

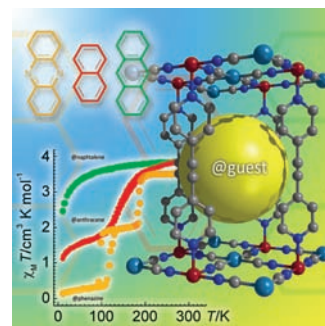


### Coordination Polymers

F. J. Muñoz-Lara, A. B. Gaspar, M. C. Muñoz, M. Arai, S. Kitagawa, M. Ohba, J. A. Real\*

Sequestering Aromatic Molecules with a Spin-Crossover  $\text{Fe}^{\text{II}}$  Microporous Coordination Polymer

**All in a spin:** A series of three-dimensional porous coordination polymer  $\{\text{Fe}(\text{dpe})[\text{Pt}(\text{CN})_4]\cdot\text{G}\}$  ( $\text{dpe} = 1,2\text{-di}(4\text{-pyridyl})\text{ethylene}$ ;  $\text{G} = \text{phenazine}$ , anthracene, or naphthalene) exhibiting spin crossover and host-guest functions is reported. The magnetic properties of the framework are very sensitive to the chemical nature (aromatic or hydroxilic solvents) and the size of the included guest molecules.



Chem. Eur. J.  
DOI: 10.1002/chem.201200377

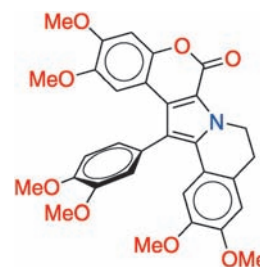


### Protein Inhibitors

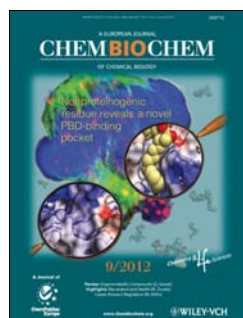
F. Plisson, X.-C. Huang, H. Zhang, Z. Khalil, R. J. Capon\*

Lamellarins as Inhibitors of P-Glycoprotein-Mediated Multidrug Resistance in a Human Colon Cancer Cell Line

**New promise in fighting MDR:** This study reports a selection of new (1–5, 14) and known (6–13, 15–16) lamellarins from two southern Australian *Didemnum* sp. All structures were assigned by detailed spectroscopic analysis. This unique library of marine alkaloids, supported by semi-synthetic (17) and synthetic analogues (19–26), was used to probe interactions with the ABC transporter efflux pump P-glycoprotein (P-gp), leading to the discovery an optimized P-gp inhibitor capable of reversing multidrug resistance (MDR) in a human cancer cell line.



Chem. Asian J.  
DOI: 10.1002/asia.201101049

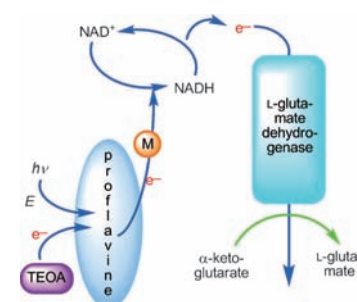


### Photosynthesis

D. H. Nam, C. B. Park\*

Visible Light-Driven NADH Regeneration Sensitized by Proflavine for Biocatalysis

**Harvest time:** Proflavine drives the reduction of  $\text{NAD}^+$  in the presence of a Rh-based electron mediator. Photoregenerated NADH was enzymatically active for oxidation by NADH-dependent L-glutamate dehydrogenase for the synthesis of L-glutamate. This work suggests that proflavine has the potential to become an efficient light-harvesting component in biocatalytic photosynthesis driven by solar energy.



ChemBioChem  
DOI: 10.1002/cbic.201200115



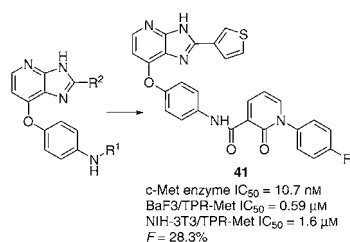
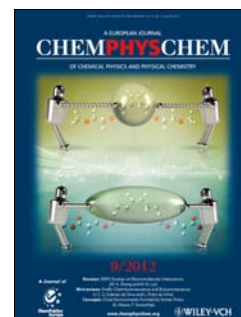
ChemPhysChem  
DOI: 10.1002/cphc.201200207

### Chemomechanics

Y. Tian, R. Boulatov\*

Quantum-Chemical Validation of the Local Assumption of Chemomechanics for a Unimolecular Reaction

**Localized reactions:** Computations of complete conformational ensembles of cyclobutene derivatives coupled to an external constraint validate the key assumption of chemomechanics and show that while the correlation between the constraining force and reaction kinetics depends on multiple factors, including substituents and the size of the molecular moiety, coupling between local restoring force and reactivity does not.



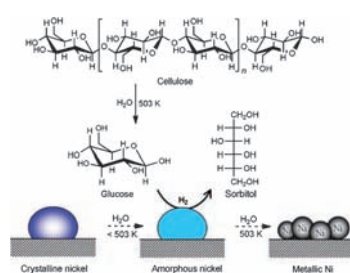
ChemMedChem  
DOI: 10.1002/cmdc.201200120

### Anticancer Agents

D. Chen, Y. Wang, Y. Ma, B. Xiong, J. Ai, Y. Chen, M. Geng,\* J. Shen\*

Discovery of 3H-Imidazo[4,5-b]pyridines as Potent c-Met Kinase Inhibitors: Design, Synthesis, and Biological Evaluation

**Amazing imidazolopyridines:** By screening crystal structures of members of the human kinome and analyzing hinge binders, we designed a novel scaffold for inhibitors of c-Met. A series of derivatives were prepared and their SARs were studied; among them, compound **41** showed good in vitro and in vivo activities and proved to be a promising lead compound for further investigation.



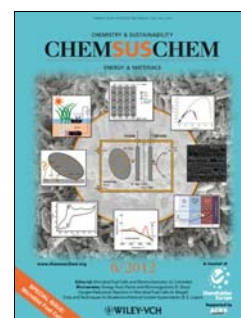
ChemSusChem  
DOI: 10.1002/cssc.201100498

### Cellulose Chemistry

P. Yang, H. Kobayashi, K. Hara, A. Fukuoka\*

Phase Change of Nickel Phosphide Catalysts in the Conversion of Cellulose into Sorbitol

**Localized phosphide destroys cellulose:** Carbon-supported amorphous nickel phosphide (ANP) allows the transformation of cellulose into sugar alcohols (especially sorbitol) to proceed efficiently. ANP is generated in situ from its crystalline form during the reaction. The high activity of the catalysts is attributed to the in situ-generated ANP phase. Modification of the carbon support improves the stability of the catalyst and reduces leaching of the catalyst.



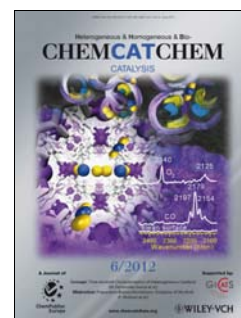
ChemCatChem  
DOI: 10.1002/cctc.201200131

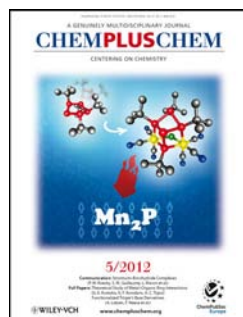
### Operando Analysis

A. Kubacka, A. Iglesias-Juez, A. Martínez-Arias, M. Di Michiel, M. A. Newton, M. Fernández-García\*

Surface and Bulk Approach to Time-resolved Characterization of Heterogeneous Catalysts

**The incredible bulk:** Catalytic solid preparation and performance at reaction conditions are analyzed through a multipurpose operando prism accounting for a complete surface and bulk characterization.



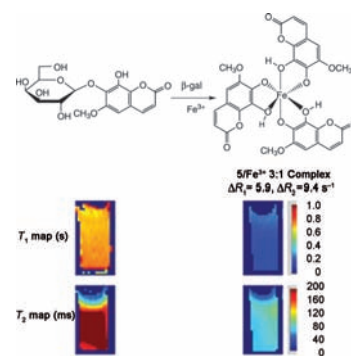


### Galactosidase Reporter Molecules

J.-X. Yu, P. K. Gulaka, L. Liu, V. D. Kodibagkar, R. P. Mason\*

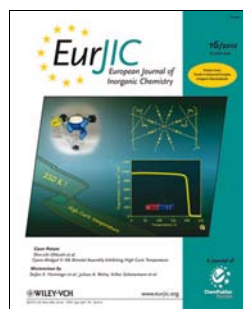
Novel  $\text{Fe}^{3+}$ -Based  $^1\text{H}$  MRI  $\beta$ -Galactosidase Reporter Molecules

**Molecular imaging promises non-invasive detection of enzyme activity in vivo:** Previously,  $\beta$ -galactosidase activity representing *lacZ* expression in tumors was demonstrated based on signal loss in  $T_2^*$ -weighted  $^1\text{H}$  MRI following cleavage of 3,4-cyclohexenoescluletin- $\beta$ -D-galactopyranoside (S-Gal) as a reporter. A series of newly synthesized analogues promises enhanced utility by generating both  $T_1$  and  $T_2$  contrast, as demonstrated to selectively detect  $\beta$ -gal activity in transfected human cancer cells.



ChemPlusChem

DOI: 10.1002/cplu.201100072

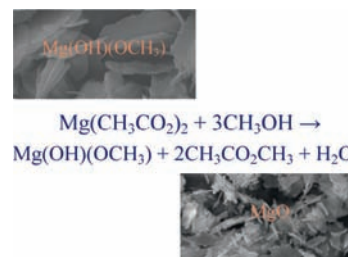


### MgO Nanosheets

K. Zhu,\* W. Hua,\* W. Deng, R. M. Richards

Preparation of MgO Nanosheets with Polar (111) Surfaces by Ligand Exchange and Esterification – Synthesis, Structure, and Application as Catalytic Support

Esterification of magnesium acetate with methanol afforded  $\text{Mg}(\text{OH})(\text{OCH}_3)$  nanosheets, whose subsequent thermal decomposition yielded MgO nanosheets covered with Tasker III type (111) surfaces.



Eur. J. Inorg. Chem.

DOI: 10.1002/ejic.201200052

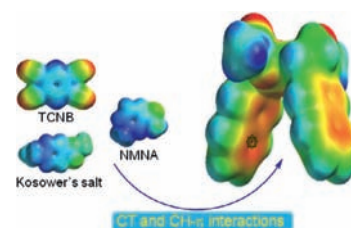


### Host–Guest Systems

F.-G. Klärner,\* S. Madenci, M. C. Kuchenbrandt, D. Bläser, R. Boese, G. Fukuhara, Y. Inoue\*

Donor/Acceptor-Substituted Chiral Molecular Clips – Synthesis and Host–Guest Complex Formation

New donor/acceptor-substituted chiral molecular clips form host–guest complexes with 1,2,4,5-tetracyanobenzene (TCNB), *N*-methyl-*p*-(methoxycarbonyl)pyridinium iodide (Kosower's salt), and *N*-methylnicotinamide iodide (NMNA) through charge-transfer and  $\text{CH} \cdots \pi$  interactions.



Eur. J. Org. Chem.

DOI: 10.1002/ejoc.201200112



### Identifying Illegal Drugs

H. Sewall

Combatting Designer Drugs Head On

Illegal drugs and drug combinations are designed to be difficult to detect or characterize, and often to skirt existing drug laws. Labs generally rely on standards and libraries to identify compounds, but with designer drugs, standards may not be available. ChemViews magazine looks at one of the tools available to help law enforcement keep up with the dizzying array of new designer drugs.



ChemViews magazine

DOI: 10.1002/chemv.201200048