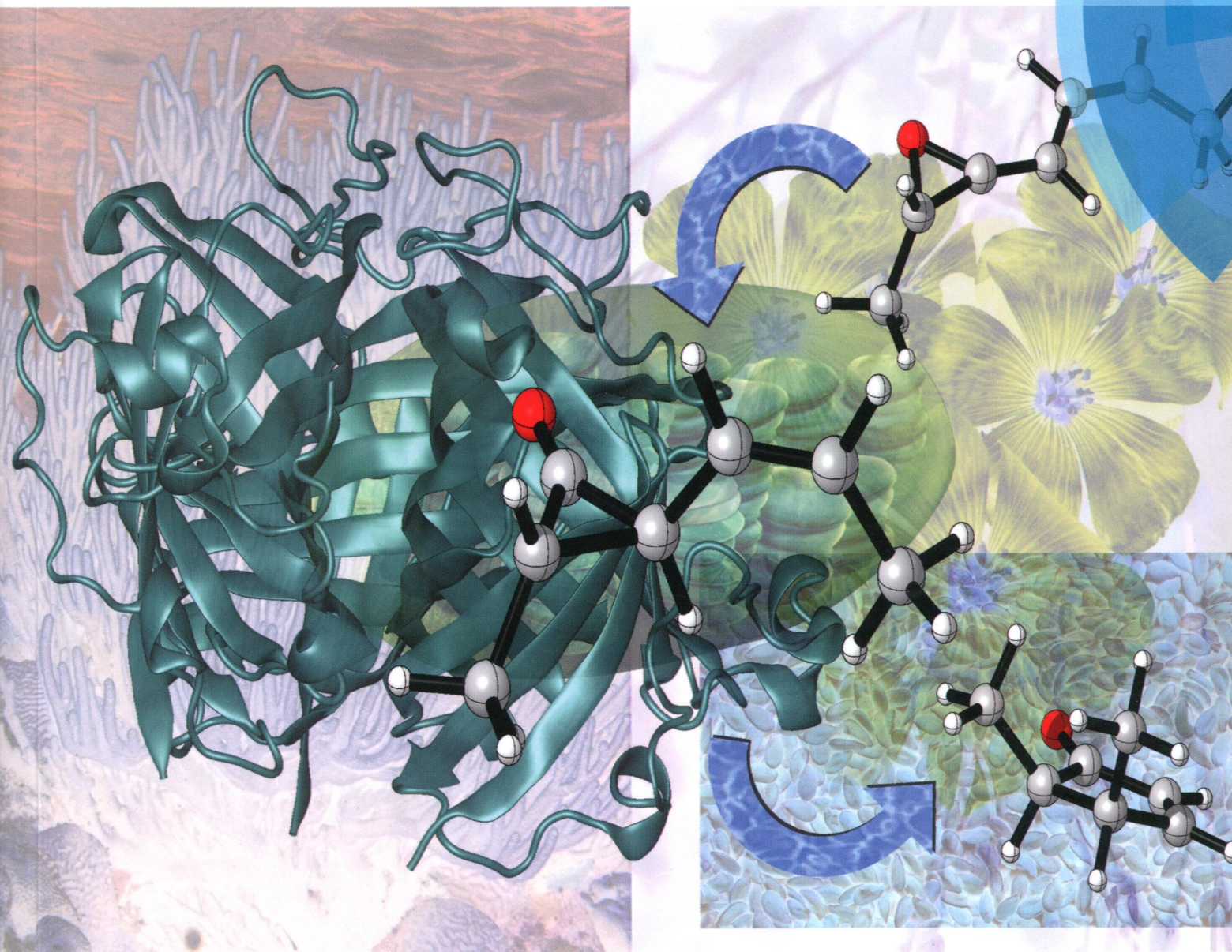


FM
0-72/6

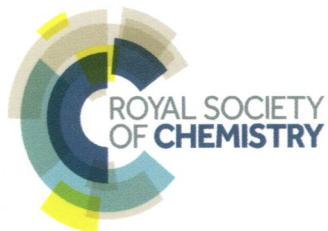
Volume 12 | Number 39 | 21 October 2014 | Pages 7645–7866

Organic & Biomolecular Chemistry

www.rsc.org/obc



ISSN 1477-0520



PAPER

Ángel R. de Lera *et al.*

A unifying mechanism for the rearrangement of vinyl allene oxide geometric isomers to cyclopentenones

Organic & Biomolecular Chemistry

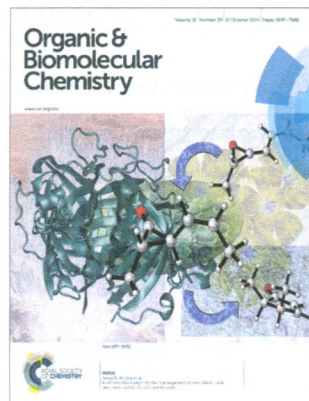
An international journal of synthetic, physical and biomolecular organic chemistry

www.rsc.org/obc

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

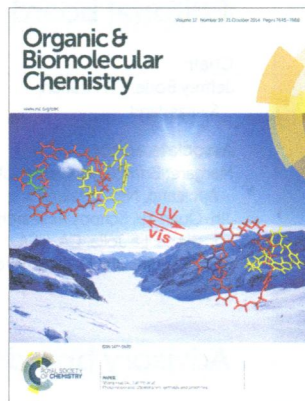
ISSN 1477-0520 CODEN OBCRAK 12(39) 7645–7866 (2014)



Cover

See Ángel R. de Lera *et al.*, pp. 7694–7701.

Image reproduced by permission of Ángel R. de Lera from *Org. Biomol. Chem.*, 2014, **12**, 7694.



Inside cover

See Sheng Hua Liu, Jun Yin *et al.*, pp. 7702–7711.

Image reproduced by permission of Jun Yin from *Org. Biomol. Chem.*, 2014, **12**, 7702.

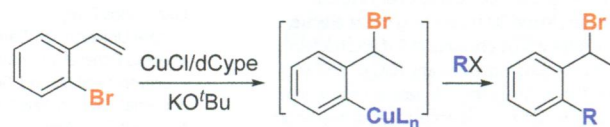
PERSPECTIVE

7655

1,3-Halogen migration as an entry to aryl coppers from an unintuitive starting material

R. J. Van Hovel, S. C. Schmid and J. M. Schomaker*

Cu-catalyzed 1,3-halogen migration provides a unique way to generate reactive aryl copper species for arene functionalizations.



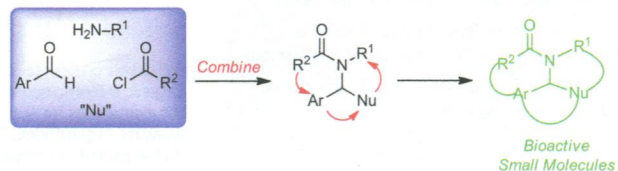
REVIEW

7659

Evolution of a strategy for preparing bioactive small molecules by sequential multicomponent assembly processes, cyclizations, and diversification

James J. Sahn, Brett A. Granger and Stephen F. Martin*

Multicomponent assembly processes are key steps in the synthesis of diverse polycyclic heterocycles with a broad array of biological activities.



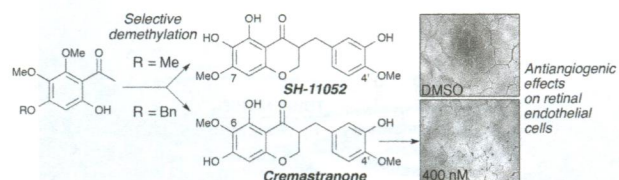
Федеральное государственное
бюджетное учреждение науки
Центральная научная библиотека
Уральского отделения
Российской академии наук (ЦНБ УрО РАН)

7673

The first synthesis of the antiangiogenic homoisoflavanone, cremastranone

Bit Lee, Halesha D. Basavarajappa, Rania S. Sulaiman, Xiang Fei, Seung-Yong Seo* and Timothy W. Corson*

The homoisoflavanone cremastranone is synthesized for the first time and shown to block human retinal endothelial cell angiogenesis *in vitro*.

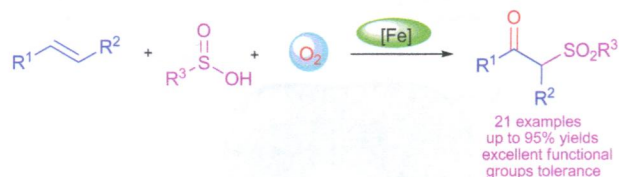


7678

Iron-catalyzed direct difunctionalization of alkenes with dioxygen and sulfinic acids: a highly efficient and green approach to β -ketosulfones

Wei Wei, Jiangwei Wen, Daoshan Yang, Min Wu, Jinmao You and Hua Wang*

A novel and efficient iron-catalyzed direct difunctionalization of alkenes with sulfinic acids and dioxygen for the synthesis of β -ketosulfones has been developed.

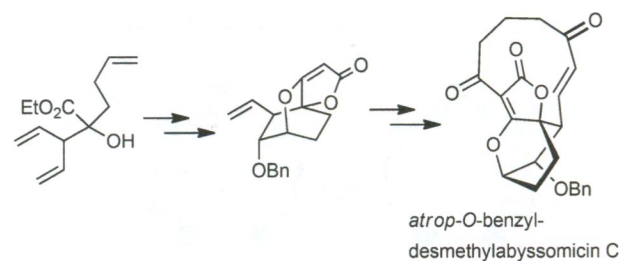


7682

Total synthesis and biological evaluation of atrop-O-benzyl-desmethylabyssomicin C

R. Matovic,* F. Bihelovic, M. Gruden-Pavlovic and R. N. Saicic*

The desmethyl analogue of abyssomicin C was synthesized. The synthetic analogue retained its antibacterial activity, whereas its cytotoxicity decreased for three orders of magnitude, as compared to the natural product.

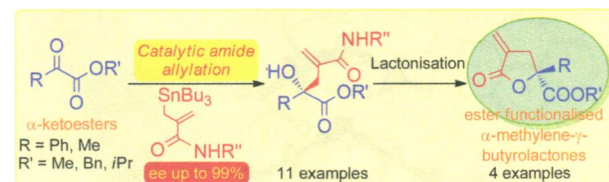


7686

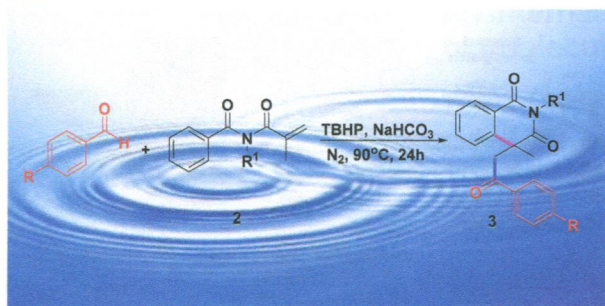
Catalytic amide allylation of α -ketoesters: extremely high enantioselective synthesis of ester functionalised α -methylene- γ -butyrolactones

Masaki Takahashi, Yusuke Murata, Masahiro Ishida, Fumitoshi Yagishita, Masami Sakamoto, Tetsuya Sengoku and Hidemi Yoda*

A significant breakthrough on the novel amide allylation on the acyclic α -ketoester systems, achieving extremely high enantioselective synthesis of ester functionalised α -methylene- γ -butyrolactones, is reported.



7690



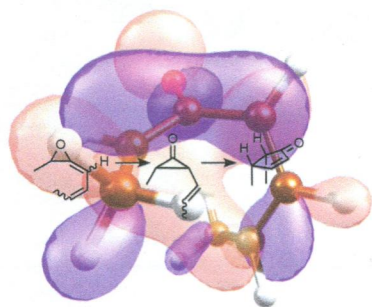
Synthesis of isoquinoline-1,3(2*H*,4*H*)-dione derivatives via cascade reactions of *N*-alkyl-*N*-methacryloyl benzamide with aryl aldehydes

Wannian Zhao, Ping Xie, Min Zhang, Ben Niu, Zhaogang Bian, Charles Pittman Jr. and Aihua Zhou*

A cascade reaction between *N*-alkyl-*N*-methacryloylbenzamide and aryl aldehydes was developed to generate isoquinoline-1,3(2*H*,4*H*)-dione derivatives.

PAPERS

7694



A unifying mechanism for the rearrangement of vinyl allene oxide geometric isomers to cyclopentenones

Adán B. González-Pérez, Alexander Grechkin and Ángel R. de Lera*

Z-Vinyl allene oxides are predicted to rearrange with high fidelity to stereodefined cyclopentenones through intermediate cyclopropanones.

7702

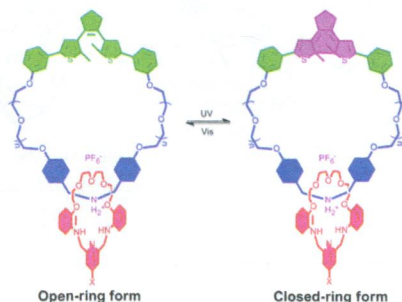
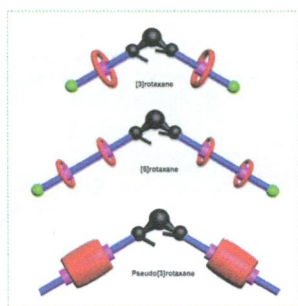


Photo-responsive [2]catenanes: synthesis and properties

Ziyong Li, Fang Hu, Guoxing Liu, Wen Xue, Xiaoqiang Chen, Sheng Hua Liu* and Jun Yin*

A series of novel dithienylethene-based macrocycles containing ammonium moieties has been synthesized.

7712



Dithienylethene-based rotaxanes: synthesis, characterization and properties

Fang Hu, Juanyun Huang, Meijiao Cao, Zhao Chen, Ying-Wei Yang, Sheng Hua Liu* and Jun Yin*

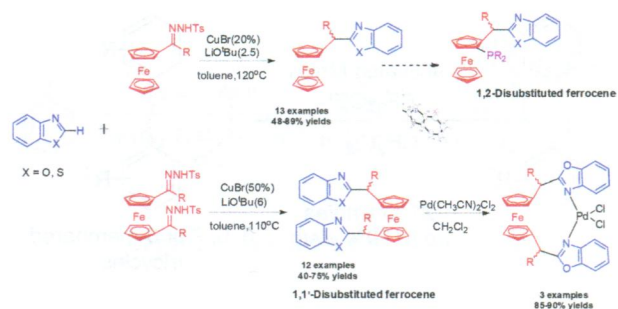
The photochromic materials have been widely applied in many fields.

7721

Copper-catalyzed direct alkylation of 1,3-azoles with *N*-tosylhydrazones bearing a ferrocenyl group: a novel method for the synthesis of ferrocenyl-based ligands

Qiang Teng, Jianfeng Hu, Li Ling, Ranfeng Sun, Junyang Dong, Shufeng Chen and Hao Zhang*

A new type of 1,1'-disubstituted ferrocenyl (*N,N*) bidentate ligand was synthesised *via* CuBr-catalyzed coupling of 1,3-azoles with ferrocenyl ketone-derived *N*-tosylhydrazones.

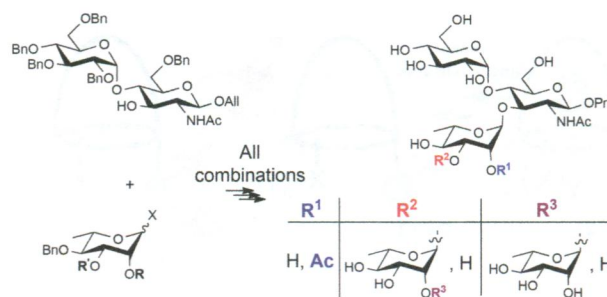


7728

Linear synthesis of the branched pentasaccharide repeats of O-antigens from *Shigella flexneri* 1a and 1b demonstrating the major steric hindrance associated with type-specific glycosylation

Jason M. Hargreaves, Yann Le Guen, Catherine Guerreiro, Karine Descroix and Laurence A. Mulard*

Shigella flexneri serotypes 1b and 1a are Gram-negative enteroinvasive bacteria causing shigellosis in humans.

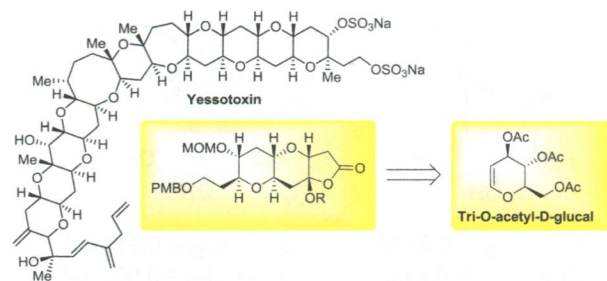


7750

Synthesis of a chiral building block for highly functionalized polycyclic ethers

G. Pazos, M. Pérez,* Z. Gándara, G. Gómez and Y. Fall*

An efficient procedure for preparing enantiopure polycyclic ethers based on the furan singlet oxygen oxidation approach is reported.

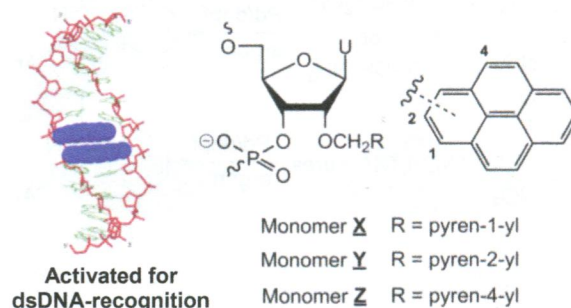


7758

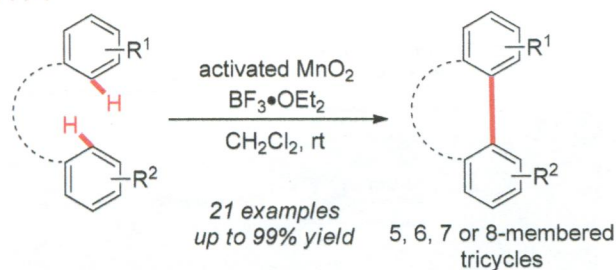
Recognition of double-stranded DNA using energetically activated duplexes with interstrand zippers of 1-, 2- or 4-pyrenyl-functionalized O2'-alkylated RNA monomers

Saswata Karmakar, Andreas S. Madsen, Dale C. Guenther, Bradley C. Gibbons and Patrick J. Hrdlicka*

Energetically activated double-stranded probes with interstrand arrangements of intercalator-functionalized nucleotides enable recognition of mixed-sequence DNA with single nucleotide fidelity.



7774

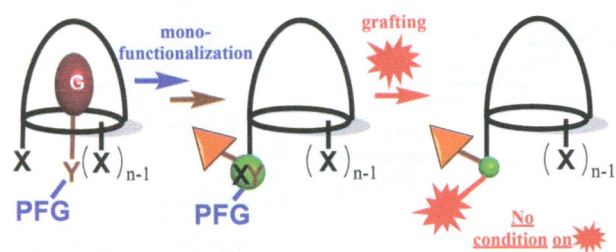


An economical and environmentally friendly oxidative biaryl coupling promoted by activated MnO_2

Jingjing Yang, Shutao Sun, Ziyu Zeng, Hongbo Zheng, Wei Li, Hongxiang Lou and Lei Liu*

A mild, economical, and environmentally friendly oxidative biaryl coupling by MnO_2 was developed to deliver five- to eight-membered tricyclic products.

7780

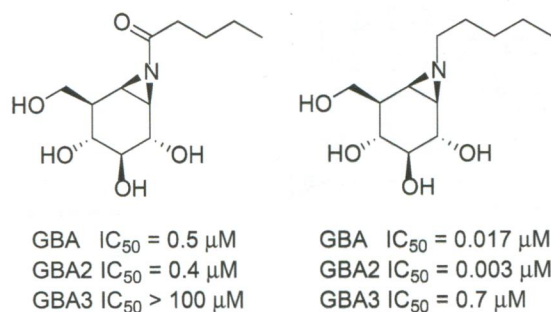


A versatile strategy for appending a single functional group to a multifunctional host through host-guest covalent-capture

Jean-Noël Rebilly,* Assia Hessani, Benoit Colasson and Olivia Reinaud

A novel two-step strategy allowed us to selectively monofunctionalize a molecular host (calix[6]arene) with various groups of interest (redox tag, fluorophore, chelating ligand).

7786

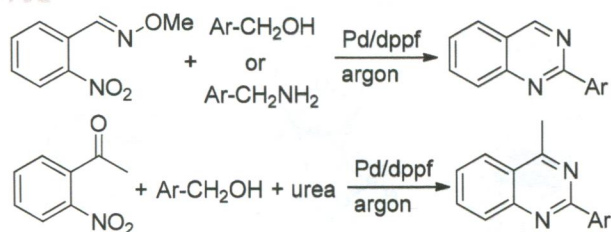


Exploring functional cyclophellitol analogues as human retaining beta-glucosidase inhibitors

Kah-Yee Li, Jianbing Jiang, Martin D. Witte, Wouter W. Kallemeijn, Wilma E. Donker-Koopman, Rolf G. Boot, Johannes M. F. G. Aerts, Jeroen D. C. Codée, Gijsbert A. van der Marel and Herman S. Overkleeft*

Of six cyclophellitol analogues, the *N*-pentylaziridine is the most effective retaining human beta-glucosidase inhibitor considering potency and compound stability.

7792



Palladium-catalyzed one pot 2-arylquinazoline formation via hydrogen-transfer strategy

Huamin Wang, Hui Chen, Ya Chen and Guo-Jun Deng*

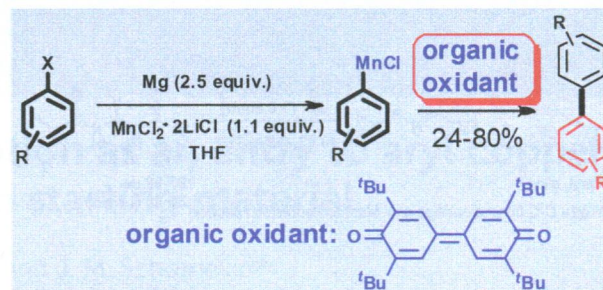
2-Arylquinazolines were prepared from nitroarenes and benzyl alcohols or benzyl amines via a hydrogen transfer strategy.

7800

The transition-metal-catalyst-free oxidative homocoupling of organomanganese reagents prepared by the insertion of magnesium into organic halides in the presence of $\text{MnCl}_2 \cdot 2\text{LiCl}$

Zihua Peng,* Na Li, Xinyang Sun, Fang Wang, Lanjian Xu, Cuiyu Jiang, Linhua Song and Zi-Feng Yan

An oxidative homocoupling of organomanganese reagents was performed in one pot without an additional transition-metal catalyst.

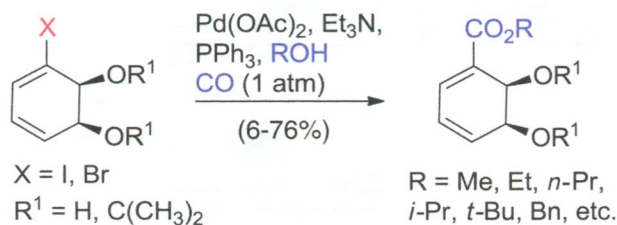


7810

Palladium-catalyzed carbonylation of halo arene-*cis*-dihydrodiols to the corresponding carboxylates. Access to compounds unavailable by toluene dioxygenase-mediated dihydroxylation of the corresponding benzoate esters

Jordan Froese, Jason Reed Hudlicky and Tomas Hudlicky*

Compounds of high synthetic value were produced in a much more efficient manner than was previously possible through fermentation.

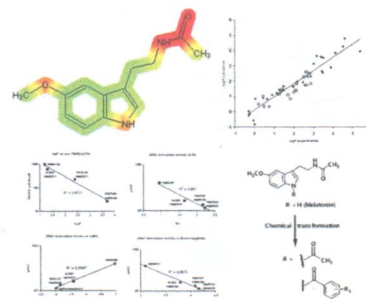


7820

Theoretical insight into the antioxidant properties of melatonin and derivatives

Jeffrey R. Johns* and James A. Platts

Density functional theory calculations on melatonin, metabolites and synthetic derivatives thereof, and a range of other biological antioxidant molecules are presented, with a view to understanding the antioxidant ability of these molecules.

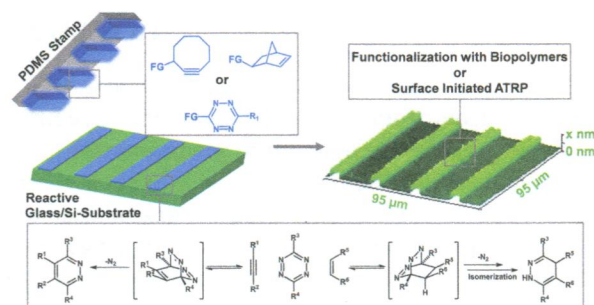


7828

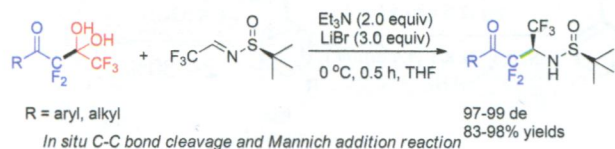
Surface patterning with natural and synthetic polymers *via* an inverse electron demand Diels–Alder reaction employing microcontact chemistry

Oliver Roling, Artur Marduykov, Sebastian Lamping, Benjamin Vonhören, Stefan Rinnen, Heinrich F. Arlinghaus, Armido Studer and Bart Jan Ravoo*

Bioorthogonal ligation methods are the focus of current research due to their versatile applications in biotechnology and materials science for post-functionalization and immobilization of biomolecules.



7836

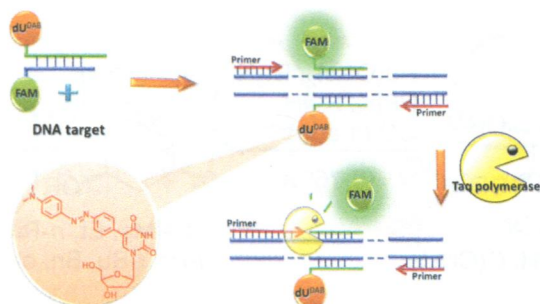


Generalized access to fluorinated β -keto amino compounds through asymmetric additions of α,α -difluoroenolates to CF_3 -sulfinylimine

Chen Xie, Lingmin Wu, Haibo Mei, Vadim A. Soloshonok, Jianlin Han* and Yi Pan

Asymmetric reactions between CF_3 -containing N -imines and α,α -difluoroenolates giving β -keto-amino compounds featuring the $\text{R-CO-CF}_2\text{-CH(NH}_2\text{)-CF}_3$ moiety with high yields and diastereoselectivities were developed.

7844

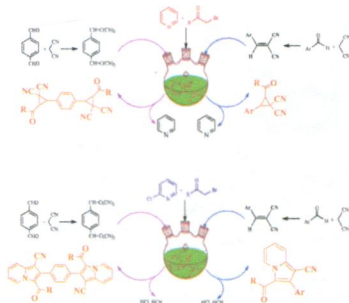


Synthesis and evaluation of a photoresponsive quencher for fluorescent hybridization probes

Marina Kovaliov, Chaim Wachtel, Eylon Yavin and Bilha Fischer*

dU^{DAB} modified probes are promising probes for gene quantification in real-time PCR detection and as photoswitchable devices.

7859



Ultrasound-assisted 1,3-dipolar cycloaddition and cyclopropanation reactions for the synthesis of bis-indolizine and bis-cyclopropane derivatives

Mehdi Abaszadeh* and Mohammad Seifi

We report a new method for the synthesis of bis-indolizine and bis-cyclopropane derivatives under ultrasound irradiation, using a 1,3-dipolar cycloaddition reaction or a cyclopropanation reaction, respectively.