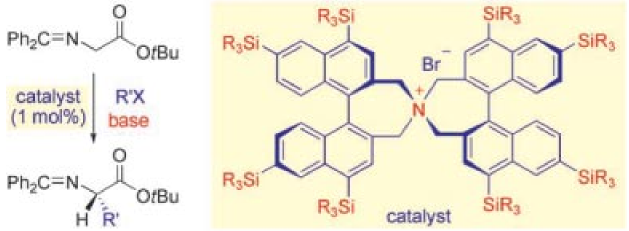
SPOTLIGHTS …

Phase-Transfer Catalysis

S. Shirakawa, M. Ueda, Y. Tanaka,
T. Hashimoto, K. Maruoka*

Design of Binaphthyl-Modified Symmetrical Chiral Phase-Transfer Catalysts: Substituent Effect of 4,4′,6,6′-Positions of Binaphthyl Rings in the Asymmetric Alkylation of a Glycine Derivative

Chem. Asian J.
DOI: **10.1002/asia.200700117**



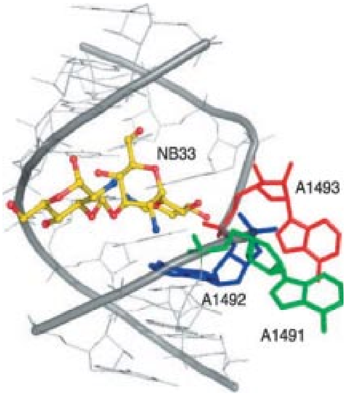
Designer rings: Chiral phase-transfer catalysts with 4,4′,6,6′-tetrasubstituted binaphthyl units give excellent enantioselectivity in the asymmetric alkylation of *tert*-butylglycinate–benzophenone Schiff base with various alkyl halides. A highly fluorinated version can also be used as a recyclable chiral phase-transfer catalyst by simple extraction with fluorous solvents.

Aminoglycosides

J. Kondo, M. Hainrichson,
I. Nudelman, D. Shallom-Shezifi,
C. M. Barbieri, D. S. Pilch,*
E. Westhof,* T. Baasov*

Differential Selectivity of Natural and Synthetic Aminoglycosides towards the Eukaryotic and Prokaryotic Decoding A Sites

ChemBioChem
DOI: **10.1002/cbic.200700271**



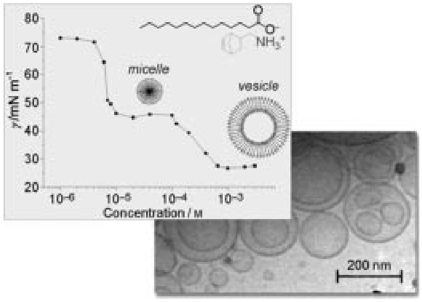
Tuning the selectivity. The lack of absolute prokaryotic selectivity of natural antibiotics is widespread and a significant problem clinically. By using a combined biochemical and structural analysis of the synthetic aminoglycoside NB33 bound to the *H. sapiens* cytoplasmic A site RNA fragment we demonstrate the general molecular principles that determine the selectivity interplay of 2-deoxystreptamine-based aminoglycosides between the prokaryotic and eukaryotic decoding sites.

Ion-Pair Surfactants

R. Bordes, M. Vedrenne, Y. Coppel,
S. Franceschi, E. Perez,*
I. Rico-Lattes

Micelle–Vesicle Transition of Fatty Acid Based Ion-Pair Surfactants: Interfacial Evidence and Influence of the Ammonium Counterion Structure

ChemPhysChem
DOI: **10.1002/cphc.200700289**



Micelles or Vesicles? Single-tailed surfactants have been associated with various organic counterions. Depending on the structure of the ion-paired surfactant, a micelle-to-vesicle transition is observed (see picture), thus demonstrating the key role played by the positioning of the counterion in supramolecular self-assembly.

Antibacterial Agents

T. S. Mansour,* C. E. Caufield,
B. Rasmussen, R. Chopra,
G. Krishnamurthy, K. M. Morris,
K. Svenson, J. Bard, C. Smeltzer,
S. Naughton, S. Antane, Y. Yang,
A. Severin, D. Quagliato,
P. J. Petersen, G. Singh

Naphthyl Tetronic Acids as Multi-Target Inhibitors of Bacterial Peptidoglycan Biosynthesis

ChemMedChem
DOI: **10.1002/cmdc.200700094**

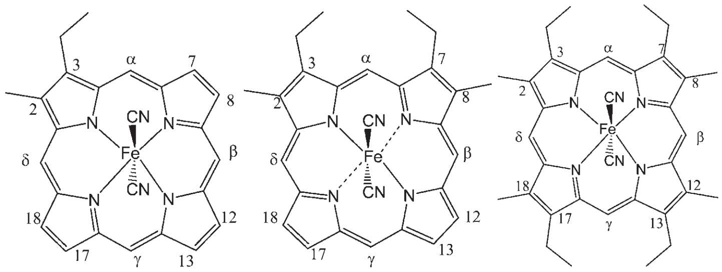
A pathway screen targeting multiple muramyl peptide synthesis inhibitors identified the naphthyl tetronic acids series. Optimization of this series based on IC_{50}, K_d and MIC values led to potent inhibitors. Compound **5h** was co-crystallized in the active site of *E. coli* MurB.

Iron(III) Porphyrins

S. Juillard, A. Bondon,
G. Simonneaux*

Proton NMR Study of Low-Spin *meso*-Unsubstituted β-Substituted Alkyl Iron Porphyrins: Remarkable Influence of Peripheral Substitution on Spin Density

Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.200700503**



Paramagnetic ^{1}H and ^{13}C NMR spectroscopy were used to characterize the influence of small alkyl groups on the spin density of a series of high-spin and low-spin iron(III) porphyrins.

Analysis of the chemical shifts of the pyrrole proton and *meso*-carbon of porphyrins reveals that all complexes show a low-spin $(d_{xy})^2(d_{xz},d_{yz})^3$ electronic ground state.

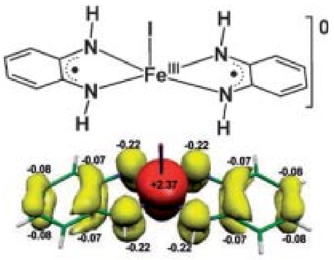
Iron Complexes

K. Chłopek, N. Muresan, F. Neese,*
K. Wieghardt*

Electronic Structures of Five-Coordinate Complexes of Iron Containing Zero, One, or Two π-Radical Ligands: A Broken-Symmetry Density Functional Theoretical Study

Chem. Eur. J.
DOI: **10.1002/chem.200700897**

Broken-symmetry density functional theoretical calculations (B3LYP) have been performed on 13 five-coordinate complexes of iron that contain zero, one, or two π-radical monoanions derived from redox noninnocent dianionic dithiolates, phenylene diamides (shown here), or *o*-aminodithiolates.

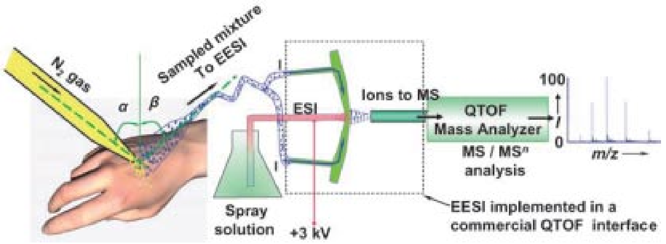


Analytical Methods

H. Chen,* S. Yang, A. Wortmann,
R. Zenobi*

Neutral Desorption Sampling of Living Objects for Rapid Analysis by Extractive Electrospray Ionization Mass Spectrometry

Angew. Chem. Int. Ed.
DOI: **10.1002/anie.200702200**



MS comes to life: A novel method to sample surfaces of biological objects uses a neutral gas beam for in vivo EESI mass spectrometric analysis without sample pretreatment (see picture; QTOF = quadropole time-of-flight). The sampling process results in rapid in vivo analyses with reduced ion suppression and without chemical contamination. This strategy can be used in food quality monitoring, homeland security, metabolomics, and clinical diagnosis.

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