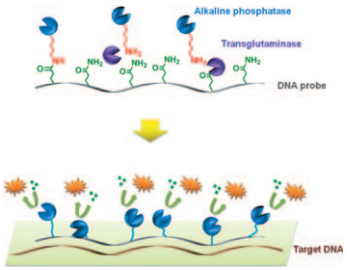
On these pages, we feature a selection of the excellent work that has recently been published in our sister journals. If you are reading these pages on a computer, click on any of the items to read the full article. Otherwise please see the DOIs for easy online access through Wiley Online Library.

DNA–Protein Conjugate

M. Kitaoka, Y. Tsuruda, Y. Tanaka, M. Goto, M. Mitsumori, K. Hayashi, Y. Hiraishi, K. Miyawaki, S. Noji, N. Kamiya*

Transglutaminase-Mediated Synthesis of a DNA–$(Enzyme)_n$ Probe for Highly Sensitive DNA Detection

DNA detector: A glutamine-modified DNA probe was synthesized by the polymerase chain reaction by using a glutamine-modified 2′-deoxyuridine 5′-triphosphate analogue as a substrate of DNA polymerase. The DNA–$(alkaline\ phosphatase)_n$ conjugate probe was highly sensitive and could directly visualize the target DNA bound on a membrane immediately after hybridization (see graphic).



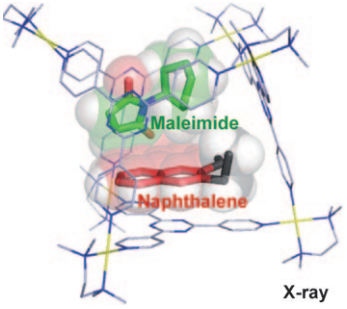
Chem. Eur. J.
DOI: **10.1002/chem.201003744**

Diels–Alder Reactions

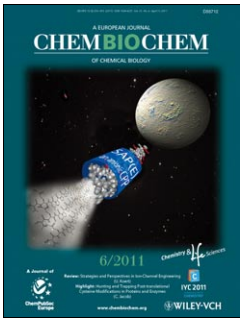
S. Horiuchi, T. Murase, M. Fujita*

Diels–Alder Reactions of Inert Aromatic Compounds within a Self-Assembled Coordination Cage

Cage against the machine: A self-assembled coordination cage can accommodate a pair of aromatic compounds and dienophiles to promote the Diels–Alder reactions of otherwise inert aromatic molecules. Preorganization of the substrate pair within the cage was quantified as a significant decrease of entropy cost and clearly illustrated by X-ray crystallographic analysis.



Chem. Asian J.
DOI: **10.1002/asia.201000842**

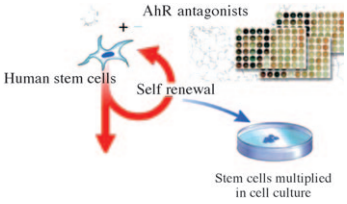


Stem Cells

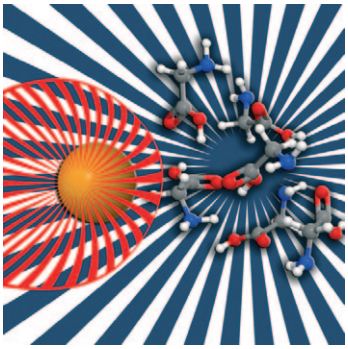
L. C. Bouchez, A. E. Boitano, L. de Lichtervelde, R. Romeo, M. P. Cooke, P. G. Schultz*

Small-Molecule Regulators of Human Stem Cell Self-Renewal

A cell-based phenotypic screen using primary $CD34^+$ cells identified novel regulators of hematopoietic stem cell (HSC) fate. These compounds expand cord-blood-derived HSCs by acting as potent antagonists of the aryl hydrocarbon receptor.



ChemBioChem
DOI: **10.1002/cbic.201000734**



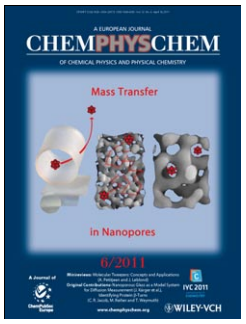
ChemPhysChem
DOI: **10.1002/cphc.201000823**

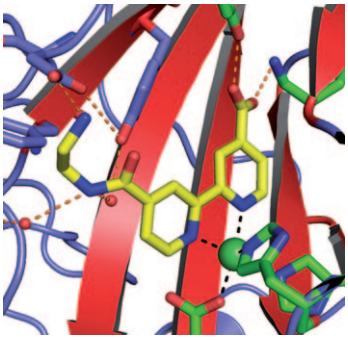
Amino Acid Fragmentation

S. Maclot, M. Capron, R. Maisonny, A. Ławicki, A. Méry, J. Rangama, J.-Y. Chesnel, S. Bari, R. Hoekstra, T. Schlathölter, B. Manil, L. Adoui, P. Rousseau,* B. A. Huber

Ion-Induced Fragmentation of Amino Acids: Effect of the Environment

The weakest link: Radiation induces the fragmentation of amino acids and is mainly driven by the cleavage of the $C–C_\alpha$ bond; the weakest bond of the system. By embedding the amino acid in clusters, the fragmentation pattern changes drastically. The weak hydrogen-bonded network (see picture) preferentially breaks, leading to a protective effect of the environment acting as "buffer".





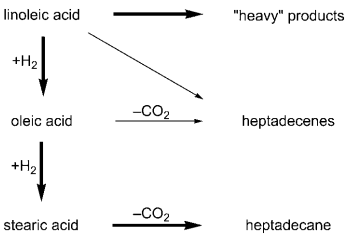
ChemMedChem
DOI: **10.1002/cmdc.201100026**

Epigenetics

K.-H. Chang, O. N. F. King, A. Tumber, E. C. Y. Woon, T. D. Heightman, M. A. McDonough, C. J. Schofield,* N. R. Rose*

Inhibition of Histone Demethylases by 4-Carboxy-2,2′-Bipyridyl Compounds

Exploiting epigenetics: 2-Oxoglutarate (2OG)-dependent histone lysine demethylases, such as JMJD2E, are potential therapeutic targets in a range of diseases. Through structure–activity relationship studies and analyses, we identified a potent 4-carboxy-2,2′-bipyridyl compound, which inhibits JMJD2E with an IC_{50} value of 110 nM, representing a 66-fold improvement over the lead compound. These bipyridyl derivatives bind in the 2-oxoglutarate binding site.



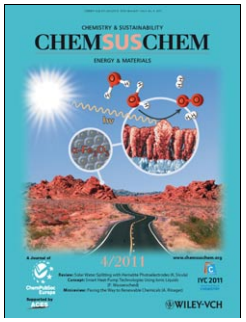
ChemSusChem
DOI: **10.1002/cssc.201000370**

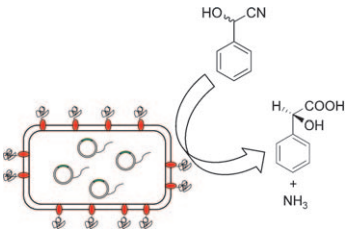
Biomass Valorization

J. Fu, X. Lu, P. E. Savage*

Hydrothermal Decarboxylation and Hydrogenation of Fatty Acids over Pt/C

In hot water: The conversion of saturated and unsaturated alkanes, catalyzed by Pt/C in the absence of H_2, in high-temperature water has been investigated (see figure). H_2 is formed in situ during the hydrothermal catalytic process. This hydrothermal decarboxylation route represents a new path for using renewable resources to make molecules with value as liquid transportation fuels.





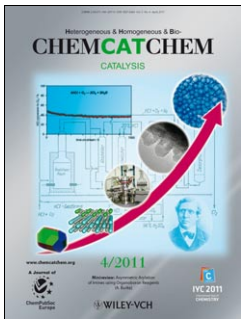
ChemCatChem
DOI: **10.1002/cctc.201000382**

Biocatalysis

C. Detzel, R. Maas, J. Jose*

Autodisplay of Nitrilase from *Alcaligenes faecalis* in *E. coli* Yields a Whole Cell Biocatalyst for the Synthesis of Enantiomerically Pure (*R*)-Mandelic Acid

The enzyme factory: The Autodisplay-mediated surface display of a nitrilase provides an interesting new approach for immobilization of a multimeric enzyme on the surface of *E. coli*, which eliminates the need for costly enzyme preparations. With the production of 380 mg of pure (*R*)-mandelic acid the whole-cell biocatalyst showed its suitability for biocatalysis.

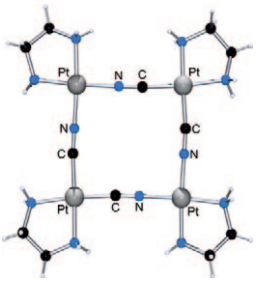


Metallacycles

A. Galstyan, P. J. Sanz Miguel, J. Wolf, E. Freisinger, B. Lippert*

Discrete Molecular Squares $\{[(en)M(CN)]_4\}^{4+}$ Derived from $[(en)M(CN)_2]$ (M = Pt^{II}, Pd^{II})

Cationic molecular squares composed of (en)M (M = Pt^{II}, Pd^{II}) corners and cyanide bridges have been prepared and details of their formation and reactivity have been studied.



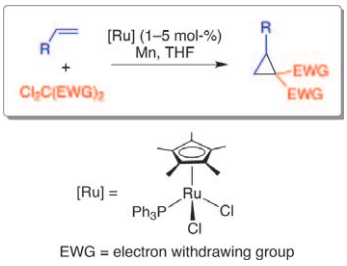
Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.201001216**

Radical Chemistry

M. A. Fernández-Zúmel, C. Buron, K. Severin*

Sequential ATRA/Reductive Cyclopropanation Reactions with a Ruthenium Catalyst in the Presence of Manganese

Atom-transfer radical addition reactions followed by dechlorination can be used to access functionalized cyclopropanes from easily accessible starting materials.



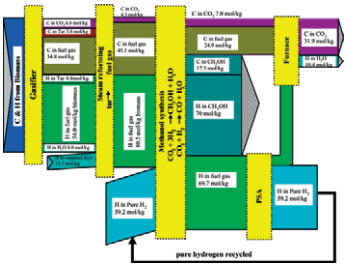
Eur. J. Org. Chem.
DOI: **10.1002/ejoc.201100175**

Green Process for Methanol Production

W. Feng, P. Ji*, B. Chen, D. Zheng

Analysis of Methanol Production from Biomass Gasification

A green process for methanol production was investigated. The process starts with biomass gasification, followed by steam reforming of the syngas and conversion of the syngas to methanol. Process analysis indicates that optimal combinations of a number of key parameters can greatly enhance the methanol production and the thermodynamic efficiency.



Chem. Eng. Technol.
DOI: **10.1002/ceat.201000346**