



The following Communications have been judged by at least two referees to be "very important papers" and will be published online at www.angewandte.org soon:

S. Arita, T. Koike, Y. Kayaki, T. Ikariya*

Aerobic Oxidative Kinetic Resolution of Racemic Secondary Alcohols with Chiral Bifunctional Amido Complexes

T. Z. Forbes, J. G. McAlpin, R. Murphy, P. C. Burns*

Metal–Oxygen Isopolyhedra Assembled into Fullerene Topologies

T. A. Rokob, A. Hamza, A. Stirling, T. Soós,* I. Pápai*

Turning Frustration into Bond Activation: A Theoretical Mechanistic Study on Heterolytic Hydrogen Splitting by Frustrated Lewis Pairs

C. Ruspic, J. R. Moss, M. Schürmann, S. Harder*

Remarkable Stability of Metallocenes with Superbulky Ligands: Spontaneous Reduction of Sm^{III} to Sm^{II}

L. M. Fidalgo, G. Whyte, D. Bratton, C. F. Kaminski, C. Abell, W. T. S. Huck*

From Microdroplets to Microfluidics: Selective Emulsion Separation in Microfluidic Devices

I. Paterson,* E. A. Anderson, S. M. Dalby, J. Ho Lim, J. Genovino, P. Maltas, C. Moessner

Total Synthesis of Spirastrellolide A Methyl Ester. Part 2: Subunit Union and Completion of the Synthesis

News

Biochemistry:

H. Gröger awarded _____ 2534

Literature:

Prize for K. Roth _____ 2534

ADUC Prizes _____ 2534

Books

Chemistry in the Garden

James R. Hanson

reviewed by C. Sell _____ 2535

Elements of Environmental Chemistry

Ronald A. Hites

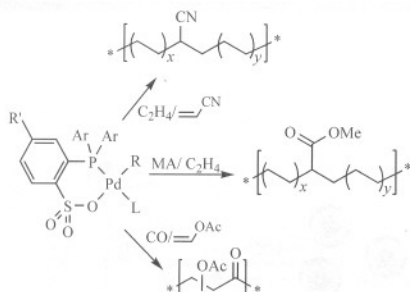
reviewed by D. Lenoir _____ 2535

Highlights

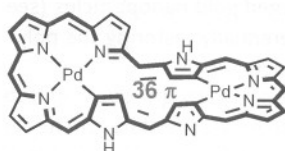
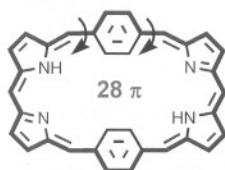
Polymerizations

A. Berkefeld, S. Mecking* — 2538–2542

Coordination Copolymerization of Polar Vinyl Monomers H₂C=CHX



Rising to the challenge: Neutral phosphinosulfonate Pd^{II} complexes were recently demonstrated to be versatile catalysts even for the challenging insertion copolymerization of polar functionalized vinyl comonomers H₂C=CHX, such as acrylonitrile, vinyl acetate, and alkyl vinyl ethers (see scheme, MA = methyl acrylate).



An interesting twist: Expanded porphyrins possess Möbius-strip-like structures in the solid state and in solution. The high conformational flexibility of individual groups enables a temperature- and sol-

vent-dependent switch between Hückel and Möbius aromaticity. Group 10 metals can serve as clamps to stabilize the twist of the Möbius structure (see picture).

Möbius Porphyrins

N. Jux* _____ 2543–2546

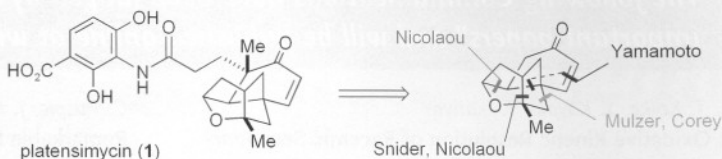
The Porphyrin Twist: Hückel and Möbius Aromaticity

Minireviews

Natural Product Synthesis

K. Tiefenbacher, J. Mulzer* 2548–2555

Synthesis of Platensimycin



Route finders: The discovery of platensimycin (1) in 2006 has been hailed as a true breakthrough in antibiotic research. By efficiently blocking bacterial fatty acid biosynthesis it has a unique mode of

action and therefore shows no cross-resistance to existing drugs. In this Mini-review all the synthetic efforts towards 1 and its analogues are discussed.

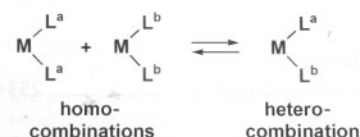
Reviews

Combinatorial Catalysis

M. T. Reetz* 2556–2588

Combinatorial Transition-Metal Catalysis: Mixing Monodentate Ligands to Control Enantio-, Diastereo-, and Regioselectivity

Mix well: A novel concept in combinatorial homogeneous transition-metal catalysis lies in the mixing of two monodentate ligands in the presence of a transition metal to provide two homocombinations and one heterocombination. If the latter is most active, it will define the catalytic profile. By using this strategy, a better catalyst can be obtained without the need for preparing new ligands.



Communications

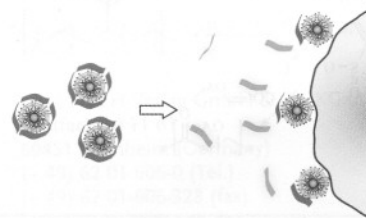
Bacteria Sensing

R. L. Phillips, O. R. Miranda, C.-C. You, V. M. Rotello,*
U. H. F. Bunz* 2590–2594



Rapid and Efficient Identification of Bacteria Using Gold-Nanoparticle–Poly(*para*-phenyleneethynylene) Constructs

Microbiological intelligence: Simple constructs of hydrophobically functionalized gold nanoparticles and a conjugated polymer (poly(*para*-phenyleneethynylene), PPE) are able to identify three different strains of *E. coli* in minutes. The negatively charged bacteria replace the negatively charged conjugated polymers from the positively charged gold nanoparticles (see scheme), differentially restoring the polymer fluorescence.



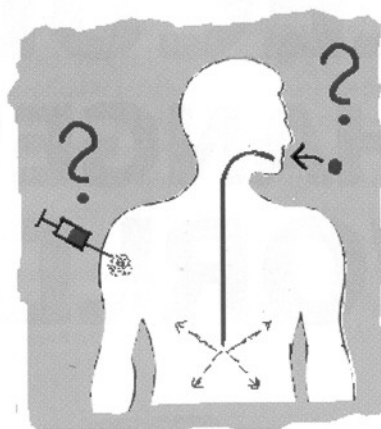
For the USA and Canada:

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electronic / print or electronic delivery); for individuals who are personal members of a national chemical society prices are available on request. Postage and handling charges included. All prices are subject to local VAT/sales tax.

Full methyl jacket? A complete library of the N-methylated somatostatin cyclopeptidic analogue Veber–Hirschmann peptide *cyclo*-(PFwKTF-) has been prepared with the aim of improving its bioavailability. Several analogues from the library were found to bind to the somatostatin receptor in the nanomolar range and one of them shows a significant oral bioavailability of 10%. Conformational analysis shows that N-methylation is allowed at specific positions without affecting the bioactive conformation.



Drug Research

E. Biron, J. Chatterjee, O. Ovadia, D. Langenegger, J. Brueggen, D. Hoyer, H. A. Schmid, R. Jelinek, C. Gilon, A. Hoffman, H. Kessler* — 2595–2599

Improving Oral Bioavailability of Peptides by Multiple N-Methylation: Somatostatin Analogues

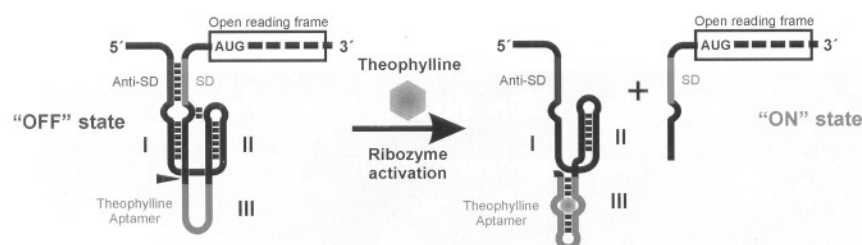


Hydrogen bond revealed: In a cobalt(II) porphyrin complex which serves as a model for the dioxygen binding site of myoglobin (Mb) and hemoglobin, a distal hydrogen bond to the bound O_2 was identified and characterized by pulse ENDOR spectroscopy. A similar but stronger hydrogen bond was revealed with the same methods in natural Co-Mb- O_2 .

Hydrogen Bonds in Proteins

H. Dube, B. Kasumaj, C. Calle, M. Saito, G. Jeschke, F. Diederich* — 2600–2603

Direct Evidence for a Hydrogen Bond to Bound Dioxygen in a Myoglobin/Hemoglobin Model System and in Cobalt Myoglobin by Pulse-EPR Spectroscopy



Switch-hitter: A new strategy to control gene expression relies on a ligand-dependent, ribozyme-based RNA switch. The key feature of this setup is that the ribozyme liberates the ribosome binding site upon cleavage of the message. The

design made it possible to screen in vivo for an inducible aptazyme by attaching an aptamer to stem III of the ribozyme, thus preserving naturally occurring stem I/stem II contacts.

RNA Switches

M. Wieland, J. S. Hartig* — 2604–2607

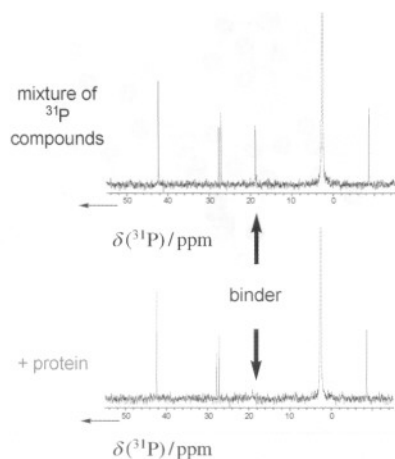
Improved Aptazyme Design and In Vivo Screening Enable Riboswitching in Bacteria



Ligand Screening

F. Manzenrieder, A. O. Frank,
H. Kessler* — 2608–2611

Phosphorus NMR Spectroscopy as a
Versatile Tool for Compound Library
Screening

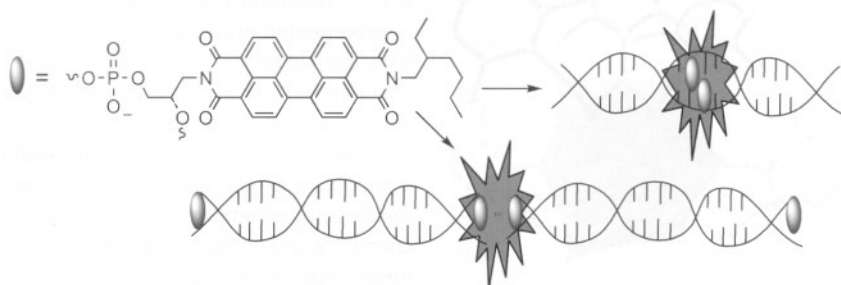


A new librarian: The applicability of NMR spectroscopy in biological and pharmaceutical research has been extended by introducing phosphorus (^{31}P) as a new nucleus for compound library screening of protein inhibitors. Several NMR-based methods, such as recovery experiments and two-dimensional measurements, were utilized to show the fundamental soundness of the newly developed ligand-based screening approach.

Fluorescent DNA

D. Baumstark,
H.-A. Wagenknecht* — 2612–2614

Perylene Bisimide Dimers as Fluorescent
“Glue” for DNA and for Base-Mismatch
Detection



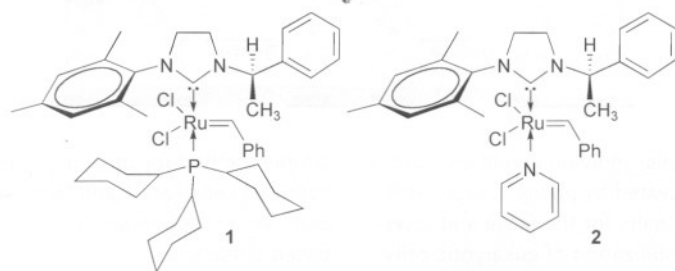
Lights up! The characteristic fluorescence of perylene bisimide dimers can be used to study DNA hybridization and DNA

aggregation (see scheme) as well as the presence of single-base-pair mismatches and deletions.

Polymerization

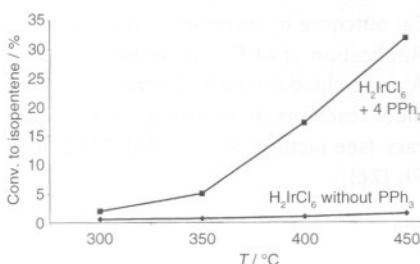
K. Vehlouw, D. Wang, M. R. Buchmeiser,*
S. Blechert* — 2615–2618

Alternating Copolymerizations Using a
Grubbs-Type Initiator with an
Unsymmetrical, Chiral N-Heterocyclic
Carbene Ligand



Good for a ROMP: Initiators **1** and **2**, which both contain an unsymmetric, chiral N-heterocyclic carbene (NHC) ligand, mediate the alternating copolymerization of norborn-2-ene with other cyclic olefins including cyclopentene and

cyclooctene. The selectivity of the copolymerization is explained by the steric interaction of the growing polymer chain with the 1-phenylethyl substituent and the nitrogen atom of the NHC ligand.



Activation by adding PPh_3 : The catalytic dehydrogenation of isopentane to give isopentene and hydrogen with iridium catalysts on a silica gel support at 450 °C proceeds with impressive conversion when the support is impregnated with PPh_3 . The active species are proposed to be iridium phosphides which arise by thermal cleavage of phenyl groups.

Heterogeneous Dehydrogenation

H. G. Alt,* I. K. Böhmer — 2619–2621

Catalytic Dehydrogenation of Isopentane
with Iridium Catalysts

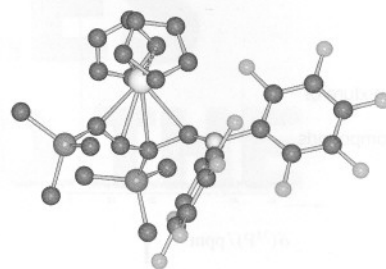
Metallacycloallenes

J. Ugoletti, G. Dierker, G. Kehr, R. Fröhlich, S. Grimme, G. Erker* — 2622–2625



Five-Membered Metallacyclic Allenoids: Synthesis and Structure of Remarkably Stable Strongly Distorted Cyclic Allene Derivatives

Metallocene lends a hand: Treatment of [bis(alkynyl)HfCp₂] complexes with HB-(C₆F₅)₂ results in 1,1-hydroboration and subsequent carbon–carbon coupling to yield the corresponding metallacyclopenta-1,2-diene derivatives (see structure of the trimethylsilyl derivative; Hf brown, B red, Si blue, F green, C black). X-ray diffraction and a quantum chemical analysis reveal an electronic structure between a bent cyclic allene and a coordinated butenyne.

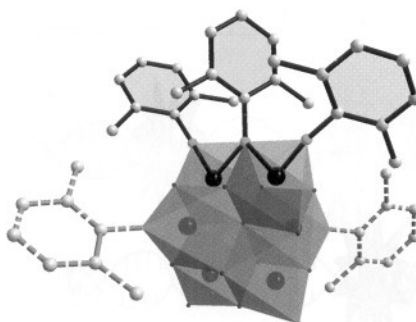


Organic–Inorganic Hybrids

J. Hao, Y. Xia, L. Wang, L. Ruhlmann,* Y. Zhu, Q. Li, P. Yin, Y. Wei,* H. Guo — 2626–2630



Unprecedented Replacement of Bridging Oxygen Atoms in Polyoxometalates with Organic Imido Ligands



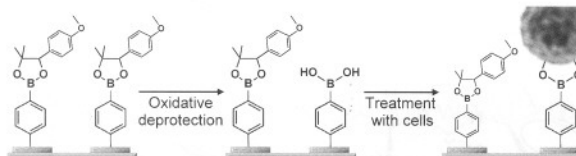
Building bridges: Two arylimido derivatives of hexamolybdate, containing unprecedented bridging imido ligands, have been synthesized and structurally characterized. Their ¹H NMR and UV/Vis spectra distinguish them from related terminally coordinated derivatives. Such compounds extend the range of organo-imido polyoxometalate coordination chemistry, providing insight into the mechanism of oxo metathesis in the Lindqvist polymolybdate.

Cell Immobilization

R. Polsky, J. C. Harper, D. R. Wheeler, D. C. Arango, S. M. Brozik* — 2631–2634



Electrically Addressable Cell Immobilization Using Phenylboronic Acid Diazonium Salts



Holding cells: Individual gold electrodes can be activated by phenylboronic acid diazonium salts for the facile and reversible immobilization of eukaryotic cells (see scheme). This platform provides a

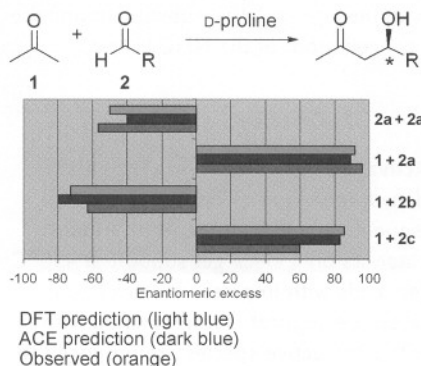
simple method for on-demand release of captured cells (yeast and macrophage) and can be used in single-cell or array-based studies.

Asymmetric Synthesis

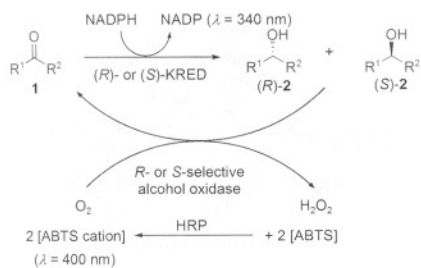
C. R. Corbeil, S. Thielges, J. A. Schwartzentruber, N. Moitessier* — 2635–2638



Toward a Computational Tool Predicting the Stereochemical Outcome of Asymmetric Reactions: Development and Application of a Rapid and Accurate Program Based on Organic Principles



Finding an ACE in the deck: The newly developed program ACE 1.0 (ACE = asymmetric catalyst evaluation) rapidly and accurately predicts the stereochemical outcome of asymmetric reactions. Application of ACE to asymmetric Diels–Alder cycloadditions and organocatalyzed aldol reactions demonstrates high accuracy (see picture; R = *i*Pr (**2a**), Me (**2b**), Ph (**2c**)).

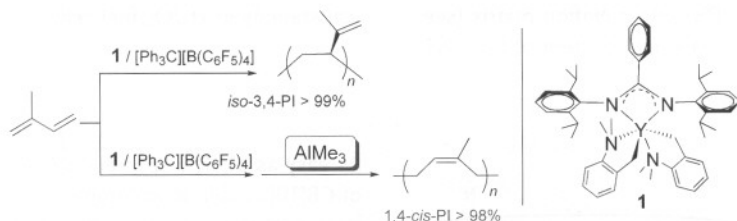


Fast and furious: A rapid and inexpensive assay for determining both the activity and enantioselectivity of ketoreductases (KREDs) has been developed (see scheme; HRP = horseradish peroxidase, ABTS = 2,2'-azino-di(3-ethyl benzthiazoline-6-sulfonic acid)). This assay, which employs an enantioselective alcohol oxidase as a reporter enzyme, was used to screen a panel of 17 KREDs in only 10 min using less than 0.5 mg substrate.

Biocatalysis

M. D. Truppo,* F. Escalantes,
N. J. Turner* 2639–2641

Rapid Determination of Both the Activity and Enantioselectivity of Ketoreductases



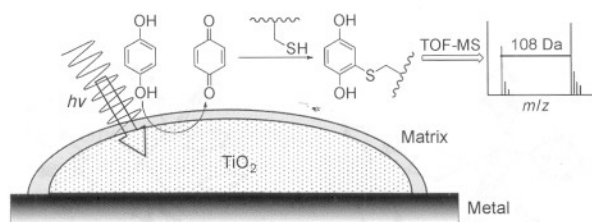
Aluminum switches: The addition of AlMe_3 to the isoprene polymerization catalyst $1/[\text{Ph}_3\text{C}][\text{B}(\text{C}_6\text{F}_5)_4]$ switches the regio- and stereoselectivity from 3,4-iso-specific to 1,4-*cis* selective (see scheme). A

heterotrimeric Y/Al complex obtained from the reaction of **1** with AlMe_3 shows 1,4-*cis* selectivity under similar conditions in the presence of $[\text{Ph}_3\text{C}][\text{B}(\text{C}_6\text{F}_5)_4]$. PI = polyisoprene.

Polymerization Catalysts

L. Zhang, M. Nishiura, M. Yuki, Y. Luo,
Z. Hou* 2642–2645

Isoprene Polymerization with Yttrium Amidinate Catalysts: Switching the Regio- and Stereoselectivity by Addition of AlMe_3



A TiO_2 photoelectrode array has been designed to achieve efficient photoelectrochemical redox reactions with electron donors or acceptors during the laser desorption ionization process. By adding hydroquinone to a peptide mixture, the

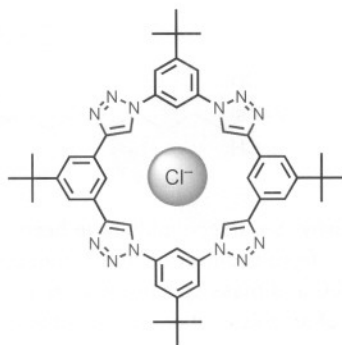
photoelectrochemically generated benzoquinone reacts with the cysteine residues to selectively form tagged cysteine-containing peptides, thus demonstrating that in-source oxidation reactions can be efficiently performed.

Photosensitized Mass Spectrometry

L. Qiao, C. Roussel, J. Wan, J. Kong,
P. Yang, H. H. Girault,
B. H. Liu* 2646–2648

MALDI In-Source Photooxidation Reactions for Online Peptide Tagging

Strength in numbers: When traditionally weak C–H hydrogen bonds are preorganized in a shape-persistent macrocycle, a strong affinity for chloride ions emerges. This discovery arises from the dual use of click chemistry for efficient macrocyclization and the favorable steric properties of the resulting 1,2,3-triazoles.



Anion Receptors

Y. Li, A. H. Flood* 2649–2652

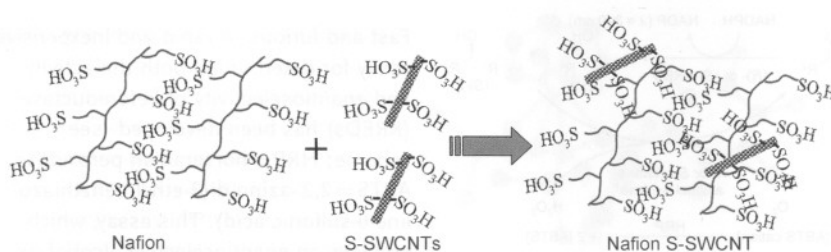
Pure C–H Hydrogen Bonding to Chloride Ions: A Preorganized and Rigid Macrocyclic Receptor

Fuel Cells

R. Kannan, B. A. Kakade,
V. K. Pillai* 2653 – 2656



Polymer Electrolyte Fuel Cells Using
Nafion-Based Composite Membranes
with Functionalized Carbon Nanotubes



Fuel efficiency: Enhanced proton conductivity is obtained by the incorporation of single-walled carbon nanotubes prefunctionalized with sulfonic acid groups (S-SWCNTs) into a Nafion matrix (see scheme). The acid content of the CNT

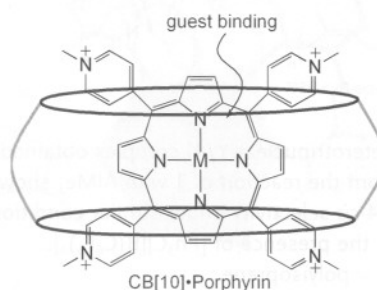
connects the hydrophobic regions of the membrane, thus providing a network for proton mobility. The polymer electrolyte membranes also have improved mechanical stability in H_2/O_2 fuel cells.

Inclusion Compounds

S. Liu, A. D. Shukla, S. Gadde,
B. D. Wagner,* A. E. Kaifer,
L. Isaacs* 2657 – 2660



Ternary Complexes Comprising
Cucurbit[10]uril, Porphyrins, and Guests



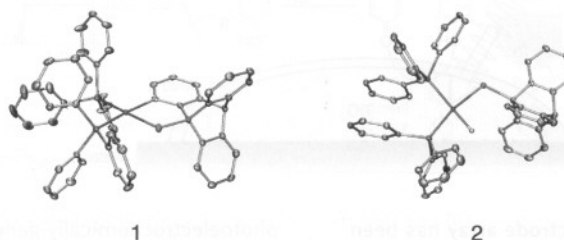
As easy as pi: The spacious $870\text{-}\text{\AA}^3$ cavity of CB[10] is able to accommodate free base and metalated tetra(*N*-methylpyridyl)porphyrins inside. The complexes blend the advantageous recognition and photophysical properties of these two classes of macrocycles and promote the formation ternary complexes (see picture) in water through π - π stacking interactions.

Selenium Metallacycles

A. Ishii,* N. Nakata, R. Uchiomi,
K. Murakami 2661 – 2664



Reactions of a Ditritycyl-Substituted
Selenoseleninate and Related
Compounds with a Platinum(0) Complex:
Formation of Selenaplatinacycle and
Hydrido Selenolato Platinum(II)
Complexes



A selenaplatinacycle (see structure 1; red P, blue Pt, green Se) is formed by the reactions of TripSe(O)SeTrip (Trip = 9-tritycyl) and TripSeOH with $[Pt(PPh_3)_2(\eta^2-C_2H_4)]$ by intramolecular C-H activation leading to the cyclometalation. The

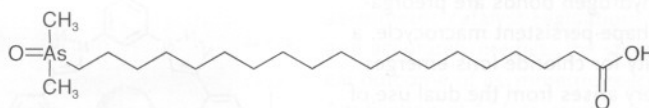
reaction of TripSeSeTrip with $[Pt(PPh_3)_2(\eta^2-C_2H_4)]$ also provided 1 together with TripSeH, which reacts with $[Pt(PPh_3)_2(\eta^2-C_2H_4)]$ to give the hydrido selenolato platinum(II) complex 2.

Arsenolipids

A. Rumpler, J. S. Edmonds, M. Katsu,
K. B. Jensen, W. Goessler, G. Raber,
H. Gunnlaugsdottir,
K. A. Francesconi* 2665 – 2667

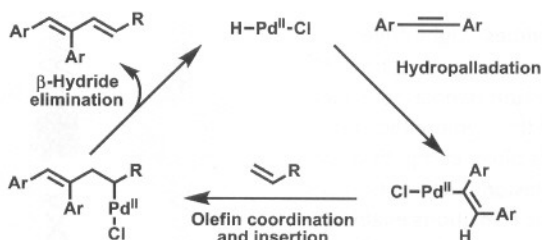


Arsenic-Containing Long-Chain Fatty
Acids in Cod-Liver Oil: A Result of
Biosynthetic Infidelity?



A bit fishy: Six arsenolipids have been isolated from cod-liver oil and identified by HPLC and mass spectrometry as a series of arsenic-containing long-chain

fatty acids (for example, see picture). These fatty acids account for about 20% of the total arsenolipid content of cod-liver oil.



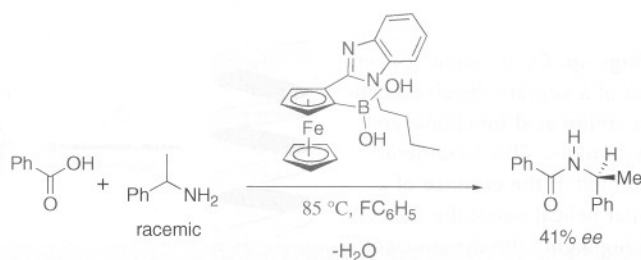
Direct and to the point: A palladium(II) catalytic system based on a palladium hydride species provides access to highly substituted 1,3-dienes through a direct

coupling of alkynes with alkenes in a base-free Mizoroki–Heck-type reaction with full atom economy (see scheme; R = amide, borate, C(OH)Me₂, O-alkyl).

Heck Coupling

A. T. Lindhardt (né Hansen),
M. L. H. Mantel,
T. Skrydstrup* — 2668–2672

Palladium-Catalyzed Intermolecular Ene–Yne Coupling: Development of an Atom-Efficient Mizoroki–Heck-Type Reaction



Let's resolve this: A planar chiral benzimidazole ferroceneboronic acid catalyst demonstrates low to moderate asymmetric induction in the kinetic resolution of

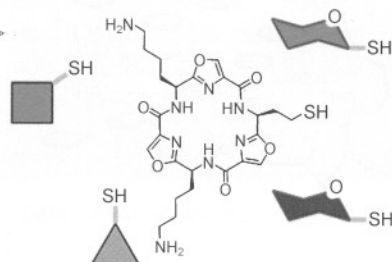
racemic α -substituted benzylamines by direct amide formation with achiral carboxylic acids (see scheme).

Amidation

K. Arnold, B. Davies, D. Héault,
A. Whiting* — 2673–2676

Asymmetric Direct Amide Synthesis by Kinetic Amine Resolution: A Chiral Bifunctional Aminoboronic Acid Catalyzed Reaction between a Racemic Amine and an Achiral Carboxylic Acid

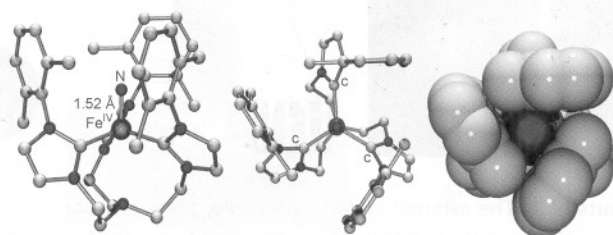
Tuning affinities: Dynamic combinatorial chemistry has been employed to explore the effect of chemical modifications on the DNA G-quadruplex binding properties of an oxazole-based peptide macrocycle. Two dynamic libraries of molecules, containing cationic and carbohydrate motifs, respectively, were screened by using structurally diverse nucleic acid targets (see scheme; each colored shape represents a cation or carbohydrate).



Dynamic Combinatorial Chemistry

A. Bugaut, K. Jantos, J.-L. Wietor,
R. Rodriguez, J. K. M. Sanders,
S. Balasubramanian* — 2677–2680

Exploring the Differential Recognition of DNA G-Quadruplex Targets by Small Molecules Using Dynamic Combinatorial Chemistry



High on nitride: Discrete iron nitride complexes stabilized by N-anchored tris(carbene) ligands have been synthesized (see picture). These high-valent Fe^{IV}≡N

complexes are stable at room temperature, which allows their full spectroscopic and—for the first time—crystallographic characterization.

Coordination Chemistry

C. Vogel, F. W. Heinemann, J. Sutter,
C. Anthon, K. Meyer* — 2681–2684

An Iron Nitride Complex

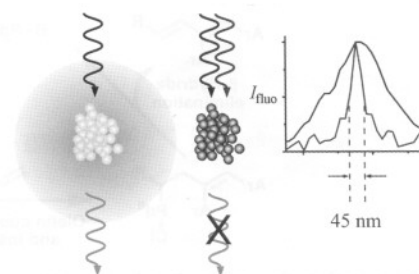
Nanomaterials

S. E. Irvine, T. Staudt, E. Rittweger,
J. Engelhardt, S. W. Hell* — 2685 – 2688



Direct Light-Driven Modulation of
Luminescence from Mn-Doped ZnSe
Quantum Dots

Unlimited possibilities: Light-driven modulation of the fluorescence from Mn-doped ZnSe quantum nanocrystals has been established through excited-state absorption and its direct competition with spontaneous emission. Such optical control over electronic transitions enables far-field fluorescence microscopy analysis with diffraction-unlimited resolution (45 nm, red) based on quantum dots (confocal imaging has a resolution of 200 nm, blue).



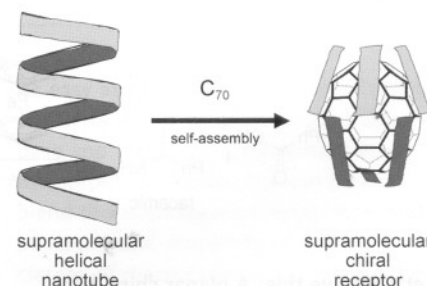
Fullerenes

J.-L. Wietor, G. D. Pantoş,
J. K. M. Sanders* — 2689 – 2692



Templated Amplification of an
Unexpected Receptor for C₇₀

C₇₀ mixes things up: C₇₀ fullerene triggers the formation of a supramolecular receptor based on amino acid functionalized naphthalene diimides. This hexameric receptor is formed at the expense of a supramolecular helical nanotube (see picture) and highlights the dynamic combinatorial nature of hydrogen-bonded scaffolds.

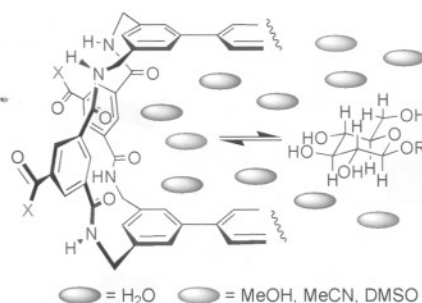


Carbohydrate Recognition

E. Klein, Y. Ferrand, N. P. Barwell,
A. P. Davis* — 2693 – 2696



Solvent Effects in Carbohydrate Binding
by Synthetic Receptors: Implications for
the Role of Water in Natural Carbohydrate
Recognition



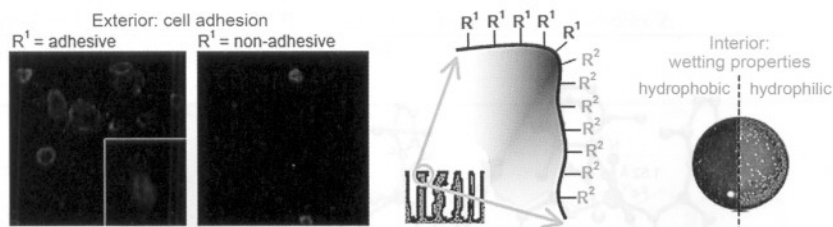
How do they do it? Carbohydrates are intrinsically difficult to bind in water. Lectins and other proteins succeed, but do they use polar or hydrophobic interactions? Studies of synthetic lectins in mixed solvent systems shed new light onto this contentious issue (see scheme; X = hydrophobic or hydrophilic solubilizing groups; R = H or alkyl group).

Surface Chemistry

K. A. Kilian, T. Böcking, K. Gaus,
J. J. Gooding* — 2697 – 2699

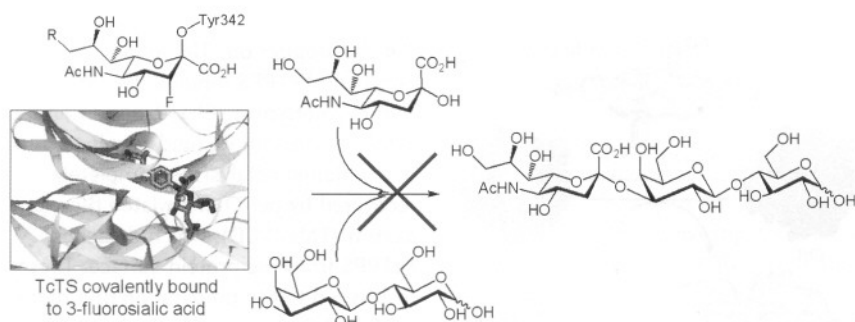


Introducing Distinctly Different Chemical
Functionalities onto the Internal and
External Surfaces of Mesoporous
Materials



The ins and outs of it: The external and internal surfaces of mesoporous materials can be modified independently by exploiting the wetting behavior of the pores modified with a hydrophobic activated monolayer. To demonstrate the

principle, porous silicon photonic crystals were modified with ligands promoting cell adhesion on the top of the crystal and with different functionalities on the inside of the crystal.



A substitution for inhibition: The incorporation of an aryl substituent at C9 of 3-fluorosialyl fluorides provides specificity and dramatically slows the reactivation of the glycosylphosphatidylinositol-anchored surface protein *Trypanosoma*

cruzi trans-sialidase (TcTS) by transglycosylation (see picture). X-ray crystallographic analysis of the trapped intermediate has provided a structural rationale for this behavior.

Enzyme Inhibitors

S. Buchini, A. Buschiazio,
S. G. Withers* 2700–2703

A New Generation of Specific
Trypanosoma cruzi trans-Sialidase
Inhibitors



Supporting information is available on the WWW
(see article for access details).



A video clip is available as Supporting Information
on the WWW (see article for access details).

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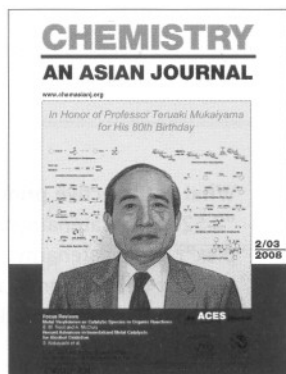
Spotlights Angewandte's
Sister Journals 2530–2531

Keywords 2704

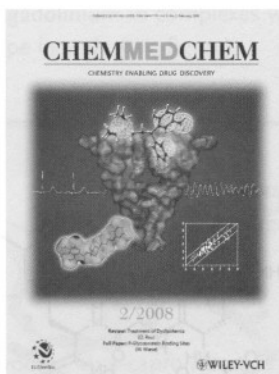
Authors 2705

Preview 2707

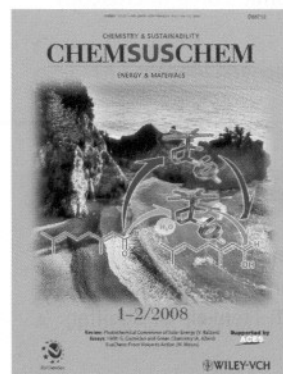
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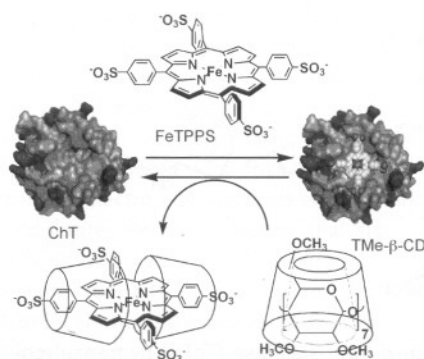
Enzyme Catalysis

K. Kano,* Y. Ishida

Regulation of α -Chymotrypsin Catalysis by Ferric Porphyrins and Cyclodextrins

Chem. Asian J.

DOI: 10.1002/asia.200700383



Put the stopper on: The anionic ferric porphyrin FeTPPS inhibits the catalysis of α -chymotrypsin (ChT) by covering the catalytic site with its rigid porphyrin ring. The inhibited catalysis is completely recovered by per-O-methylated β -cyclodextrin (TMe- β -CD), which detaches FeTPPS from the protein surface. These results led to the preparation of a more useful inhibitor.

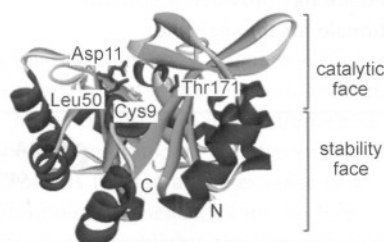
Directed Evolution

M. T. Reetz,* M. Rentzsch, A. Pletsch, A. Taglieber, F. Hollmann, R. J. G. Mondière, N. Dickmann, B. Höcker, S. Cerrone, M. C. Haeger, R. Sterner

A Robust Protein Host for Anchoring Chelating Ligands and Organocatalysts

ChemBioChem

DOI: 10.1002/cbic.200700413



Robust hybrid catalysts: A platform for directed evolution of hybrid catalysts has been optimized and miniaturized by using a thermostable enzyme, tHisF (see figure) from *Thermotoga maritima*. A tHisF mutant with a strategically placed cysteine was identified and subjected to bioconjugation by introducing a variety of ligands for metal ligation, a ligand/metal moiety, and several organocatalysts such as flavin and thiazolium entities.

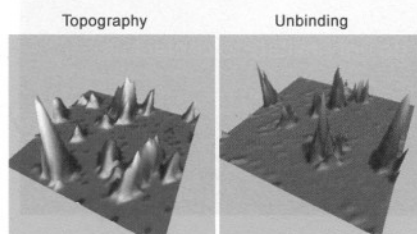
Atomic Force Microscopy

J. Sotres, A. Lostao, L. Wildling, A. Ebner, C. Gómez-Moreno, H. J. Gruber, P. Hinterdorfer, A. M. Baró*

Unbinding Molecular Recognition Force Maps of Localized Single Receptor Molecules by Atomic Force Microscopy

ChemPhysChem

DOI: 10.1002/cphc.200700597



Simultaneous recordings: Molecular recognition forces on ligand-receptor pairs (biotin-avidin) are measured by AFM simultaneously with the topography of the receptor molecules (see figure). Spatially resolved ligand unbinding events in single molecules of 5 nm diameter are obtained.

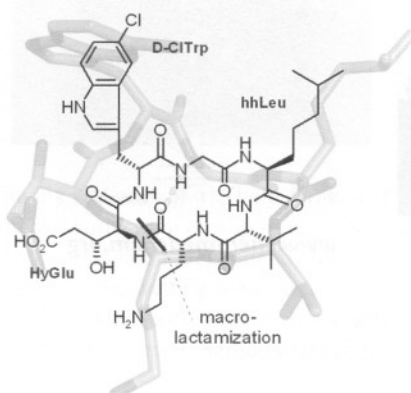
Antibiotics Synthesis

F. von Nussbaum,* S. Anlauf, C. Freiberg, J. Benet-Buchholz, J. Schamberger, T. Henkel, G. Schiffer, D. Häbich

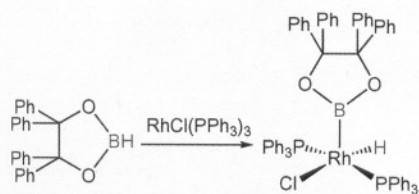
Total Synthesis and Initial Structure–Activity Relationships of Longicatenamycin A

ChemMedChem

DOI: 10.1002/cmdc.200700297



What is the active principle of the “S-520 longicatenamycin antibiotic complex”? Longicatenamycin A (shown) is the first defined longicatenamycin congener that has been totally synthesized and tested in pure form.



4,4,5,5-Tetraphenyl-1,3,2-dioxaborolane (HBBzpin) has been prepared in high yield and used in the catalysed hydroboration of alkenes to give air- and chromatography-stable organoboronate ester products. Reactions with metal complexes have also been investigated. Addition of HBBzpin to $\text{RhCl}(\text{PPh}_3)_3$ gave the borylrhodium complex $\text{Rh}(\text{H})\text{Cl}(\text{BzBpin})(\text{PPh}_3)_2$.

Metal-Catalysed Hydroboration

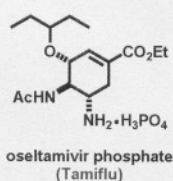
C. B. Fritsch, S. M. Wernitz,
C. M. Vogels, M. P. Shaver, A. Decken,
A. Bell,* S. A. Westcott*

4,4,5,5-Tetraphenyl-1,3,2-dioxaborolane:
A Bulky Borane for the Transition Metal
Catalysed Hydroboration of Alkenes

Eur. J. Inorg. Chem.

DOI: 10.1002/ejic.200701066

Synthetic strategies for oseltamivir phosphate, an important orally active anti-influenza drug, are reviewed.



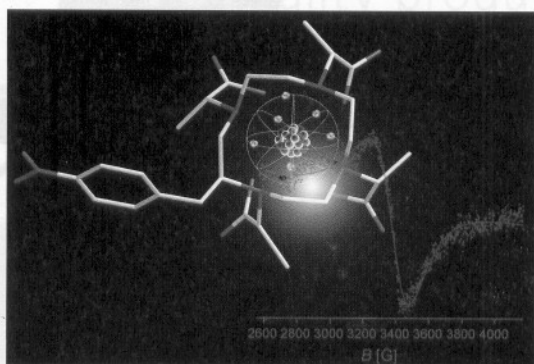
Anti-influenza Drugs

M. Shibasaki,* M. Kanai

Synthetic Strategies for Oseltamivir
Phosphate

Eur. J. Org. Chem.

DOI: 10.1002/ejoc.200800033



Electron-spin relaxation is a key parameter in the design of advanced MRI contrast agents. EPR has been used to probe the relationship between this key

parameter and the coordination environment of gadolinium in complexes with DOTA-type ligands (see figure).

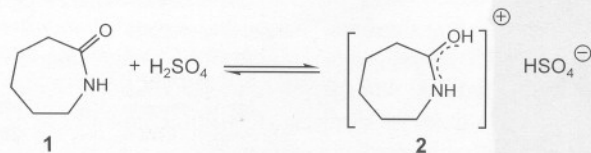
Contrast Agents

A. Borel,* J. F. Bean, R. B. Clarkson,
L. Helm, L. Moriggi, A. D. Sherry,
M. Woods*

Towards the Rational Design of MRI
Contrast Agents: Electron Spin
Relaxation Is Largely Unaffected by the
Coordination Geometry of
Gadolinium(III)–DOTA-Type Complexes

Chem. Eur. J.

DOI: 10.1002/chem.200701747



An ionic liquid: Investigation of the mechanism of the Beckmann rearrangement of cyclohexanone oxime to ϵ -caprolactam (**1**) in sulfuric acid or oleum has led to the conclusion that the manufac-

turing process for ϵ -caprolactam is in fact the largest-scale industrial technology that has been using an ionic liquid, caprolactamium hydrogen sulfate (**2**), as the reaction medium for decades.

Industrial Chemistry

V. Fábos, D. Lantos, A. Bodor,
A.-M. Bálint, L. T. Mika, O. E. Sielcken,
A. Cuiper, I. T. Horváth*

ϵ -Caprolactamium Hydrogen Sulfate: An
Ionic Liquid Used for Decades in the
Large-Scale Production of ϵ -Caprolactam

ChemSusChem

DOI: 10.1002/cssc.200700135