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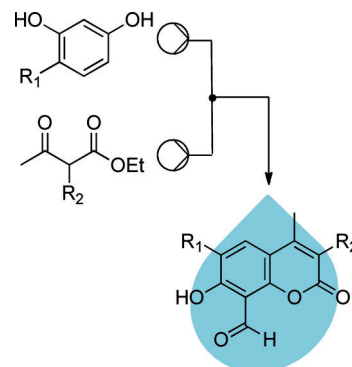


Flow Chemistry

J. Zak, D. Ron, E. Riva,* H. P. Harding, B. C. S. Cross, I. R. Baxendale

Establishing a Flow Process to Coumarin-8-Carbaldehydes as Important Synthetic Scaffolds

Aldehyde on tap: Despite their usefulness as fluorophores and synthetic precursors, efficient and reliable routes to coumarin-8-carbaldehydes are lacking. A high-yielding continuous flow synthesis that requires no manual intermediate purification or work-up is described, giving access to multigram quantities of aldehyde product (see scheme).



Chem. Eur. J.
DOI: 10.1002/chem.201201039

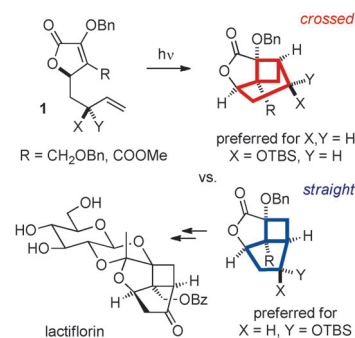


Cycloaddition

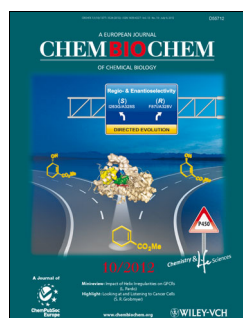
P. Lu, E. Herdtweck, T. Bach*

Intramolecular [2+2] Photocycloaddition Reactions as an Entry to the 2-Oxatricyclo[4.2.1.0^{4,9}]nonan-3-one Skeleton of Lactiflorin

Substitution matters in the [2+2] photocycloaddition of butenolides **1**: For X,Y = H and X = OTBS, Y = H the crossed products were formed as major regioisomers (r.r. = 89:11 to 65:35), whereas the straight products prevailed in the case of X = H, Y = OTBS in particular for R = CH₂OBn (r.r. = 70:30). The latter product (X = H, Y = OTBS, R = CH₂OBn) was successfully converted into the monoterpene glycoside lactiflorin.



Chem. Asian J.
DOI: 10.1002/asia.201200295

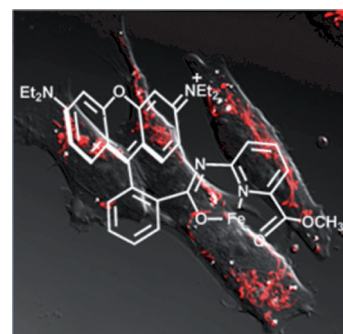


Bioimaging

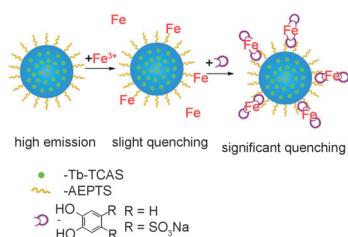
Y. Wei, Z. Aydin, Y. Zhang, Z. Liu, M. Guo*

A Turn-on Fluorescent Sensor for Imaging Labile Fe³⁺ in Live Neuronal Cells at Subcellular Resolution

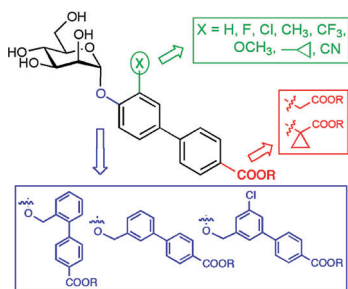
An eye for an iron: A highly sensitive, selective and reversible turn-on Fe³⁺ sensor for imaging labile Fe³⁺ in live cells at subcellular resolution is reported. The sensor can respond to changes in intracellular Fe³⁺ levels and was used to image endogenous chelatable Fe³⁺ in live human neuroblastoma SH-SY5Y cells, with two Fe³⁺ pools being identified in mitochondria and endosomes/lysosomes for the first time.



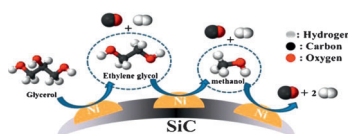
ChemBioChem
DOI: 10.1002/cbic.201200202



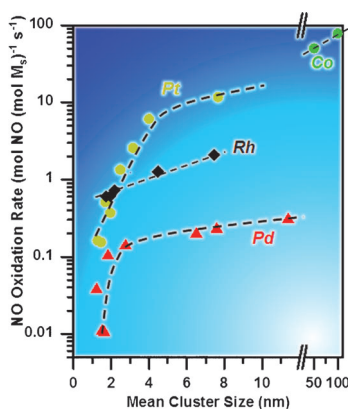
ChemPhysChem
DOI: 10.1002/cphc.201200367



ChemMedChem
DOI: 10.1002/cmdc.201200125



ChemSusChem
DOI: 10.1002/cssc.201100821



ChemCatChem
DOI: 10.1002/cctc.201200050

Sensing

N. Davydov, A. Mustafina,* V. Burilov, E. Zvereva, S. Katsyuba, L. Vagapova, A. Kononov, I. Antipin

Complex Formation of d-Metal Ions at the Interface of Tb^{III}-Doped Silica Nanoparticles as a Basis of Substrate-Responsive Tb^{III}-Centered Luminescence

Complex formation at the interface of doped silica nanoparticles modified by amino groups is a route to sensing d-metal ions and some organic molecules through Tb^{III}-centered luminescence quenching (see picture; TCAS = *p*-sulfonatothiocalix[4]arene, AEPTS = 3-[2-(2-aminoethylamino)ethylamino]propyltrimethoxysilane).

Antibacterial Agents

L. Pang, S. Kleeb, K. Lemme, S. Rabbani, M. Scharenberg, A. Zalewski, F. Schädler, O. Schwardt, B. Ernst*

FimH Antagonists: Structure–Activity and Structure–Property Relationships for Biphenyl α -D-Mannopyranosides

In the heat of interaction: We investigated the structure–affinity relationships for substituents on ring A of the biphenyl aglycone of FimH antagonists. The correlation between van der Waals volumes (V_{vdW}) of these substituents and enthalpy clearly indicates the importance of shape complementary. The correlation of enthalpic improvements ($\Delta\Delta H$) with V_{vdW} values provides a useful tool in guiding further structural optimization.

Steam Reforming

S. M. Kim, S. I. Woo*

Sustainable Production of Syngas from Biomass-Derived Glycerol by Steam Reforming over Highly Stable Ni/SiC

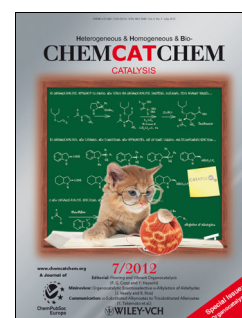
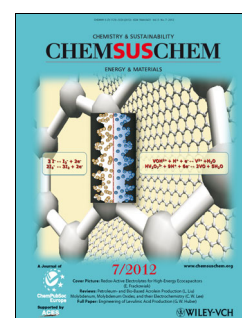
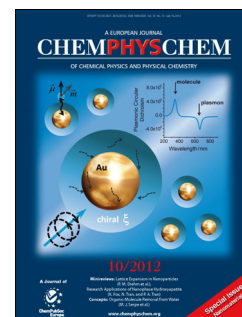
Steam-reforming of biomass-derived glycerol is important sustainable production of fuels and chemicals. Neutral SiC promotes intrinsic nickel contributions, dehydrogenation and decarbonylation, without the deactivation caused by coke deposition and side reactions, such as dehydration and condensation. Nonoxide SiC is less active in the water-gas-shift reaction than the oxide supports Al_2O_3 and CeO_2 . Syngas with a H_2/CO ratio of approximately 2.0 can be produced over Ni/SiC.

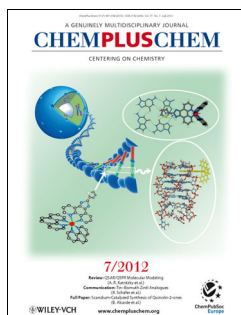
NO Oxidation Pathways

B. M. Weiss, N. Artioli, E. Iglesia*

Catalytic NO Oxidation Pathways and Redox Cycles on Dispersed Oxides of Rhodium and Cobalt

NO catalyst is an island: The oxidation of NO on RhO_2 and Co_3O_4 is limited by the activation of O_2 at vacancies on oxygen-saturated surfaces. Oxygen-binding energies set the vacancy densities and turnover rates. Oneelectron reductions that are accessible to RhO_2 and Co_3O_4 facilitate O_2 activation and allow faster $^{16}\text{O}_2$ – $^{18}\text{O}_2$ exchange and NO oxidation than expected from their oxygen-binding strengths.



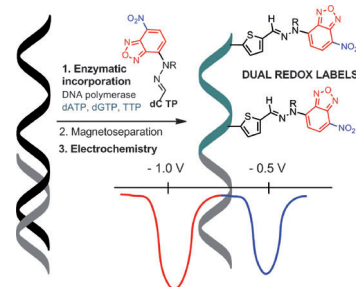


Nucleotides

V. Raindlová, R. Pohl, B. Klepetářová, L. Havran, E. Šimková, P. Horáková, H. Pivoňková, M. Fojta,* M. Hocek*

Synthesis of Hydrazone-Modified Nucleotides and Their Polymerase Incorporation onto DNA for Redox Labeling

Redox labeling of DNA through nitroarylhydrazone modification has been achieved either by polymerase incorporation of hydrazone-modified dNTPs or by incorporation of aldehydes and subsequent hydrazone formation (see figure). Electrochemical studies revealed the potential utility of different redox-active groups for DNA labeling for bioanalysis.



ChemPlusChem
DOI: 10.1002/cplu.201200056

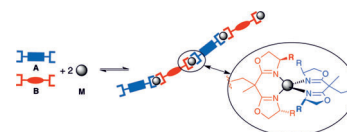


Coordination Copolymer Formation

M. Torres, B. Heinrich, K. Miqueu, S. Bellemin-Lapontaz*

Chirality-Driven Metallo-Copolymer Formation

The combination of two heterochiral bisoxazoline ligands at one metal centre has been successfully used to generate alternating coordination copolymers.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201200468

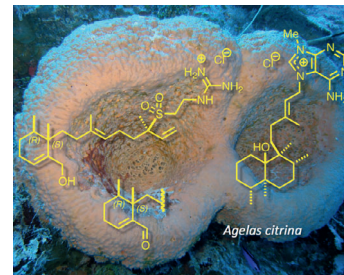


Marine Natural Products

E. P. Stout, L. C. Yu, T. F. Molinski*

Antifungal Diterpene Alkaloids from the Caribbean Sponge *Agelas citrina*: Unified Configurational Assignments of Agelasidines and Agelasines

Chiroptical methods, including molar rotations and application of van't Hoff's principle of optical superposition, were applied to solve the configurations of two new diterpenoid alkaloids isolated from *Agelas citrina*, a sponge endemic to the Bahamas.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201200572



Organic Electronics

Vera Köster

G. Malliaras on Organic Electronics at the Interface with Life Sciences

Organic electronics can link the fields of electronics and biology through their ability to conduct both electronic and ionic charges. Professor George Malliaras, France, explains the latest findings in the field of organic electronics and how they can be adapted for many novel devices.



ChemViews magazine
DOI: 10.1002/chemv.201200062