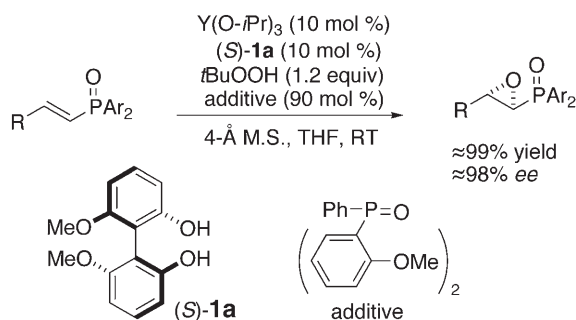


Epoxidation

K. Hara, S.-Y. Park, N. Yamagiwa,
S. Matsunaga,* M. Shibasaki*

Catalytic Asymmetric Epoxidation of
 α,β -Unsaturated Phosphane Oxides with
a $Y(O-iPr)_3$ /Biphenyldiol Complex



Essential extras: A combination of $Y(O-iPr)_3$, biphenyldiol ligand **1a**, and an achiral phosphorus additive enables the catalytic asymmetric epoxidation of α,β -unsaturated phosphane oxides to give

optically active α,β -epoxy phosphane oxides. The reaction proceeds smoothly to afford the products in good yield and with good enantioselectivity. M.S. = molecular sieves.

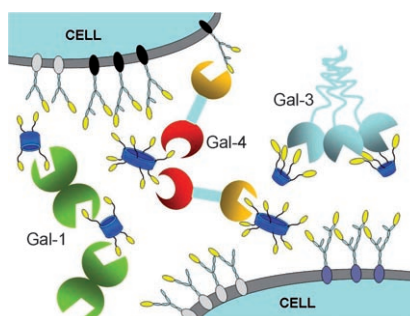
Chem. Asian J.

DOI: 10.1002/asia.200800035

Lectins

S. André, F. Sansone, H. Kaltner,
A. Casnati, J. Kopitz, H.-J. Gabius,*
R. Ungaro*

Calix[n]arene-Based Glycoclusters: Bioactivity
of Thiourea-Linked Galactose/Lactose
Moieties as Inhibitors of Binding of
Medically Relevant Lectins to a Glycoprotein
and Cell-Surface Glycoconjugates and
Selectivity among Human
Adhesion/Growth-Regulatory Galectins



Glycocalixarenes hit on lectins with medical relevance: A set of 14 calix[n]arenes adorned with variable numbers of galactose or lactose units has been synthesized, and their interactions with lectins of clinical interest (either biohazard or factor in tumor progression) were studied. A preference for lactose over galactose epitopes, glycoside cluster effects, and a dependence of selective lectin inhibition on shape and valency of the glycoclusters are revealed.

ChemBioChem

DOI: 10.1002/cbic.200800035

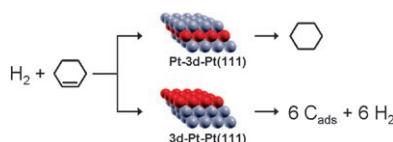
Catalysts

M. P. Humbert, L. E. Murillo,
J. G. Chen*

Rational Design of Platinum-Based
Bimetallic Catalysts with Enhanced
Hydrogenation Activity

ChemPhysChem

DOI: 10.1002/cphc.200800139



Volcanoes abound: The bond strength of adsorbed reactants determines the hydrogenation activity of Pt-based bimetallic catalysts (see reaction). Weak bonding limits the ability of the molecules to react and strong bonding promotes undesired dehydrogenation and decomposition reactions. A volcano-type relationship between activity and adsorbate binding energy is thus observed for the hydrogenation of $C=C$ and $C=O$.

Nitrogen-Rich Chemistry

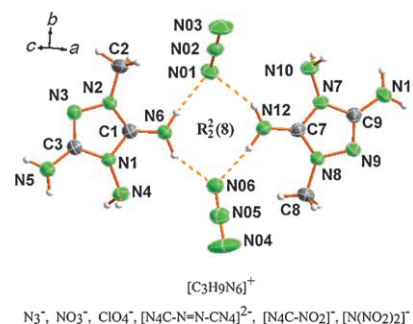
C. Darwich, T. M. Klapötke,*
C. M. Sabaté

1,2,4-Triazolium-Cation-Based Energetic
Salts

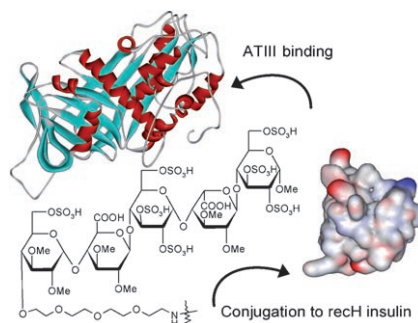
Chem. Eur. J.

DOI: 10.1002/chem.200800340

Things that go bang: Salts based on the novel methylguanazinium cation with classical energetic anions were synthesised and fully characterised (an example is illustrated here). All compounds have low sensitivities toward classical stimuli, good thermal stabilities (DSC) and high (calculated) performances yielding a new family of heterocycle-based compounds with prospective use as high-explosives and/or propellants.



CarboCarrier™: Site-specific conjugation of insulin to a synthetic antithrombin III (ATIII)-binding pentasaccharide (PS) improves the protein's half-life and extends the duration of action. The half-life can be adjusted by changing the PS affinity for ATIII.



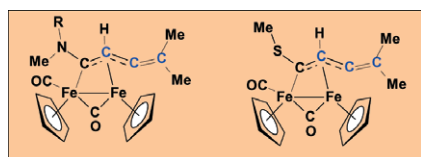
Glycoconjugates

M. de Kort,* B. Gianotten, J. A. J. Wisse, E. S. Bos, M. H. M. Eppink, E. Mattaar, G. M. T. Vogel, W. H. A. Dokter, M. Honing, S. Vonsovich, M.-J. Smit, J. C. H. M. Wijkman, C. A. A. van Boeckel

Conjugation of ATIII-Binding Pentasaccharides to Extend the Half-Life of Proteins: Long-Acting Insulin

ChemMedChem

DOI: 10.1002/cmdc.200800053



A C₄ chain is successfully constructed by assembling allenes with bridging C₁ (alkylidyne) ligands. The reactions are regioselective and afford new bridging butadienylidene diiron complexes containing heteroatom (N, S) functionalities.

Coupling of Allenes

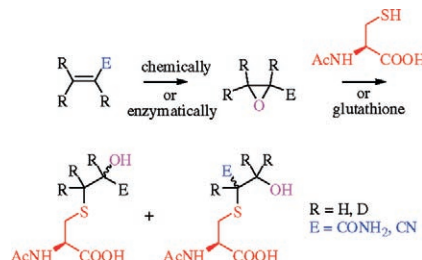
L. Busetto, F. Marchetti, M. Salmi, S. Zacchini, V. Zanotti*

Coupling of Allenes with μ -Alkylidyne Ligands in Diiron Complexes: Synthesis of Novel Bridging Thio- and Aminobutadienylidene Complexes

Eur. J. Inorg. Chem.

DOI: 10.1002/ejic.200800048

Practical syntheses of all four oxidative metabolites of acrylamide and acrylonitrile in their unlabelled and deuterium-labelled forms make it possible to clarify the metabolism of and quantify human exposure to these toxic electrophiles. An approach to compounds with the rare structural fragment R¹OCH₂CH(SR²)CN [R¹ = protecting group or H, R² = (functionally substituted) alkyl or aryl group] has been developed.



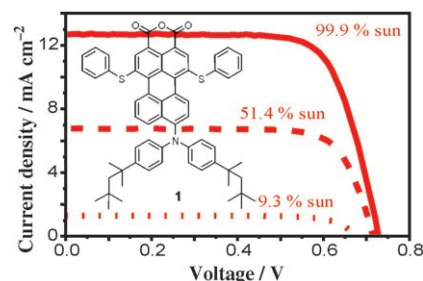
Metabolism and Toxins

V. N. Belov, S. M. Korneev, J. Angerer, A. de Meijere*

Syntheses of D-Labelled Oxidative Metabolites of Acrylamide and Acrylonitrile for the Quantification of Their Toxicities in Humans

Eur. J. Org. Chem.

DOI: 10.1002/efoc.200800291



Sunny side up: 1,6-Dithiophenol-substituted perylene organic sensitizer **1** was synthesized, and its photovoltaic properties in dye-sensitized solar cells were assessed. When anchored onto TiO₂ film, the dye exhibits an unprecedented incident monochromatic photon-to-current conversion efficiency of 87% and yields a power conversion efficiency of 6.8% under standard AM 1.5 solar conditions.

Dye-Sensitized Solar Cells

C. Li, J.-H. Yum, S.-J. Moon, A. Herrmann, F. Eickemeyer, N. G. Pschirer, P. Erk, J. Schöneboom, K. Müllen, M. Grätzel, M. K. Nazeeruddin*

An Improved Perylene Sensitizer for Solar Cell Applications

ChemSusChem

DOI: 10.1002/cssc.200800068