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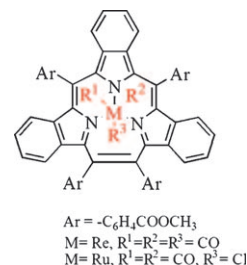


Porphyrinoids

Z. L. Xue, J. Mack, H. Lu, L. Zhang, X. Z. You, D. Kuzuhara, M. Stillman, H. Yamada,* S. Yamauchi, N. Kobayashi,* Z. Shen*

The Synthesis and Properties of Free-Base [14]Triphyrin(2.1.1) Compounds and the Formation of Subporphyrinoid Metal Complexes

A general synthetic approach for the synthesis of free-base [14]triphyrin(2.1.1) compounds and metal [14]tribenzotriphyrin(2.1.1) complexes (see graphic) is described based on a modified Lindsey method reaction. The mechanism of [14]triphyrins (2.1.1) formation is described in detail and the effects of exocyclic ring annulation with benzo and naphtho rings are examined based on optical spectroscopy, theoretical calculations, and electrochemical measurements.



Chem. Eur. J.
DOI: 10.1002/chem.201003100

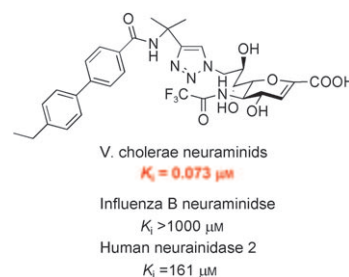


Glycosidase Inhibitors

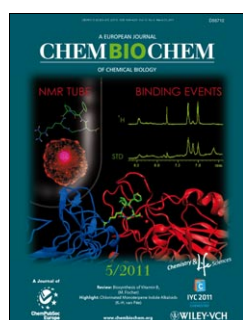
H. Hinou,* R. Miyoshi, Y. Takasu, H. Kai, M. Kuroguchi, S. Arioka, X.-D. Gao, N. Miura, N. Fujitani, S. Omoto, T. Yoshinaga, T. Fujiwara, T. Noshi, H. Togame, H. Takemoto, S.-I. Nishimura*

A Strategy for Neuraminidase Inhibitors Using Mechanism-Based Labeling Information

A library without books: A potent inhibitor ($K_i = 73$ nM, mixed inhibition, see graphic) for *Vibrio cholerae* neuraminidase (VCNA) was developed by using a novel two-step strategy, a target amino acid validation using mechanism-based labeling information, and a potent inhibitor search using a focused library.



Chem. Asian J.
DOI: 10.1002/asia.201000594

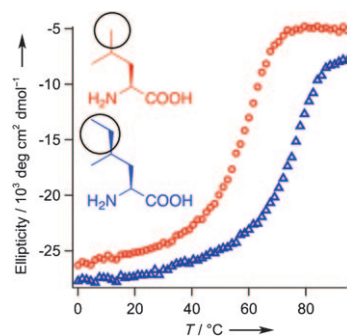


Peptides

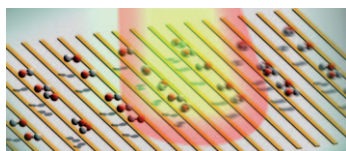
J. A. Van Deventer, J. D. Fisk, D. A. Tirrell*

Homoisoleucine: A Translationally Active Leucine Surrogate of Expanded Hydrophobic Surface Area

Hil of a strong peptide! Homoisoleucine (Hil) serves as an effective surrogate for leucine with respect to protein translation in bacterial cells. Replacement of Leu by Hil stabilizes coiled-coil peptides, as shown by the elevation of the thermal denaturation temperature. The increase in denaturation temperature is larger than that observed previously for replacement of Leu by trifluoroisoleucine.



ChemBioChem
DOI: 10.1002/cbic.201000731



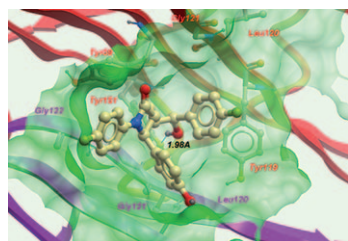
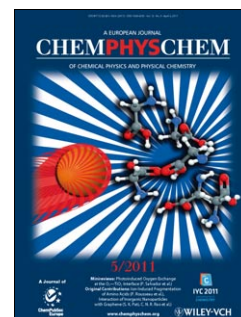
ChemPhysChem
DOI: 10.1002/cphc.201001007

Molecules on a Chip

G. Santambrogio,* S. A. Meek, M. J. Abel, L. M. Duffy, G. Meijer

Driving Rotational Transitions in Molecules on a Chip

Playing tricks with molecules on a chip: Polar molecules in selected quantum states can be guided, decelerated, and trapped using electric fields created by microstructured electrodes on a chip. Herein we explore how transitions between two of these quantum states can be induced while the molecules are on the chip (see picture).



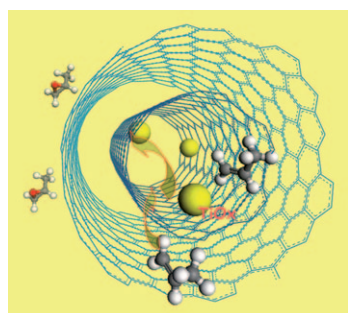
ChemMedChem
DOI: 10.1002/cmdc.201100016

Drug Discovery

C.-H. Leung,* S.-H. Chan, M. H.-T. Kwan, Z. Cheng, C.-Y. Wong, G.-Y. Zhu, W.-F. Fong, D.-L. Ma*

Structure-Based Repurposing of FDA-Approved Drugs as TNF- α Inhibitors

Old dogs, new tricks! We applied structure-based virtual screening methods to identify small-molecule inhibitors of tumor necrosis factor- α (TNF- α) from a database of 3 000 US Food and Drug Administration (FDA)-approved drugs. Darifenacin (Enablex) and ezetimibe (Zetia) were identified as direct TNF- α inhibition, representing only the fifth and sixth examples of small-molecule TNF- α inhibitors.



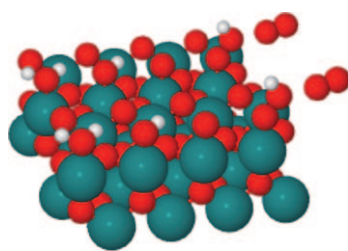
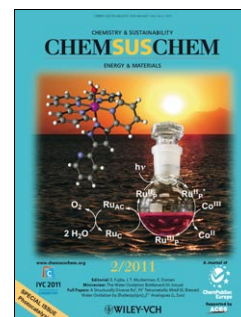
ChemSusChem
DOI: 10.1002/cssc.201000324

Catalytic Materials

H. Zhang, X. Pan,* J. Liu, W. Qian, F. Wei, Y. Huang, X. Bao*

Enhanced Catalytic Activity of Sub-nanometer Titania Clusters Confined inside Double-Wall Carbon Nanotubes

Confinement inside double-walled carbon nanotubes does not only provide a novel approach to highly dispersed sub-nanometer titanium oxide clusters but also induces electron transfer from titanium to carbon via interactions. The confined titanium oxide exhibits a catalytic activity in propylene epoxidation eight times higher than the oxide on the outside of the nanotubes.



ChemCatChem
DOI: 10.1002/cctc.201000397

Electrocatalysis

I. C. Man, H.-Y. Su, F. Calle-Vallejo, H. A. Hansen, J. I. Martínez, N. G. Inoglu, J. Kitchin, T. F. Jaramillo, J. K. Nørskov, J. Rossmeisl*

Universality in Oxygen Evolution Electrocatalysis on Oxide Surfaces

HOOT-n-HOLLER: Based on the scaling relations between HO* and HOO* species and on the constant difference of 3.2 eV between the two levels, theoretical overpotential trends towards oxygen evolution reaction (OER) are reported for a wide range of oxides including rutile, perovskites, spinel rock salt, and bixbyte. The theoretical and experimental trends agree. Comparing 3.2 eV with the ideal value of 2.46 eV indicates that limitations exist for OER on oxide-based electrocatalysts.



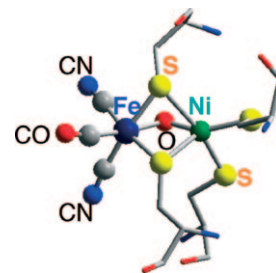


Models for the [NiFe] Hydrogenase

Y. Ohki, K. Tatsumi*

Thiolate-Bridged Iron–Nickel Models for the Active Site of [NiFe] Hydrogenase

[NiFe] hydrogenase is the most common type among the currently known hydrogenases, and its active site consists of an “organometallic” Fe–Ni complex supported by cysteinyl thiolate ligands. This review presents an overview of the synthesis, properties, and reactions of thiolate-bridged iron–nickel complexes that model the active site of [NiFe] hydrogenase.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201001087

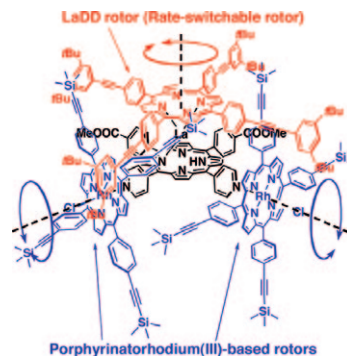


Molecular Gears

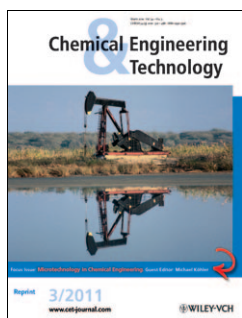
S. Ogi, T. Ikeda, R. Wakabayashi, S. Shinkai, M. Takeuchi*

Mechanically Interlocked Porphyrin Gears Propagating Two Different Rotational Frequencies

A porphyrin-based supramolecular rotor, which is composed of a rate-switchable rotor and two fast-rotating rotors, is reported. Through mechanical interaction of the teeth of the rotors, they were able to rotate with almost identical coalescence temperatures. The meshing conformation was maintained before and after changing the rotational activity of one rotor by using chemical stimulation.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201001656

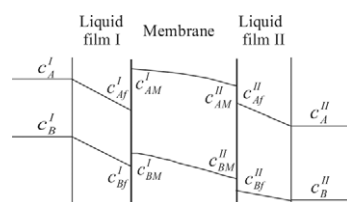


Continuous Separation

H. Bendová, Z. Palatý*

Continuous Separation of an $\text{H}_2\text{SO}_4/\text{CuSO}_4$ Mixture by Diffusion Dialysis

Experimental results of the separation of an $\text{H}_2\text{SO}_4/\text{CuSO}_4$ mixture in a two-compartment countercurrent dialyzer using an anion-exchange membrane are presented. The dialysis process is characterized by the recovery yield of acid, the rejection coefficient of salt, and the permeability coefficient of the membrane.



Chem. Eng. Technol.
DOI: 10.1002/ceat.201000381