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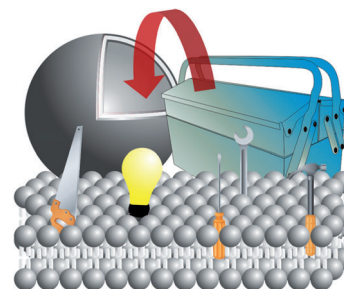


Membranes

B. Gruber, B. König*

Self-Assembled Vesicles with Functionalized Membranes

Breaking the surface: The embedding of amphiphilic binding sites, dyes or catalysts into vesicular bilayer membranes provides rapid and simple access to soft functional surfaces (see illustration). The dynamic organization of these self-assembled nanosystems enables a number of interesting applications like biomolecule sensing and catalytic transformations at interfaces.



Chem. Eur. J.
DOI: 10.1002/chem.201202982

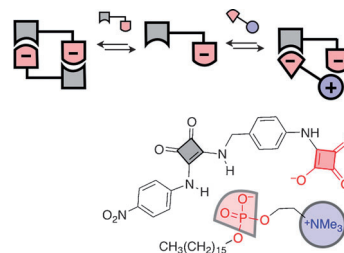


Host–Guest Systems

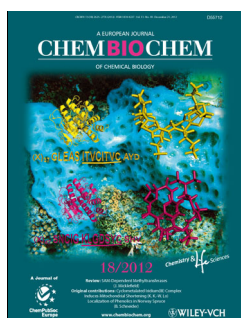
C. López, E. Sanna, L. Carreras, M. Vega, C. Rotger, A. Costa*

Molecular Recognition of Zwitterions: Enhanced Binding and Selective Recognition of Miltefosine by a Squaramide-Based Host

The importance of a synergic combination between electrostatic and hydrogen-bonding interactions has been demonstrated. A self-complementary amidosquarate-squaramide host for miltefosine has been disclosed. In DMSO, this rather structurally simple host exhibits high affinity and enhanced selectivity for miltefosine owing to the goal-keeping effect of the amidosquarate unit.



Chem. Asian J.
DOI: 10.1002/asia.201200881

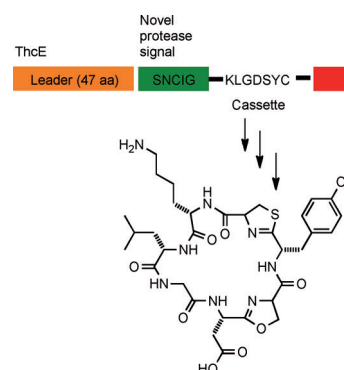


Ribosomal Peptides

W. E. Houssen, J. Koehnke, D. Zollman, J. Vendome, A. Raab, M. C. M. Smith, J. H. Naismith,* M. Jaspars*

The Discovery of New Cyanobactins from *Cyanothece* PCC 7425 Defines a New Signature for Processing of Patellamides

Follow the signal: The discovery of new cyanobactins from *Cyanothece* PCC 7425 cultured under stressful conditions revealed a novel signature signal for its subtilisin protease that is homologous to the patellamide protease PatA. The crystal structure of the latter and modelling studies have provided a molecular rationalisation for the enzyme specificity, a step which will enhance harnessing the full capacity of these biosynthetic enzymes.



ChemBioChem
DOI: 10.1002/cbic.201200661



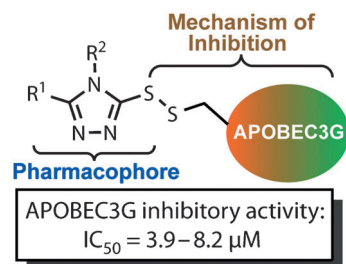
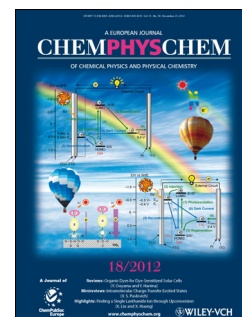
ChemPhysChem
DOI: 10.1002/cphc.201200703

Magnetic Materials

H. Yang, L. Han, J. Zhao, X. Song,* Q. Song, Y. Bu

Magnetism-Tunable Oligoacene Dioxide Diradicals: Promising Magnetic Oligoacene-Like Molecules

Charming graphene oxide: Dioxidization of oligoacenes could lead to diradicals with variable magnetism, depending on the dioxidizing route. This work provides an executable strategy to yield building blocks of magnetic materials with adjustable properties, and also provides a gateway to explore the magnetic properties of graphene oxides.



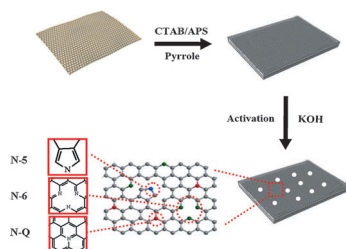
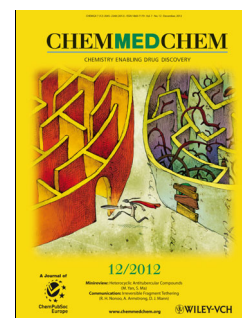
ChemMedChem
DOI: 10.1002/cmdc.201200411

Antiviral Agents

M. E. Olson, M. Li, R. S. Harris, D. A. Harki*

Small-Molecule APOBEC3G DNA Cytosine Deaminase Inhibitors Based on a 4-Amino-1,2,4-triazole-3-thiol Scaffold

A gift from C to U: A small library of 4-amino-1,2,4-triazole-3-thiol inhibitors of the DNA cytosine deaminase APOBEC3G (A3G) was developed based on leads from HTS. Analogues with pendent sulfhydryl groups potently inhibit A3G activity (IC_{50} : 3.9–8.2 μM) and show remarkable selectivity over the related deaminase APOBEC3A. Sulfhydryl group alkylation abolished inhibitory activity by blocking disulfide formation with Cys 321 on A3G, as verified by the resistance of the A3G C321A mutant protein to molecules of this class.



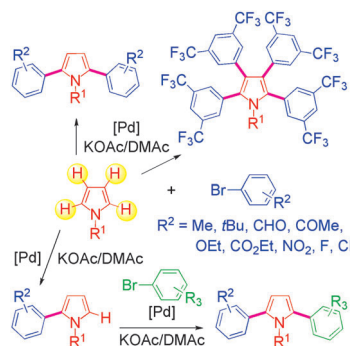
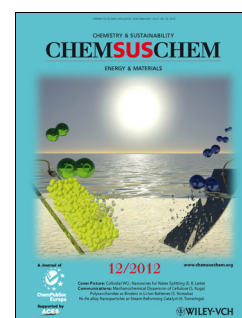
ChemSusChem
DOI: 10.1002/cssc.201200680

Sodium-Ion Batteries

H.-g. Wang, Z. Wu, F.-l. Meng, D.-l. Ma, X.-l. Huang, L.-m. Wang, X.-b. Zhang*

Nitrogen-Doped Porous Carbon Nanosheets as Low-Cost, High-Performance Anode Material for Sodium-Ion Batteries

Between the sheets: Sodium-ion batteries are an attractive, low-cost alternative to lithium-ion batteries. Nitrogen-doped porous carbon sheets are prepared by chemical activation of polypyrrole-functionalized graphene sheets. When using the sheets as anode material in sodium-ion batteries, their unique compositional and structural features result in high reversible capacity, good cycling stability, and high rate capability.



ChemCatChem
DOI: 10.1002/cctc.201200521

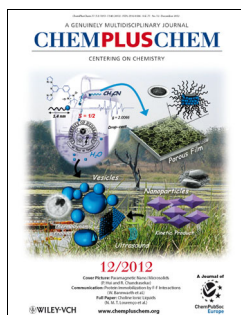
Polyarylation

L. Zhao, C. Bruneau, H. Doucet*

Palladium-Catalysed Direct Polyarylation of Pyrrole Derivatives

Direct to the poly: The palladium-catalyzed direct polyarylation of pyrroles with aryl bromides proceeds smoothly with a catalyst loading of 0.5–1 mol% [Pd] as the catalyst and in the presence of KOAc/DMAc. The diarylation at C2 and C5 of 1-methyl- or 1-phenylpyrrole proceeds with a variety of aryl bromides. From 3,5-bis(trifluoromethyl)-bromobenzene and 1-methylpyrrole, the tetraarylated pyrrole is obtained in good yield.



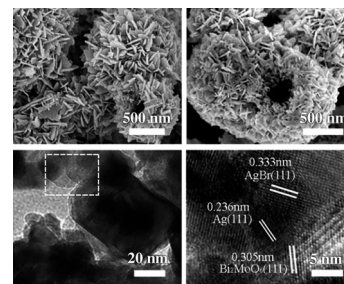


Hierarchical Composites

G. Tian, Y. Chen, X. Meng, J. Zhou, W. Zhou, K. Pan, C. Tian, Z. Ren, H. Fu*

Hierarchical Composite of Ag/AgBr Nanoparticles Supported on Bi_2MoO_6 Hollow Spheres for Enhanced Visible-Light Photocatalytic Performance

Enhanced catalytic activity: A Ag/AgBr/ Bi_2MoO_6 composite with a hierarchical hollow heterostructure was fabricated (see figure), and was found to exhibit significantly enhanced visible-light photocatalytic activity in the degradation of alizarin red and phenol compared with the Ag/AgBr/ Bi_2MoO_6 nanoparticle composite and pure hierarchical Bi_2MoO_6 hollow spheres.



ChemPlusChem
DOI: 10.1002/cplu.201200198

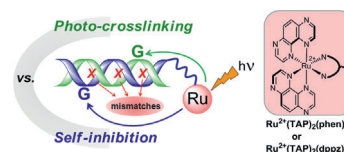


Ru(II)-DNA Photochemistry

S. Le Gac, M. Surin, E. Defrancq, C. Moucheron, A. Kirsch-De Mesmaeker*

What Are the Parameters Controlling Inter- vs. Intra-Strand DNA Photodamage with Ru-TAP Oligonucleotides?

Selective photodamage: Ru-TAP complexes anchored to a guanine (G) containing ODN probe behave as “intelligent” DNA photoreagents, provided that a fine tuning of probe–target interactions could be reached. Selective DNA photodamage results from judicious selection of complex and probe/target sequence compatibilities.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201201019

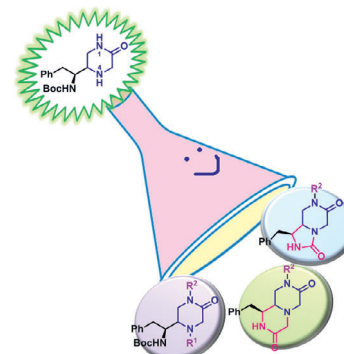


Molecular Diversity

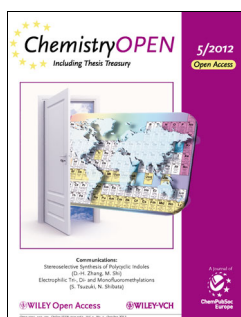
A. M. Valdivielso, P. Ventosa-Andrés, M. T. García-López, R. Herranz, M. Gutiérrez-Rodríguez*

Synthesis and Regioselective Functionalization of Piperazin-2-ones Based on Phe-Gly Pseudodipeptides

An easy methodology for the synthesis of the piperazin-2-ones by one-pot reductive cyclization of $\text{Phe}\Psi[\text{CH}(\text{CN})\text{NH}]\text{Gly}$ pseudodipeptides is described. Study of the reactivity of the piperazin-2-one ring has shown that regioselective functionalization at the N^1 and N^4 positions is possible, and hence great potential for molecular diversity generation



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201201221

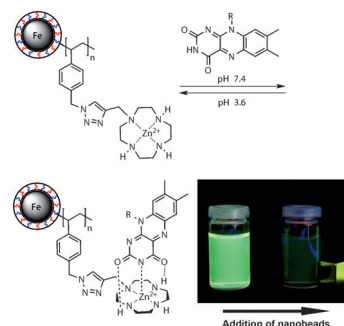


Molecular Gates

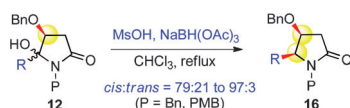
E. Climent, R. Martínez-Mañez,* Á. Maquieira,* F. Sancenón, M. Dolores Marcos, E. M. Brun, J. Soto, P. Amorós

Antibody-Capped Mesoporous Nanoscopic Materials: Design of a Probe for the Selective Chromo-Fluorogenic Detection of Finasteride

Antibodies as gatekeepers: Novel capped mesoporous silica nanoparticles (MSN) using antibodies as gatekeepers have been prepared in order to detect finasteride. In the presence of these particles (**S1-AB**), displacement of the antibody takes place, uncapping the pores and releasing the entrapped dye (see figure). Detection of finasteride in biological samples was tested using blank urine as standard matrix.



ChemistryOpen
DOI: 10.1002/open.201100008



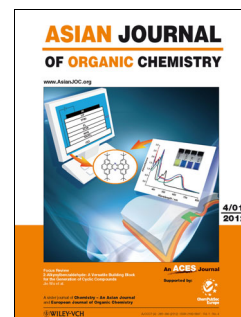
Pyrrolidinone Synthesis

Y.-H. Wang, W. Ou, L. Xie, J.-L. Ye, P.-Q. Huang*

Towards Reaction Control: *cis*-Diastereoselective Reductive Dehydroxylation of 5-Alkyl-4-Benzyloxy-5-Hydroxy-2-Pyrrolidinones

Reaction control to achieve chemo-, regio-, and stereoselectivity is a highly desirable, yet challenging task in organic synthesis. The direct modular approach to *cis*-5-alkyl-4-benzyloxy-2-pyrrolidinones **16** can be achieved with good to excellent diastereoselectivity. Pyrrolidinones **16** are useful building blocks for the syntheses of natural products such as (+)-preussin, streptopyrrolidine, and (3*S*,4*S*)- γ -alkyl- β -hydroxy- γ -amino acids. Bn = benzyl, PMB = *p*-methoxybenzyl.

Asian J. Org. Chem.
DOI: 10.1002/ajoc.201200113



ChemViews magazine
DOI: 10.1002/chemv.201200145

Receptor Modeling

D. Bradley

Slave to the Rhythm

Melanopsin, a G-protein-coupled receptor, is present in the eye, but is not involved in vision. The pigment absorbs blue light and reaches neurones (ganglions) deep within the retina. A new model for the active site of melanopsin reveals how this pigment may underpin the rhythm of our lives by regulating our body clocks.

