

Phase-Transfer Catalysis

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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.

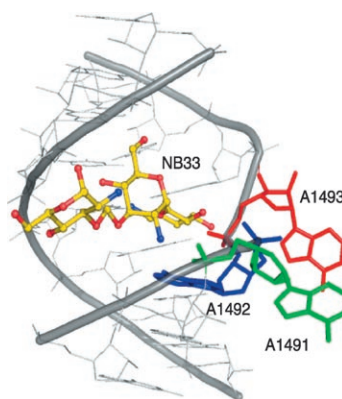
Aminoglycosides

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.

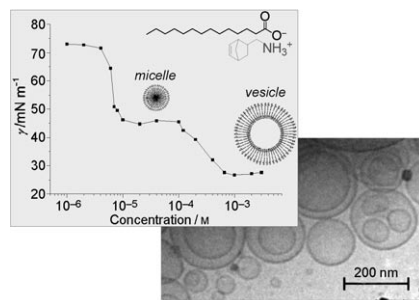
Ion-Pair Surfactants

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

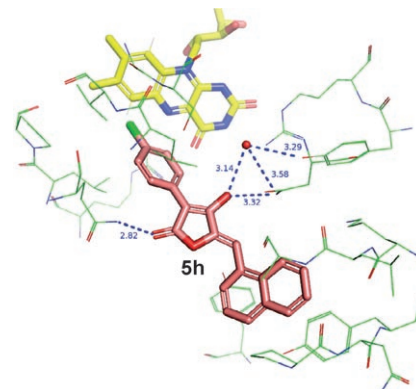
T. S. Mansour,* C. E. Caulfield,
B. Rasmussen, R. Chopra,
G. Krishnamurthy, K. M. Morris,
K. Svenson, J. Bard, C. Smeltzer,
S. Naughton, S. Antane, Y. Yang,
A. Severin, D. Quagliato, P. J. Petersen,
G. Singh

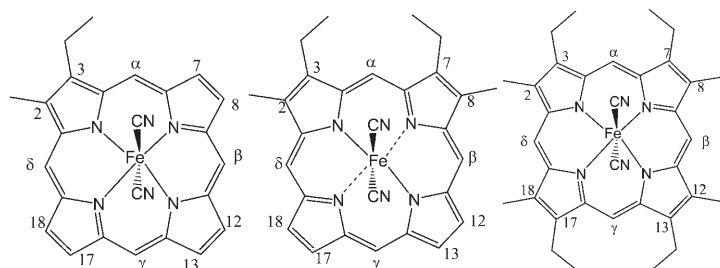
Naphthyl Tetronic Acids as Multi-Target
Inhibitors of Bacterial Peptidoglycan
Biosynthesis

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.





Paramagnetic ^1H 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

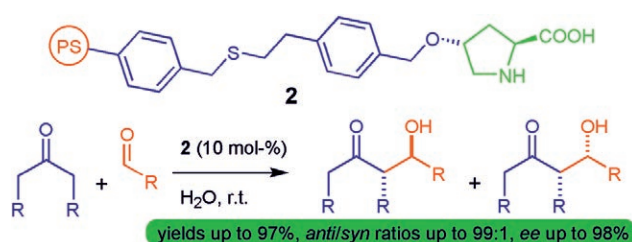
chemical shifts of the pyrrole proton and *meso*-carbon of porphyrins reveals that all complexes show a low-spin (d_{xy})²-(d_{xz}, d_{yz})³ electronic ground state.

Iron(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



A polystyrene-supported L-proline material has been prepared and used as a catalyst in direct asymmetric aldol reactions, with high yields and stereoselectivities. The catalyst works only in the pres-

ence of water, and this material can be reused, without loss in levels of conversion and stereoselectivity, for at least five cycles.

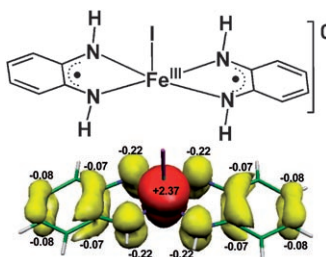
Organocatalysis

M. Gruttadauria,* F. Giacalone, A. Mossuto Marculescu, P. Lo Meo, S. Riela, R. Noto

Hydrophobically Directed Aldol Reactions: Polystyrene-Supported L-Proline as a Recyclable Catalyst for Direct Asymmetric Aldol Reactions in the Presence of Water

Eur. J. Org. Chem.
DOI: 10.1002/ejoc.200700586

Broken-symmetry density functional theoretical calculations (B3 LYP) 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.



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



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