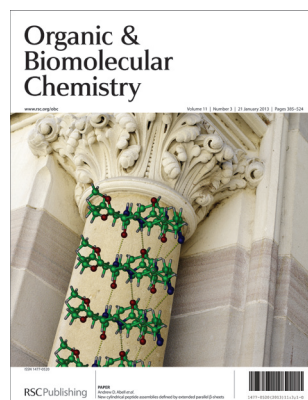
An international journal of synthetic, physical and biomolecular organic chemistry

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## IN THIS ISSUE

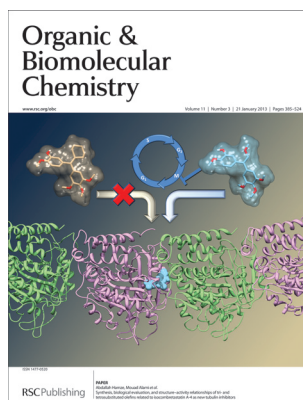
ISSN 1477-0520 CODEN OBCRAK 11(3) 385–524 (2013)



### Cover

See Andrew D. Abell *et al.*, pp. 425–429.

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### Inside cover

See Abdallah Hamze, Mouad Alami *et al.*, pp. 430–442.

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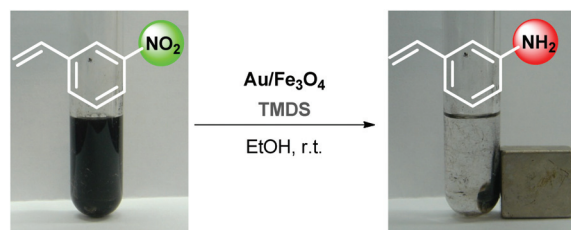
## COMMUNICATIONS

395

### A magnetically separable gold catalyst for chemoselective reduction of nitro compounds

Sungho Park, In Su Lee and Jaiwook Park\*

A magnetically separable gold-nanoparticle catalyst was prepared with ferrous sulfate and chloroauric acid without any additional reductant in a one-pot procedure. The gold catalyst showed excellent activity for the chemoselective reduction of various nitroarenes with hydrosilanes into aniline derivatives.

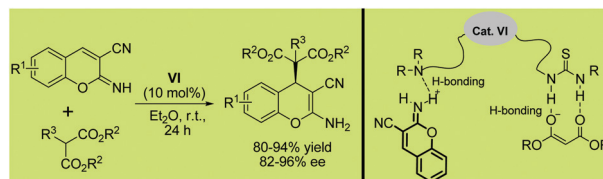


400

### Organocatalytic conjugate addition promoted by multi-hydrogen-bond cooperation: access to chiral 2-amino-3-nitrile-chromenes

Wenjun Li, Jiayao Huang and Jian Wang\*

A new efficient enantioselective conjugate addition method has been disclosed to rapidly construct 2-amino-3-nitrile-chromene complexes via a multi-hydrogen-bond cooperative activation model.



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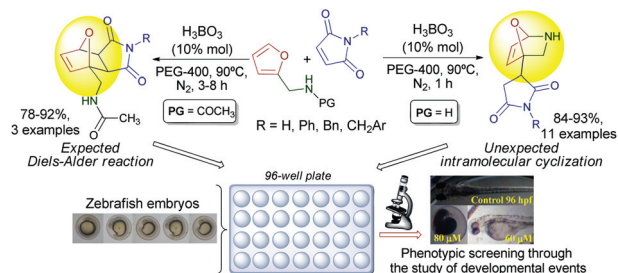
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407

### An unexpected formation of the novel 7-oxa-2-azabicyclo[2.2.1]hept-5-ene skeleton during the reaction of furfurylamine with maleimides and their bioprospection using a zebrafish embryo model

Carlos E. Puerto Galvis and Vladimir V. Kouznetsov\*

An unexpected intramolecular cyclization during the reaction of furfurylamine with maleimides is reported as a novel strategy for the efficient green synthesis of the 7-oxa-2-azabicyclo[2.2.1]hept-5-ene skeleton.

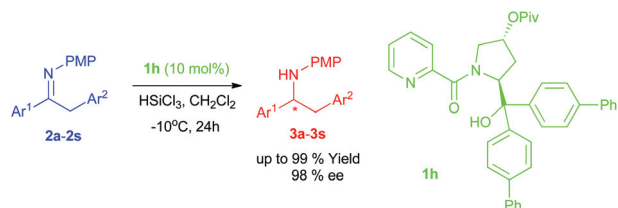


412

### Highly enantioselective hydrosilylation of *N*-(1,2-diarylethylidene)arylamines

Yongsheng Zheng, Zhouyang Xue, Lixin Liu, Chang Shu, Weicheng Yuan and Xiaomei Zhang\*

Lewis base promoted enantioselective hydrosilylation of *N*-(1,2-diarylethylidene)arylamines provided various 1,2-diarylethanamines with good yields in good enantioselectivities.

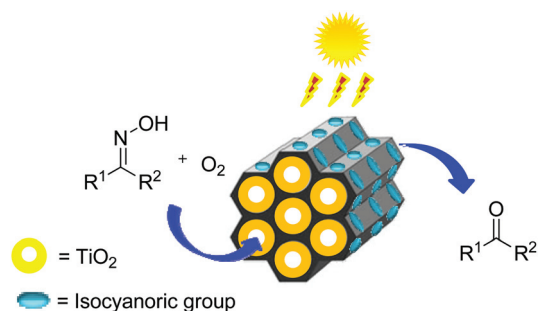


416

### Amorphous TiO<sub>2</sub> coated into periodic mesoporous organosilicate channels as a new binary photocatalyst for regeneration of carbonyl compounds from oximes under sunlight irradiation

Sedigheh Abedi, Babak Karimi,\* Foad Kazemi, Mihnea Bostina and Hojatollah Vali

A new photocatalyst was prepared by incorporation of amorphous titania into the mesochannels of a PMO bearing photoresponsive isocyanurate species.

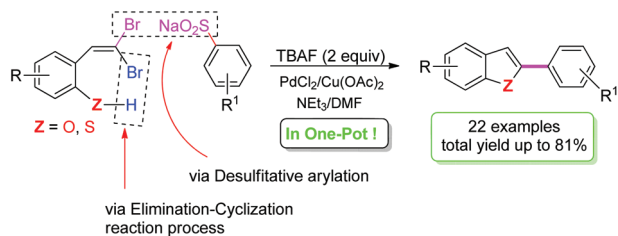


420

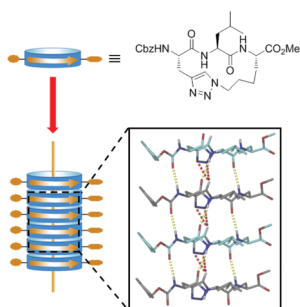
### An efficient tandem elimination–cyclization–desulfitative arylation of 2-(*gem*-dibromovinyl)-phenols(thiophenols) with sodium arylsulfonates

Wei Chen, Pinhua Li, Tao Miao, Ling-Guo Meng\* and Lei Wang\*

2-Arylbenzofurans(thiophenes) were prepared through one-pot elimination–cyclization–desulfitative arylation of 2-(*gem*-dibromovinyl)phenols(thiophenols) with sodium arylsulfonates in the presence of TBAF–PdCl<sub>2</sub>–Cu(OAc)<sub>2</sub>–NEt<sub>3</sub>.



425

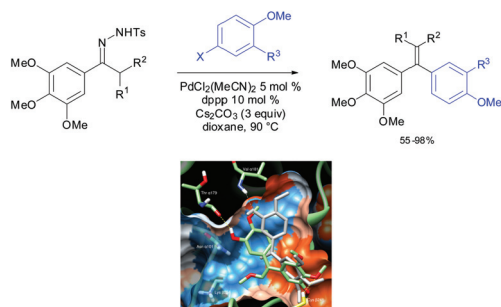


### New cylindrical peptide assemblies defined by extended parallel $\beta$ -sheets

Ashok D. Pehere, Christopher J. Sumbly and Andrew D. Abell\*

A peptide-based macrocycle preorganised into a  $\beta$ -strand geometry templates the formation of a non-covalent nanotubular structure.

430

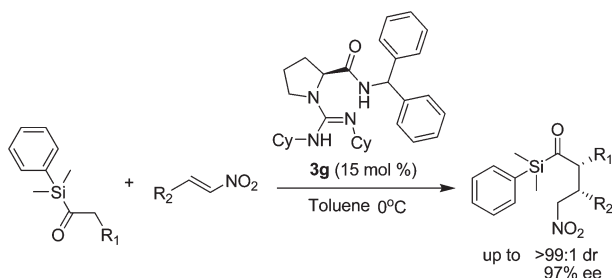


### Synthesis, biological evaluation, and structure–activity relationships of tri- and tetrasubstituted olefins related to isocombreastatin A-4 as new tubulin inhibitors

Jessy Aziz, Etienne Brachet, Abdallah Hamze,\* Jean-François Peyrat, Guillaume Bernadat, Estelle Morvan, Jérôme Bignon, Joanna Wdzieczak-Bakala, Déborah Desravines, Joelle Dubois, Marie Tuéni, Ahmad Yassine, Jean-Daniel Brion and Mouad Alami\*

Synthesis and antiproliferative activity of tri- and tetrasubstituted 1,1-diarylolefins related to isocombreastatin A-4 are reported.

443

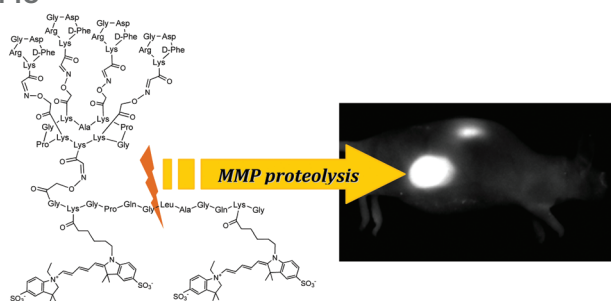


### Organocatalytic asymmetric Michael reaction with acylsilane donors

Lei Wu, Guangxun Li, Qingquan Fu, Luoting Yu and Zhuo Tang

$\alpha$ -Alkylation of acylsilanes with a chiral guanidine catalyst to afford Michael products in good yield and high stereoselectivity.

448



### Integrin and matrix metalloprotease dual-targeting with an MMP substrate–RGD conjugate

Christiane H. F. Wenk, Véronique Josserand, Pascal Dumy, Jean-Luc Coll\* and Didier Boturyn\*

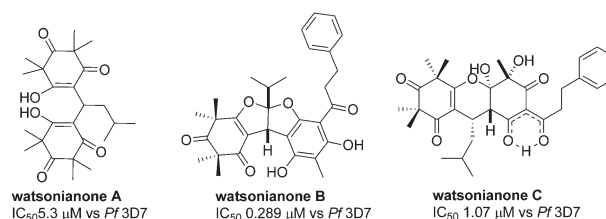
An activatable fluorescent RGD-containing probe encompassing an MMP substrate was designed and successfully used for the dual-targeting of  $\alpha_v\beta_3$  integrin and MMP-9 extracellular protease in a tumor.

453

### Watsonianone A–C, anti-plasmodial $\beta$ -triketones from the Australian tree, *Corymbia watsoniana*

Anthony R. Carroll,\* Vicky M. Avery, Sandra Duffy, Paul I. Forster and Gordon P. Guymer

Three novel  $\beta$ -triketones have been identified from the flowers of *Corymbia watsoniana* and watsonianone B shows potent and selective antimalarial activity.

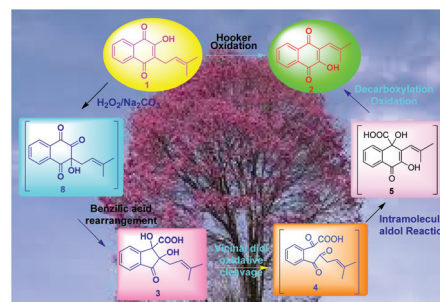


459

### A mechanistic study on the Hooker oxidation: synthesis of novel indane carboxylic acid derivatives from lapachol

Kenneth O. Eyong, Manohar Puppala, Ponminor Senthil Kumar, Marc Lamshöft, Gabriel N. Folefoc,\* Michael Spitteller\* and Sundarababu Baskaran\*

The mechanism involved in the formation of the Hooker intermediate **3** from lapachol (**1**) via benzilic acid rearrangement as a key step has been investigated.

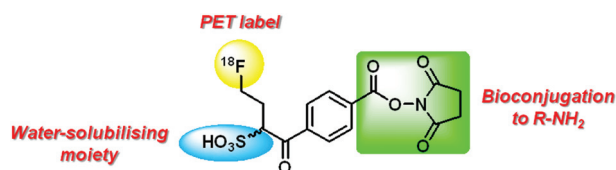


469

### A novel sulfonated prosthetic group for [<sup>18</sup>F]-radiolabelling and imparting water solubility of biomolecules and cyanine fluorophores

Thomas Priem, Cédric Bouteiller,\* Davide Camporese, Xavier Brune, Julie Hardouin, Anthony Romieu\* and Pierre-Yves Renard\*

The synthesis and some applications of a novel amine-reactive [<sup>18</sup>F]-labelling reagent are described. The [<sup>18</sup>F]-induced sultone-opening reaction enables both radiofluorination and water-solubilisation through the release of a free sulfonic acid.

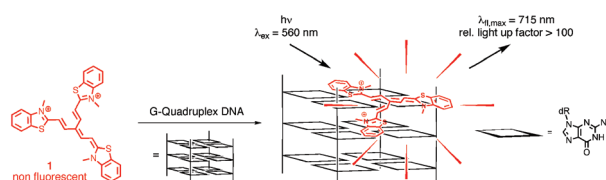


480

### Light up G-quadruplex DNA with a [2.2.2]heptamethinecyanine dye

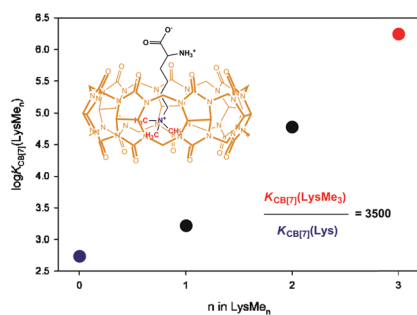
Heiko Ihmels\* and Laura Thomas

It is shown that a [2.2.2]heptamethinecyanine dye binds selectively to quadruplex DNA. The association with the nucleic acid leads to a significant increase of the emission intensity of the otherwise weakly fluorescent dye, thus enabling the fluorimetric detection of quadruplex DNA.





488

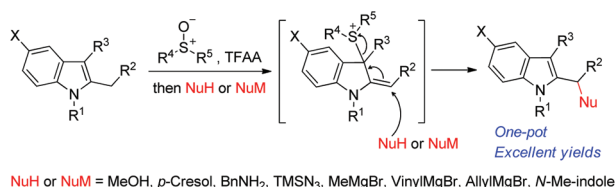


### Selective molecular recognition of methylated lysines and arginines by cucurbit[6]uril and cucurbit[7]uril in aqueous solution

Mona A. Gamal-Eldin and Donal H. Macartney\*

The cucurbit[7]uril host molecule selectively recognizes (by 3500-fold) the epigenetic mark  $N^{\epsilon},N^{\epsilon},N^{\epsilon}$ -trimethyllysine over the native L-lysine in aqueous solution, using ion–dipole interactions and the hydrophobic effect.

496

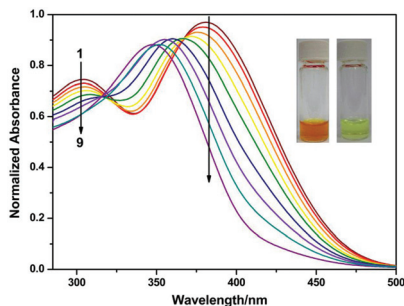


### Sulfoxide-TFAA and nucleophile combination as new reagent for aliphatic C–H functionalization at indole 2 $\alpha$ -position

Masanori Tayu, Kazuhiro Higuchi,\* Masato Inaba and Tomomi Kawasaki\*

Aliphatic C–H functionalization at indole 2 $\alpha$ -position mediated by acyloxythionium species generated from sulfoxide and TFAA has been developed. This reaction enables the introduction of *O*-, *N*- and *C*-substituents in a one-pot procedure.

503

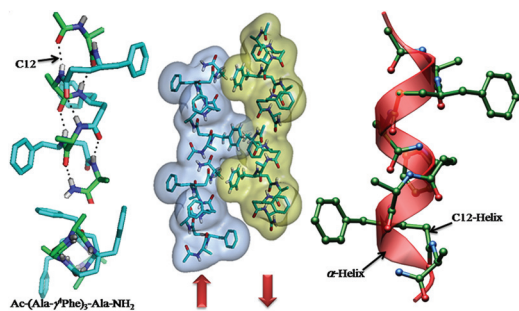


### A novel ratiometric emission probe for Ca<sup>2+</sup> in living cells

Qiaoling Liu, Wei Bian, Heping Shi, Li Fan, Shaomin Shuang, Chuan Dong\* and Martin M. F. Choi\*

A novel ratiometric emission probe for Ca<sup>2+</sup> with a large Stokes shift of 202 nm and *in vivo* imaging.

509



### Protein secondary structure mimetics: crystal conformations of $\alpha/\gamma^4$ -hybrid peptide 12-helices with proteinogenic side chains and their analogy with $\alpha$ - and $\beta$ -peptide helices

Sandip V. Jadhav, Anupam Bandyopadhyay and Hosahudya N. Gopi\*

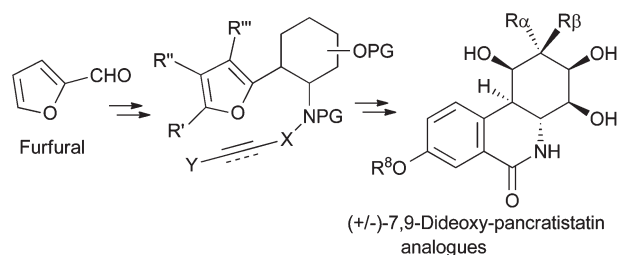
Solid phase synthesis and single crystal conformations of three  $\alpha/\gamma^4$ -hybrid heptapeptide 12-helices, their structural correlation with  $\alpha$ -peptide helices ( $3_{10}$ - and  $\alpha$ -helix) and  $\beta$ -peptide 12-helices are reported.

515

## Synthesis and cytotoxicity of (+/-)-7,9-dideoxy-pancratistatin analogues

Olaia Nieto-García and Ricardo Alonso\*

A novel synthetic route to (+/-)-7,9-dideoxy analogues of the antitumoral pancratistatin allows for antiproliferative testing and further refining of the pharmacophore.



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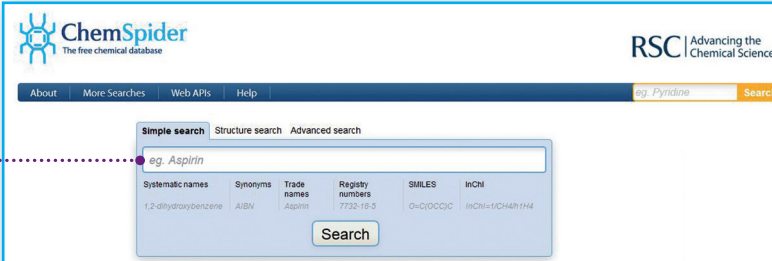
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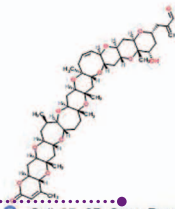
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**Brevetoxin B**

ChemSpider ID: 9041149

Molecular Formula:  $C_{50}H_{70}O_{14}$

Average mass: 895.08197 Da

Monoisotopic mass: 894.47699 Da

Systematic name

2-[[[(1S,3R,4aR,5aS,6aR,7Z,9aS,10aR,11aS,12aR,13R,14aS,15aR,16aS,20aR,21aS,22aR,23aS,25aR,26aS,27aR,28aS,29aR,30aS)-1-Hydroxy-9a,13,20,21a,25a,26a,30a-heptamethyl-18-oxo-2,3,4a,5,5a,6a,9,9a,10a,11,11a,12a,13,14,14a,15a,16,16a,18,20a,21a,22,22a,23a,24,25,25a,26a,27,27a,28a,29,29a,30a-tetrahydro-1H-pyranol[2',3'':5',6'']pyrano[2'',3''':5'',6''']pyrano[3,2-b]pyrano[2''''',3''''':5''''',6''''']pyrano[2''''',3''''':5''''',6''''']pyrano[2''''',3''''':5''''',6''''']pyrano[2'',3'':5'',6''']oxocin-3-yl)methyl]acrylaldehyde

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