CHEMISTRY
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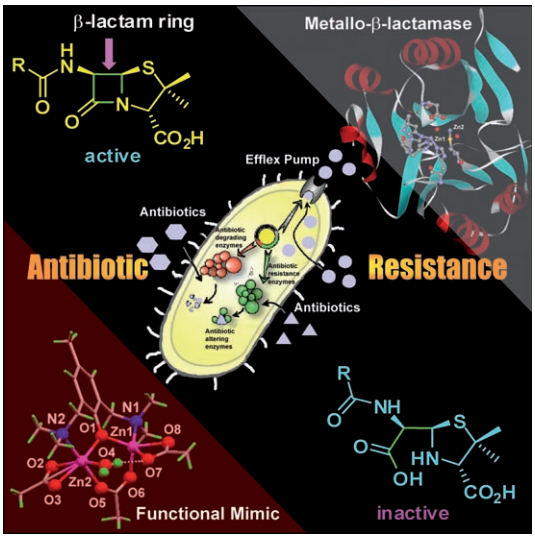
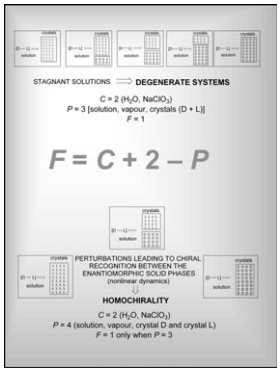
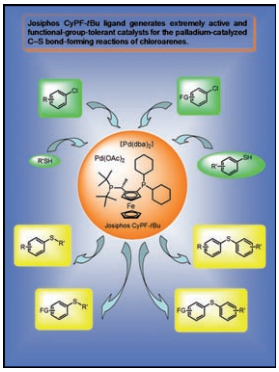
… …have been evolved by bacteria to afford resistance to currently available antibiotics. One of these methods is the generation of β-lactamases that hydrolyze the β-lactam ring in antibiotics, as shown in the cover picture. In their Full Paper on page 7797 ff., G. Mugesh et al. describe a novel bioinorganic system as a functional mimic of the antibacterial-resistant enzyme metallo-β-lactamase.

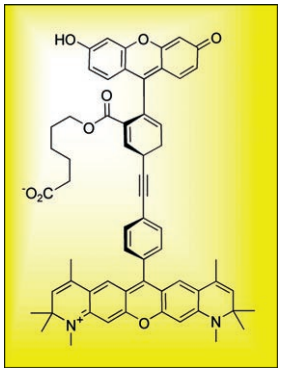




Chiral Resolution
In their Concept article on page 7776 ff., J. M. Ribó, J. Crusats, and S. Veintemillas-Verdaguer discuss factors that lead to homochirality in crystallization/dissolution processes. Their analysis demonstrates that in critical phenomena with chemical communication between the phases and when the homochiral interactions are more stable than the heterochiral ones, the more stable state corresponds to homochirality.

Highly Tolerant!
The cross-coupling reaction of aryl chlorides with aliphatic and aromatic thiols catalyzed by palladium complexes of the strongly binding bisphosphine CyPF-*t*Bu ligand is reported by J. F. Hartwig et al. on page 7782 ff. The reaction proceeded with excellent yields and a wide scope, and high tolerance to functional groups.





Fluorescent Probes
In their Full Paper on page 7816 ff., K. Burgess et al. describe the synthetic design developed to give through-bond energy-transfer cassettes constructed from fluorescein and rhodamine derivatives. Such energy-transfer cassettes have applications in biotechnology.

Pagination corrected Oct. 17, 2006