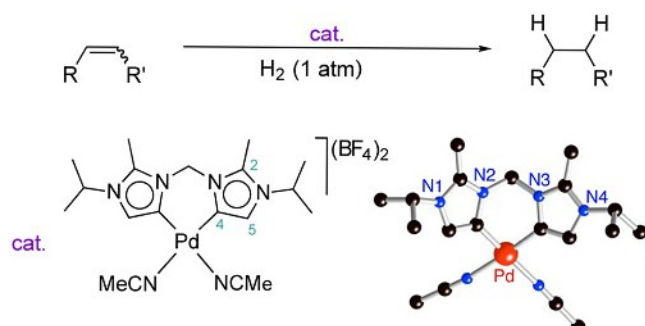


Science Concentrates

Neutral Ligands with Exceptional Donor Ability for Palladium-Catalyzed Alkene Hydrogenation

M. Heckenroth, E. Kluser, A. Neels, and M. Albrecht*, *Angew. Chem., Int. Ed.* **2007**, *46*, 6293
 Université de Fribourg

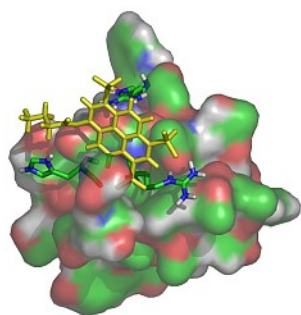
Catalytic olefin hydrogenation is observed with palladium complexes when the N-heterocyclic carbene ligand is changed from the normal C2- to the unusual C4-bonding mode (see below). In a *cis* coordinating framework, the electron density at the metal center is substantially increased as a result of the exceptionally strong donor ability of C4-bound carbenes. This affects the stability and enhances the catalytic activity of the complexes.



A Peptide Dendrimer Enzyme model with a Single Catalytic Site at the Core

S. Javor, E. Delort, T. Darbre*, and J.-L. Reymond*, *J. Am. Chem. Soc.* **2007**, *129*, 13238
 University of Berne

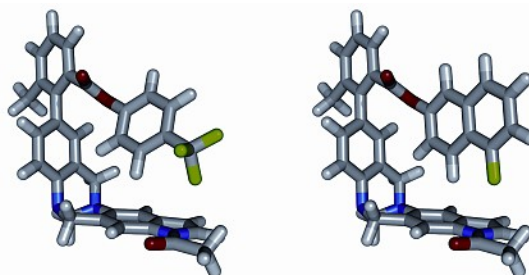
The authors report the first esterase peptide dendrimer enzyme models with a single catalytic site; the catalytic dendrimer being discovered by functional screening of a multi-thousand combinatorial library. The most effective catalyst presents a sole catalytic histidine residue at the dendrimer core and densely packed hydrophobic aromatic moieties in the outer layers. The compactness of the dendrimer in solution suggests a possible relationship between packing and catalysis in these systems.



Molecular Torsion Balances: Evidence for Favorable Orthogonal Dipolar Interactions Between Organic Fluorine and Amide Groups

F.R. Fischer, W. Bernd Schweizer, and F. Diederich* *Angew. Chem., Int. Ed.* **2007**, *46*, 8270
 ETH Zürich

This article presents the design, the synthesis and the properties of two indole-extended molecular torsion balances that provide the optimal geometry for measuring truly orthogonal non-covalent interactions between a C–F bond dipole and an amide carbonyl group. Employing a double-mutant cycle approach, negative interaction free enthalpies were determined giving decisive proof for the existence of attractive orthogonal dipolar interactions that can now be used as novel tools for stabilizing protein–ligand complexes and assembling supramolecular architectures.



Total Synthesis, Configuration, and Biological Evaluation of Anguinomycin C

S. Bonazzi, S. Güttinger, I. Zemp, U. Kutay*, and K. Gademann*, *Angew. Chem., Int. Ed.* **2007**, *46*, 8707
 EPF Lausanne and ETH Zürich

The anguinomycins, a class of natural products, have attracted the attention of synthetic chemists due to their extremely potent and selective antitumor activity and yet very low cytotoxicity. In this article, the total synthesis and configuration of anguinomycin C is reported. Key steps in this synthesis are a Cr-catalyzed enantioselective hetero-Diels-Alder reaction, a Negishi reaction with stereoinversion, and application of the Seebach-DIOZ auxiliary. Investigations on the mode of action demonstrate that anguinomycin C is a potent inhibitor of protein export from the nucleus.

