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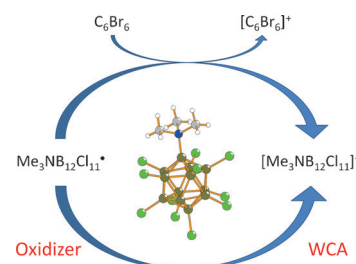


Radicals

P. Bertocco, C. Bolli, J. Derendorf, C. Jenne,* A. Klein, K. Stirnat

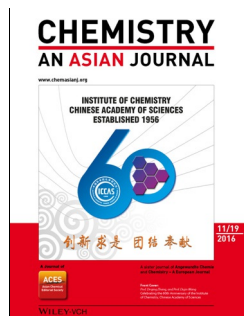
The $\text{Me}_3\text{NB}_{12}\text{Cl}_{11}^\bullet$ Radical: A Strong One-Electron Oxidizing Agent

An oxidizing radical: The boron cluster radical $\text{Me}_3\text{NB}_{12}\text{Cl}_{11}^\bullet$ is a strong oxidizing agent and has been shown to oxidize main-group elements and molecules having high ionization energies to the corresponding reactive cations, which are stabilized in the solid state by the weakly coordinating anion $[\text{Me}_3\text{NB}_{12}\text{Cl}_{11}]^-$, which is formed as the reduced product in the electron-transfer reactions.



Chem. Eur. J.

DOI: 10.1002/chem.201603924

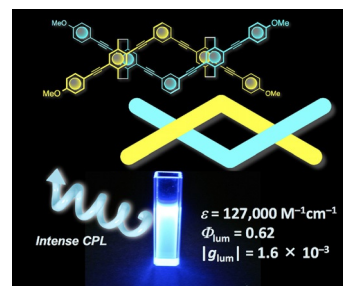


[2.2]Paracyclophanes

Y. Morisaki,* R. Sawada, M. Gon, Y. Chujo*

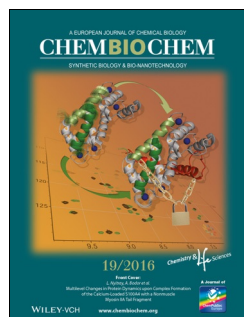
New Types of Planar Chiral [2.2]Paracyclophanes and Construction of One-Handed Double Helices

Double helices: New types of planar chiral 4,7,12,15-tetrasubstituted [2.2]paracyclophanes were synthesized to be used as chiral building blocks. In this study, left- and right-handed double helical structures were constructed via chemoselective Sonogashira–Hagihara coupling. The double helical compounds were excellent circularly polarized luminescence (CPL) emitters with large molar extinction coefficients, good photoluminescence quantum efficiencies, and large CPL dissymmetry factors.



Chem. Asian J.

DOI: 10.1002/asia.201601028

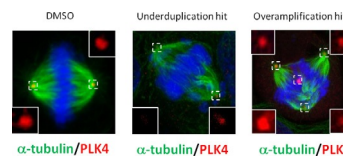


Natural Products

M. Graciotti, Z. Fang, K. Johnsson, P. Gönczy*

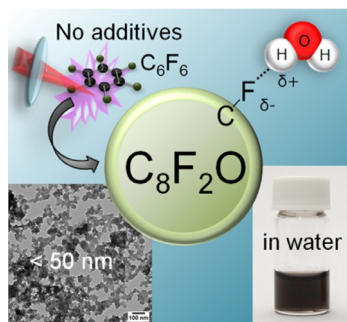
Chemical Genetic Screen Identifies Natural Products that Modulate Centriole Number

When in doubt, go to the library: We present a chemical high-throughput screening of a natural product library directed towards the identification of chemical scaffolds capable of altering centriole numbers in cycling cells. Centrioles are microtubule-based structures essential for the formation of cilia and flagella. Centriole aberration is involved in ciliopathies and carcinogenesis.



ChemBioChem

DOI: 10.1002/cbic.201600327



ChemPhysChem

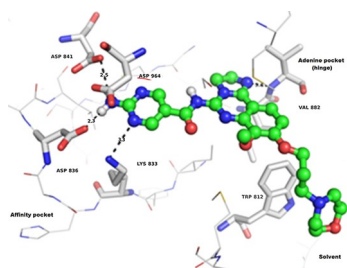
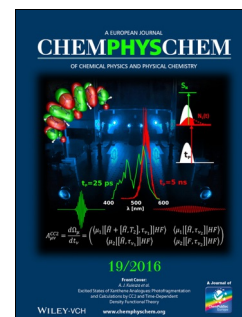
DOI: 10.1002/cphc.201600602

Nanoparticles

T. Okamoto, K. Mitamura, T. Hamaguchi, K. Matsukawa, T. Yatsuhashi*

Synthesis of Fluorine-Doped Hydrophilic Carbon Nanoparticles from Hexafluorobenzene by Femtosecond Laser Pulses

Fluorine everywhere: The synthesis of fluorine-doped ($F/C > 0.3$) hydrophilic carbon nanoparticles is reported. The building-up process from hexafluorobenzene enables the incorporation of fluorine on the surface as well as inside the particles. The affinity to water is explained by the non-aggregating feature of the particles as well as the semi-ionic character of C–F bonds, which form hydrogen bonds with water.



ChemMedChem

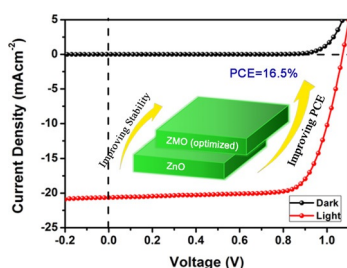
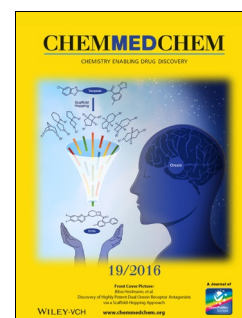
DOI: 10.1002/cmdc.201600148

Anticancer Agents

W. J. Scott,* M. F. Hentemann, R. B. Rowley, C. O. Bull, S. Jenkins, A. M. Bullion, J. Johnson, A. Redman, A. H. Robbins, W. Esler, R. P. Fracasso, T. Garrison, M. Hamilton, M. Michels, J. E. Wood, D. P. Wilkie, H. Xiao, J. Levy, E. Stasik, N. Liu, M. Schaefer, M. Brands, J. Lefranc*

Discovery and SAR of Novel 2,3-Dihydroimidazo[1,2-c]quinazoline PI3K Inhibitors: Identification of Copanlisib (BAY 80-6946)

The phosphoinositide 3-kinase (PI3K) pathway is aberrantly activated in many tumors. The presence of various PI3K isoforms and their differential roles in cancers makes them ideal candidates for targeted inhibition. A PI3K γ screening hit led to the discovery of the novel 2,3-dihydroimidazo[1,2-c]quinazoline class of PI3K inhibitors. Herein we describe initial structure–activity relationship findings for this class and the optimization that led to the identification of copanlisib (BAY 80-6946) as a clinical candidate.



ChemSusChem

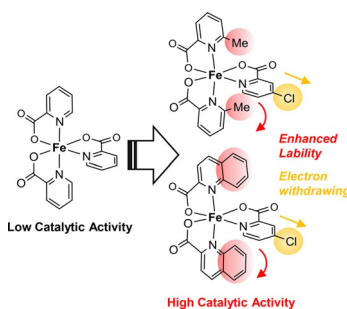
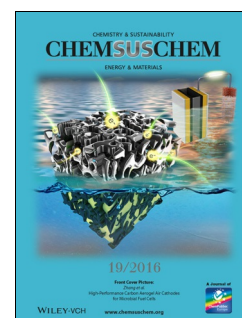
DOI: 10.1002/cssc.201600860

Solar Cells

J. Song, E. Zheng, L. Liu, X.-F. Wang,* G. Chen, W. Tian,* T. Miyasaka

Magnesium-doped Zinc Oxide as Electron Selective Contact Layers for Efficient Perovskite Solar Cells

Mg + ZnO = improved stability: To improve the power conversion efficiency and the thermostability in ZnO/CH₃NH₃PbI₃-based perovskite solar cells (PSCs), magnesium-doped ZnO is developed as the electron-selective contact layer. The optimized ZMO PSCs exhibit significantly improved durability and photo-stability.



ChemCatChem

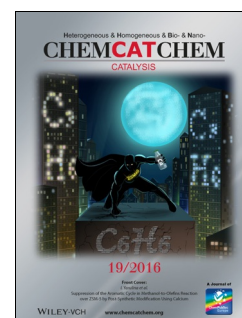
DOI: 10.1002/cctc.201600362

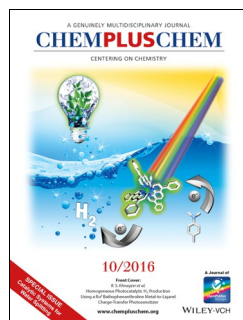
Oxidation

S. Tanaka, Y. Kon, A. Ogawa, Y. Uesaka, M. Tamura, K. Sato*

Mixed Picolinate and Quinaldinate Iron(III) Complexes for the Catalytic Oxidation of Alcohols with Hydrogen Peroxide

Mixing ligands: Mixed picolinate and quinaldinate iron(III) complexes show high catalytic activity for the H₂O₂ oxidation of alcohols. The suitable combination of sterically hindered and electronegative ligands enabled the efficient generation of catalytically active species from the coordinatively saturated iron(III) ion, which has been less investigated as a catalyst owing to low activity in spite of its potentially high practicality.



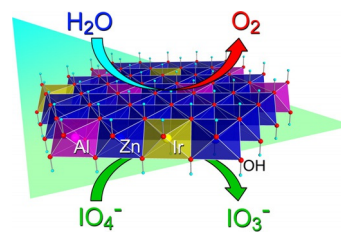


Water Splitting

L. Fagiolari, A. Scafuri, F. Costantino, R. Vivani, M. Nocchetti, A. Macchioni*

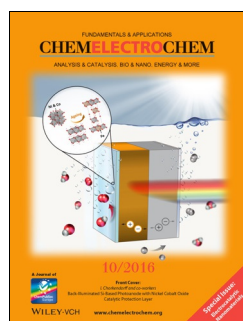
A Ternary Zn–Al–Ir Hydrotalcite-Like Compound Exhibiting High Efficiency and Recyclability as a Water Oxidation Catalyst

Enhanced performance: Hydrotalcite-like compounds, doped with active metals, can efficiently act as water oxidation catalysts as exemplified by $[\text{Zn}_{0.667}\text{Al}_{0.306}\text{Ir}_{0.027}(\text{OH})_2]\text{Cl}_{0.333} \cdot 0.6\text{H}_2\text{O}$, which exhibits excellent performance in terms of turnover frequency (up to 113 min^{-1}), turnover number ($> 11\,900$), stability and recyclability.



ChemPlusChem

DOI: 10.1002/cplu.201600087

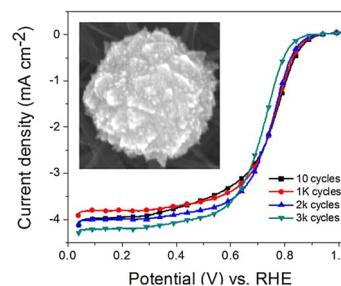


Electrocatalysis

Y. Chen, X. X. Wang, B. Li, X. X. Huang, J. N. Wang*

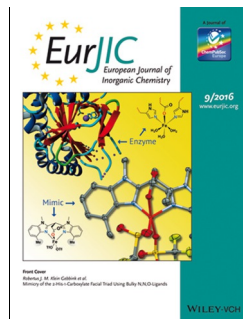
Porous Pt Aggregates Deposited on a Carbon Nanotube Film with High Catalytic Activity and Durability

Captured on film: By tailoring the conditions of electrochemical deposition, spherical, flower-like and cubic Pt aggregates stacked with polyhedron- and flake-shaped crystals are deposited on carbon nanotube films. These have porous frame structures and high catalytic activity and durability in the hydrogen oxidation and oxygen reduction reactions under harsh cycling conditions.



ChemElectroChem

DOI: 10.1002/celec.201600349

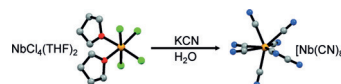


Cyanidometallates

G. Handzik, M. Magott, B. Sieklucka, D. Pinkowicz*

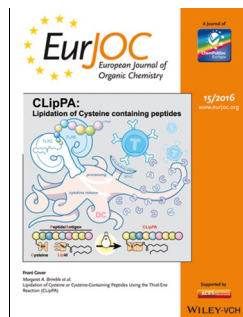
Alternative Synthetic Route to Potassium Octacyanidonioate(IV) and Its Molybdenum Congener

A novel alternative synthetic route for octacyanidonioate(IV) and octacyanidomolybdate(IV) are reported. The preparation of both complexes is significantly improved in terms of simplicity, preparation time, yield and purity.



Eur. J. Inorg. Chem.

DOI: 10.1002/ejic.201600669

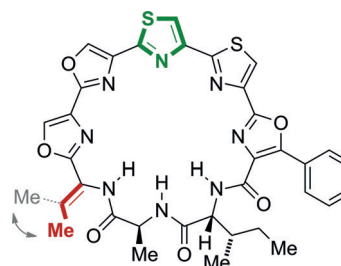


Total Synthesis

S. Schwenk, C. Ronco, A. Oberheide, H.-D. Arndt*

Biomimetic Synthesis of Urukthapelstatin A by Aza-Wittig Ring Contraction

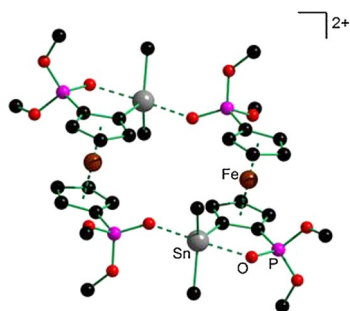
Constraining well dosed: The first stereoselective total synthesis of urukthapelstatin A that employs a novel synthesis design is reported. Kinetically favored macro-thiolactonization and high-yielding aza-Wittig heterocyclization to contract the macrocycle are crucial for success. The embedded enamide substructure of the target molecules slowly isomerizes in solution.



urukthapelstatin A

Eur. J. Org. Chem.

DOI: 10.1002/ejoc.201600994



ChemistryOpen

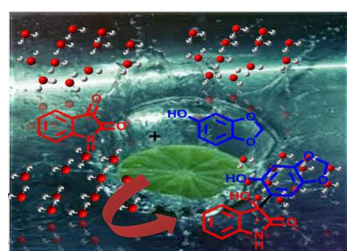
DOI: 10.1002/open.201600048

Coordination Chemistry

B. Janssen, M. Lutter, H. Alnasr, I. Krossing, K. Jurkschat*

A Ferrocenyl-Backboned Unsymmetric O,C-Coordinating Ligand and Its Tin Derivatives

Put your backbone into it! Changing the Lewis acidity of the tin center on going from SnPh_3 via SnIPh_2 to SnPh_2^+ increases the strength of the intra- and intermolecular $\text{P}=\text{O} \rightarrow \text{Sn}$ coordination in the corresponding phosphonyl-substituted ferrocene derivatives to the extent that a ferrocenyl-backboned dinuclear dication, as its salt with the non-coordinating aluminate anion $[\text{Al}\{\text{OC}(\text{CF}_3)_3\}_4]^-$, can be isolated.



Asian J. Org. Chem.

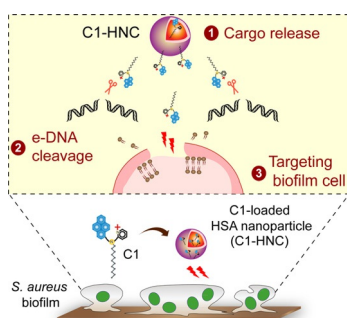
DOI: 10.1002/ajoc.201600346

Synthetic Methods

N. Kumar, J. Kaur, A. Kumar, N. Islam, S. S. Chimni*

Catalyst-Free Synthesis of 3-Aryl-3-hydroxy-2-oxindole Derivatives by Using Water as the Solvent: Experimental and DFT Studies

Cat on a hot isatin roof: A highly efficient catalyst-free Friedel-Crafts reaction between isatin and phenol by using water as the solvent provided 3-hydroxy-2-oxindole derivatives in excellent yields. DFT studies on various model systems suggested that the catalytic role of water involved activation of the reactant through hydrogen-bonding interactions.



ChemNanoMat

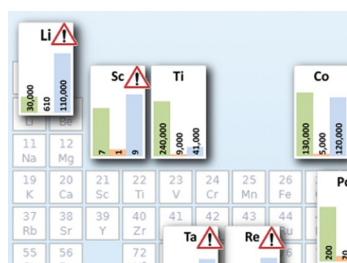
DOI: 10.1002/cnma.201600183

Antibacterial Agents

D. Thiyagarajan, G. Das,* A. Ramesh*

Extracellular-DNA-Targeting Nanomaterial for Effective Elimination of Biofilm

Breach the eDNA shield and destroy: An amphiphile-loaded human serum albumin nanocarrier (C1-HNC) renders the matrix-responsive release of a payload that disrupts a biofilm extracellular DNA (eDNA) barrier and concurrently gains access to and targets the underlying cells, resulting in irrevocable eradication of biofilm (see figure).



ChemViews magazine

DOI: 10.1002/chemv.201600079

Raw Materials

ChemViews

Resources for Emerging Technologies

Innovative technologies are changing the demand for raw materials. The need for metals such as lithium or the rare earth elements could outpace production in the future. *ChemViews Magazine* gives a graphical overview of the uses, demand, and supply of these materials, and of the countries that produce the elements most critical for technological progress.

