

Hydrogels

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Construction of Chemical-Responsive
Supramolecular Hydrogels from
Guest-Modified Cyclodextrins

Chem. Asian J.
DOI: 10.1002/asia.200700378

Gelling together: Supramolecular hydrogels can be prepared from guest-modified cyclodextrins (CDs) by a method based on the host-guest and hydrogen-bonding interactions of CDs. These hydrogels display excellent chemical-responsive properties, and reversible gel-to-sol and sol-to-gel transitions occur upon the alternate addition of methyl orange and α -CD.

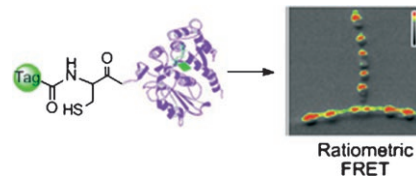


Site-Specific Labeling

S. Chattopadhyaya, F. B. Abu Bakar,
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In Vivo Imaging of a Bacterial Cell
Division Protein Using a
Protease-Assisted Small-Molecule
Labeling Approach

ChemBioChem
DOI: 10.1002/cbic.200700647



Announce on entry: We present a method for the site-specific labeling of target proteins using a set of cell permeable small-molecule probes. The tobacco etch virus (TEV) NIa protease, was used to generate target proteins with an N-terminal cysteine residue, which was subsequently labeled with thioester probe(s) in a site-specific and covalent manner. Furthermore, we demonstrate the utility of this approach for the study of FtsZ, an important bacterial cell-division protein (see figure).

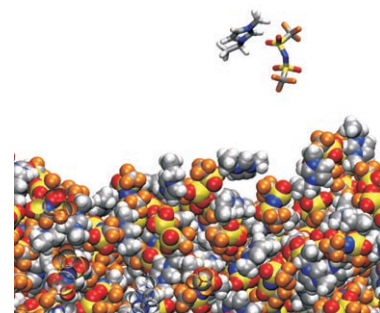
Ionic Liquids

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R. Ludwig*

Ionic Liquids: Dissecting the Enthalpies
of Vaporization

ChemPhysChem
DOI: 10.1002/cphc.200700814

Green vapors: The low volatility and the corresponding high heats of vaporisation make ionic liquids attractive as “green” solvents. Molecular dynamics simulations are able to reproduce thermodynamic properties of these new materials and can explain their origin on the basis of molecular interactions.



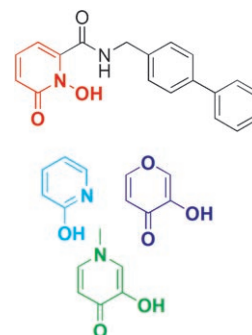
Enzyme Inhibitors

A. Agrawal, D. Romero-Perez,
J. A. Jacobsen, F. J. Villarreal,
S. M. Cohen*

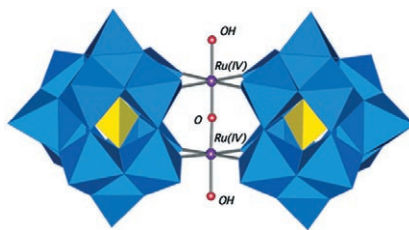
Zinc-Binding Groups Modulate Selective
Inhibition of MMPs

ChemMedChem
DOI: 10.1002/cmdc.200700290

Improving MMP inhibition. Matrix metalloproteinases (MMPs) are a family of zinc-dependent endopeptidases. The zinc-binding group (ZBG) of matrix metalloproteinase inhibitors (MMPi) is shown to be effective in obtaining isoform selectivity. This suggests a novel route to obtaining targeted MMPi, which elicit specificity through both the ZBG and the peptidomimetic backbone.



The hydrothermal synthesis and characterization (X-ray diffraction, IR, multinuclear NMR spectroscopy, electrochemistry) of the high-valent ruthenium-containing heteropolytungstate $\{[PW_{11}O_{39}]_2^{2-}\{[(HO)Ru-O-Ru(OH)]\}^{10-}\}$ are reported. This complex can be obtained by the association of two $[PW_{11}O_{39}]^{7-}$ subunits linked by a $\{Ru^{IV}-O-Ru^{IV}\}$ diamagnetic core. Electrochemistry shows that it can be reversibly oxidized (one-electron process) or reduced (two-electron process).



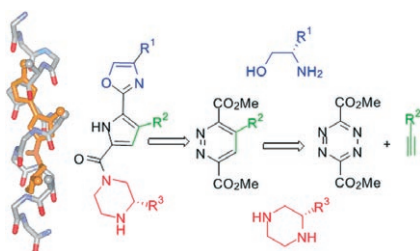
Ru-Containing Polyoxometalates

S.-W. Chen, R. Villanneau, Y. Li, L.-M. Chamoreau, K. Boubekeur, R. Thouvenot, P. Gouzerh, A. Proust*

Hydrothermal Synthesis and Structural Characterization of the High-Valent Ruthenium-Containing Polyoxoanion $\{[PW_{11}O_{39}]_2\{[(HO)Ru^{IV}-O-Ru^{IV}(OH)]\}^{10-}\}$

Eur. J. Inorg. Chem.

DOI: 10.1002/ejic.200701359



The design and synthesis of nonpeptidic α -helix mimetics based on a tricyclic oxazole-pyrrole-piperazine scaffold is described. The scaffolds present both a hydrophobic surface for recognition and a hydrophilic edge that is rich in hydrogen-bond donors and acceptors.

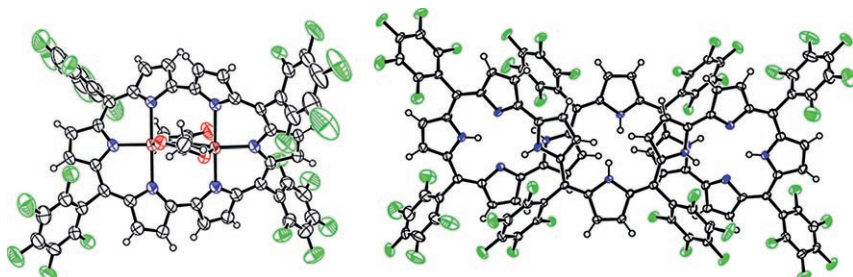
α -Helix Mimetics

L. Moisan, S. Odermatt, N. Gombosuren, A. Carella, J. Rebek Jr.*

Synthesis of an Oxazole-Pyrrole-Piperazine Scaffold as an α -Helix Mimetic

Eur. J. Org. Chem.

DOI: 10.1002/ejoc.200701164



Aromatic switching has been demonstrated in both the absence and presence of a metal cation (i.e., zinc(II)) in the case of a *meso*-substituted rubyrin-type hexapyrrolic expanded porphyrin. This same system acts as an anion-binding agent in methanol solution, whereas the

synthetic procedure used to prepare the parent compound, involving an oxidative coupling reaction of a *meso*-pentafluorophenyl substituted tripyrrane allows isolation of rubyrin-type expanded porphyrins.

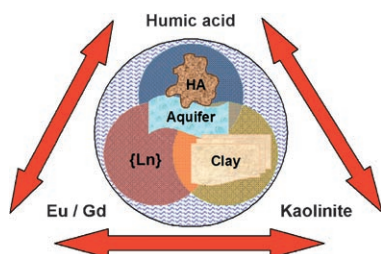
Porphyrinoids

S. Shimizu, W.-S. Cho, J. L. Sessler,* H. Shinokubo, A. Osuka*

meso-Aryl Substituted Rubyrin and Its Higher Homologues: Structural Characterization and Chemical Properties

Chem. Eur. J.

DOI: 10.1002/chem.200701909



Heavy metal and rock: Humic acid (HA) in natural clays can play an important role in the (im)mobilization (complexation) of toxic metal ions such as radionuclides in the deep geological disposal of high-level radioactive waste. To better understand the influencing factors, the sorption behavior of Eu^{3+} and Gd^{3+} ions, as homologues of the actinides Am and Cm, was studied under various conditions.

Environmental Chemistry

R. Kautenburger,* H. P. Beck

Waste Disposal in Clay Formations: Influence of Humic Acid on the Migration of Heavy-Metal Pollutants

ChemSusChem

DOI: 10.1002/cssc.200800014