

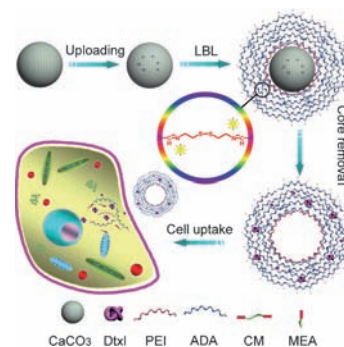


Drug Delivery

L. Gao, J. Fei, J. Zhao, W. Cui, Y. Cui, J. Li*

pH and Redox-Responsive Polysaccharide-Based Microcapsules with Autofluorescence for Biomedical Applications

Responsive carriers: Autofluorescent microcapsules were assembled by covalent cross-linking of polysaccharide derivative alginate dialdehyde (ADA) and cystamine dihydrochloride (CM) through a layer-by-layer technique. The formulated Schiff base and disulfide bonds render capsules with pH and redox-responsive properties for pinpointed intracellular delivery.



Chem. Eur. J.

DOI: 10.1002/chem.201103584

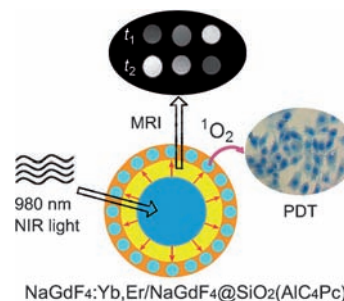


Nanoparticles

Z. Zhao, Y. Han, C. Lin, D. Hu, F. Wang, X. Chen,* Z. Chen, N. Zheng*

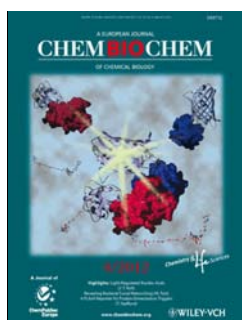
Multifunctional Core-Shell Upconverting Nanoparticles for Imaging and Photodynamic Therapy of Liver Cancer Cells

Go on, liver little: NaGdF₄:Yb,Er/NaGdF₄ nanoparticles with a carboxy aluminum phthalocyanine (AlC₄Pc) photosensitizer incorporated inside silica shells were used in photodynamic therapy and magnetic resonance imaging (MRI) of liver cancer cells. In vitro studies indicated that these nanoparticles effectively killed cancer cells upon near-infrared excitation. This work has potential applications in imaging-guided therapy.



Chem. Asian J.

DOI: 10.1002/asia.201100879

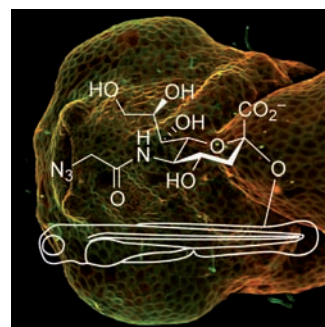


Embryonic Development

K. W. Dehnert, J. M. Baskin, S. T. Laughlin, B. J. Beahm, N. N. Naidu, S. L. Amacher, C. R. Bertozzi*

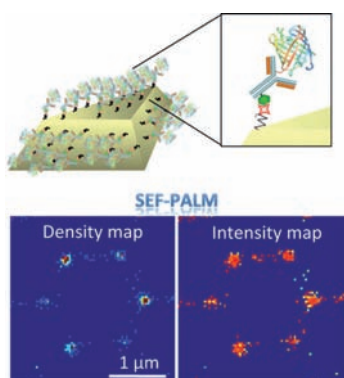
Imaging the Sialome during Zebrafish Development with Copper-Free Click Chemistry

The sialome is comprised of sialylated glycoproteins and glycolipids that play essential roles in cell-cell communication. Using azide-modified molecular precursors of sialic acids and copper-free click chemistry, we visualized the spatiotemporal dynamics of the sialome in live zebrafish embryos.



ChemBioChem

DOI: 10.1002/cbic.201100649



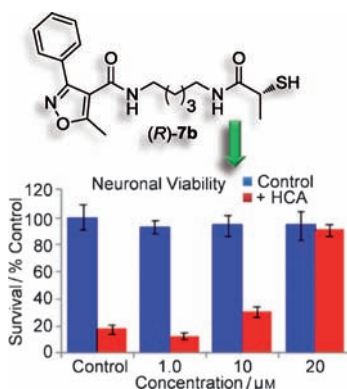
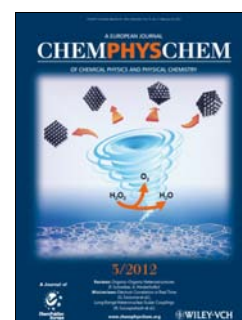
ChemPhysChem
DOI: 10.1002/cphc.201100743

Super-Resolution Imaging

H. Lin, S. P. Centeno, L. Su, B. Kenens, S. Rocha, M. Sliwa, J. Hofkens, H. Uji-i*

Mapping of Surface-Enhanced Fluorescence on Metal Nanoparticles using Super-Resolution Photoactivation Localization Microscopy

Maps on metals: Photoactivation localization microscopy (PALM) is applied to study surface-enhanced fluorescence (SEF) on metal nanostructures (SEF-PALM), see picture. The detection of fluorescence from individual single molecules can be used to image the point-spread function and spatial distribution of the fluorescence emitted in the vicinity of a metal surface.



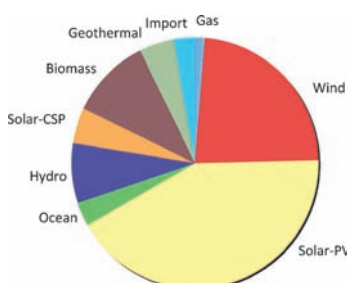
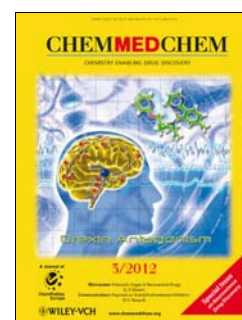
ChemMedChem
DOI: 10.1002/cmdc.201100522

Neurological Agents

J. H. Kalin, H. Zhang, S. Gaudrel-Grosay, G. Vistoli, A. P. Kozikowski*

Chiral Mercaptoacetamides Display Enantioselective Inhibition of Histone Deacetylase 6 and Exhibit Neuroprotection in Cortical Neuron Models of Oxidative Stress

Isoform-selective histone deacetylase (HDAC) inhibitors containing mercaptoacetamide zinc binding groups are known to be viable alternatives to the more traditional hydroxamic acid based inhibitors. Herein we demonstrate the HDAC6 enantioselectivity of α -methyl-substituted mercaptoacetamides and provide evidence to support their use as neuroprotective agents.



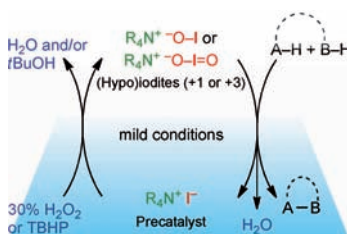
ChemSusChem
DOI: 10.1002/cssc.201100563

Sustainability

A. M. Bradshaw,* T. Hamacher

Nonregenerative Natural Resources in a Sustainable System of Energy Supply

Rare and precious: Following the lead taken by the EU in energy and climate policy, a shift from fossil fuels to regenerative energy will have occurred globally by the second half of this century. This will be accompanied by a strong demand for other exhaustible raw materials, in particular metals. The terms "sustainability", "depletion" and "scarcity" are examined in the context of mineral supply and the situation with regard to some rare metals is discussed.



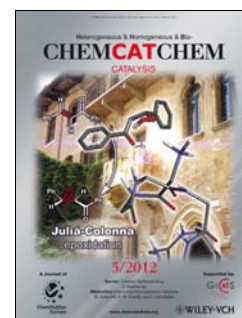
ChemCatChem
DOI: 10.1002/cctc.201100352

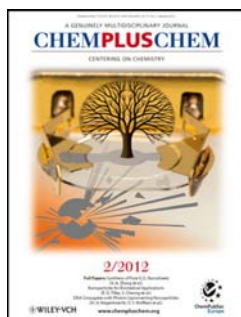
Oxidative Coupling

M. Uyanik, K. Ishihara*

Catalysis with In Situ-Generated (Hypo)iodite Ions for Oxidative Coupling Reactions

Hyping up the iodines: The discovery and development of oxidative coupling reactions catalyzed by inorganic iodine species (i.e., hypoiodite or iodite), which are generated in situ from an iodide ion and hydrogen peroxide or *tert*-butyl hydroperoxide as an environmentally benign oxidant is highlighted.



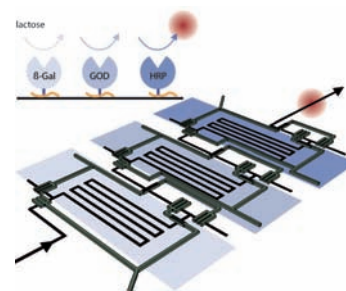


Microfluidic Devices

S. Fornera, P. Kuhn, D. Lombardi, A. D. Schlüter, P. S. Dittrich,*
P. Walde*

Sequential Immobilization of Enzymes in Microfluidic Channels for Cascade Reactions

Go with the flow: A flow-through microfluidic reactor system was developed that contained the three enzymes, β -galactosidase (β -Gal), glucose oxidase (GOD), and peroxidase (HRP), immobilized with a polycationic dendronized polymer in a pre-determined sequence on a single chip for the conduction of an enzymatic cascade reaction. The desired enzyme localization within the microchannels of the chip could be achieved with a micromechanical valve system.



ChemPlusChem
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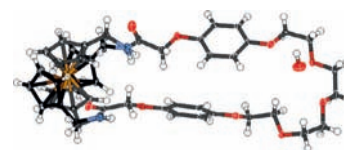


Anion Sensing

N. H. Evans, C. J. Serpell, K. E. Christensen, P. D. Beer*

Amide and Urea Ferrocene-Containing Macrocycles Capable of the Electrochemical Sensing of Anions

Two macrocycles that incorporate the redox-active ferrocene motif for anion sensing are presented. The urea macrocycle binds anions more strongly than the amide macrocycle and exhibits greater shifts of the ferrocene/ferrocenium redox couple upon the addition of anions.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201101257

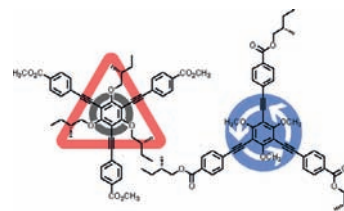


Chiral Organic Materials

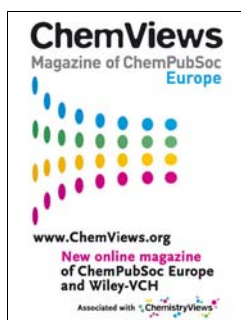
G. Hennrich,* B. Nieto-Ortega, B. Gómez-Lor, E. Gutierrez,
L. de Vega, E. Cervero, F. J. Ramírez, J. T. López Navarrete,* J. Casado

Controlling the Macroscopic Chirality of Organic Materials Based on 1,3,5-Trialkynylbenzenes

The chirality of molecular building units has been efficiently transferred to the macroscopic level, leading to chiral bulk materials of opposite handedness.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201101636

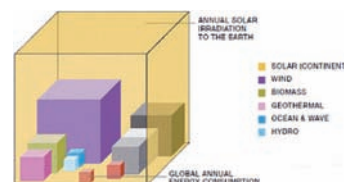


Sustainability

ChemViews

Industrial Roundup: Renewable Energies: Wind, Solar, Biomass

Renewables supplied over 16 % of global final energy consumption in 2010, and supply almost 20 % of global electricity. ChemViews takes a look at the world capacity and market share of wind power, solar power, and biofuel production.



ChemViews magazine
DOI: 10.1002/chemv.201200005