Spotlights ...

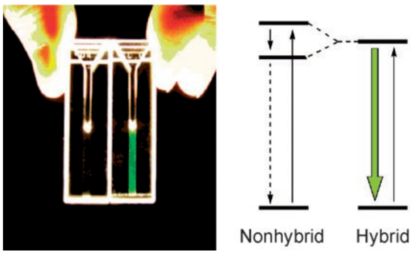
Fluorescent DNA Probes

S. Ikeda, A. Okamoto*

Hybridization-Sensitive On–Off DNA Probe: Application of the Exciton Coupling Effect to Effective Fluorescence Quenching

Chem. Asian J.
DOI: **10.1002/asia.200800014**

Switching on the light: On–off fluorescent DNA probes controlled by the excitonic interaction between dyes show negligible emission in the single-stranded state (see picture, nonhybrid), whereas strong fluorescence was observed when they were hybridized with the target strand.



Enzyme Catalysis

M. Tello, M. Rejzek, B. Wilkinson, D. M. Lawson,* R. A. Field*

Tyl1a, a TDP-6-deoxy-D-*xylo*-4-hexulose 3,4-isomerase from *Streptomyces fradiae*: Structure Prediction, Mutagenesis and Solvent Isotope Incorporation Experiments to Investigate Reaction Mechanism

ChemBioChem
DOI: **10.1002/cbic.200800021**

TDP-6-deoxy-D-*xylo*-4-hexulose   TDP-6-deoxy-D-*ribo*-3-hexulose

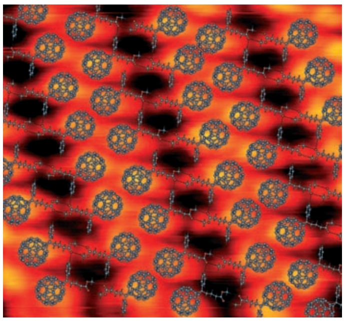
Sugar nucleotide isomerisation: Understanding the structure and mechanism of sugar nucleotide processing enzymes is invaluable in engineering antibiotic glycosylation. In this study homology modelling, mutagenesis and mechanistic studies have enabled the identification of putative active-site residues involved in Tyl1a-catalysed ketoisomerisation. The similarity of both Tyl1a structure and mechanism to the RmlC epimerase family is discussed.

Supramolecular Self-Assembly

Y. Wang,* M. Alcamí, F. Martín

Understanding the Supramolecular Self-Assembly of the Fullerene Derivative PCBM on Gold Surfaces

ChemPhysChem
DOI: **10.1002/cphc.200700725**



Controlled hydrogen bonding: At high coverage, the self-assembly of a fullerene derivative (PCBM) on the Au(111) surface (see figure) is primarily controlled by hydrogen bonding between the PCBM tails. Gas phase simulations agree well with experiments, as due to the large size of the fullerene cage, the hydrogen bonds are far away from the surface.

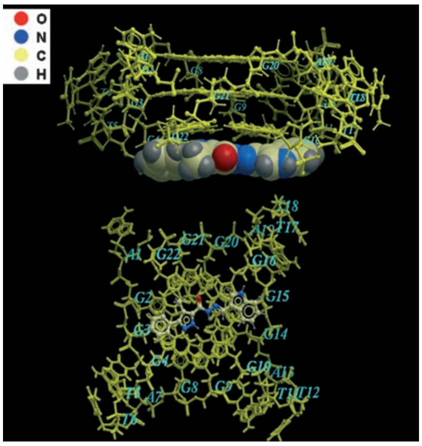
Virtual Screening

D.-L. Ma,* T.-S. Lai, F.-Y. Chan, W.-H. Chung, R. Abagyan, Y.-C. Leung, K.-Y. Wong*

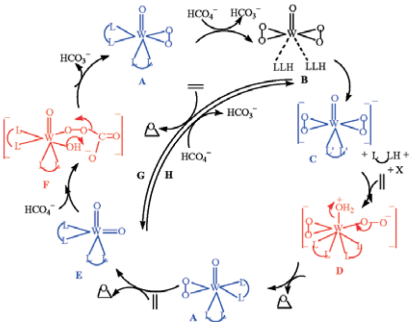
Discovery of a Drug-Like G-Quadruplex Binding Ligand by High-Throughput Docking

ChemMedChem
DOI: **10.1002/cmdc.200700342**

A new G-quadruplex binding ligand, namely 1*H*-pyrazole-3-carboxy-4-methyl-5-phenyl-(1*H*-indol-3-ylmethylene)hydrazide, was identified from a database of 100000 drug-like compounds by in silico high-throughput docking. This compound was demonstrated experimentally to be an effective stabilizer of G-quadruplex DNA; it exhibits high selectivity for G-quadruplex over duplex DNA.



The synthesized complexes behave as excellent catalysts in the oxidation of various organic substrates in the presence of H_2O_2 as a terminal oxidant and show high yield, selectivity, TON, catalyst economy and cost-effectiveness.



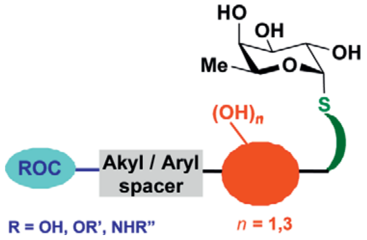
Homogeneous Catalysis

S. K. Maiti, S. Dinda, S. Banerjee, A. K. Mukherjee, R. Bhattacharyya*

Oxidoperoxidotungsten(VI) Complexes with Secondary Hydroxamic Acids: Synthesis, Structure and Catalytic Uses in Highly Efficient, Selective and Ecologically Benign Oxidation of Olefins, Alcohols, Sulfides and Amines with H_2O_2 as a Terminal Oxidant

Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.200701043**

The synthesis and biological evaluation of a series of low-molecular-weight sialyl Lewis X mimetics based on *S*-neofucopeptides is presented. Biological tests show that all new mimetics are recognized by E- and P-selectins at low mM concentration.



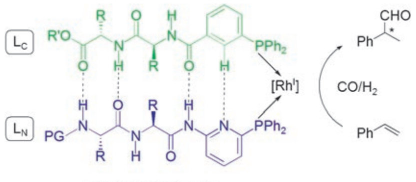
S-Neofucopeptides

A. J. Moreno-Vargas,* L. Molina, A. T. Carmona, A. Ferrali, M. Lambelet, O. Spertini, I. Robina*

Synthesis and Biological Evaluation of *S*-Neofucopeptides as E- and P-Selectin Inhibitors

Eur. J. Org. Chem.
DOI: **10.1002/ejoc.200800199**

A new concept of in situ generation of bidentate P-ligands for transition-metal catalysis, in which two complementary, monodentate, peptide-based ligands are brought together by employing peptide secondary structure motif as constructing tool to direct the self-assembly process, is achieved through formation of stable β-sheet motifs (see scheme) and subsequent control of selectivity.



catalyst formation by
β-sheetlike self-assembly

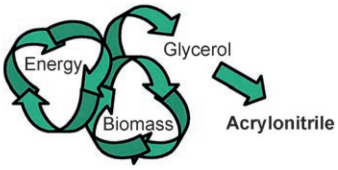
Combinatorial Chemistry

A. C. Laungani, J. M. Slattery, I. Krossing, B. Breit*

Supramolecular Bidentate Ligands by Metal-Directed in situ Formation of Antiparallel β-Sheet Structures and Application in Asymmetric Catalysis

Chem. Eur. J.
DOI: **10.1002/chem.200800359**

A high-value conversion: Acrylonitrile, a monomer in the manufacture of synthetic polymers, is typically produced from propylene. However, a new sustainable process has been developed in which glycerol, a renewable resource (by-product in the manufacture of biodiesel), is treated with ammonia under moderate reaction conditions to give this value-added product.



Clycerol Conversion

M. O. Guerrero-Pérez, M. A. Bañares*

New Reaction: Conversion of Glycerol into Acrylonitrile

ChemSusChem
DOI: **10.1002/cssc.200800023**

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