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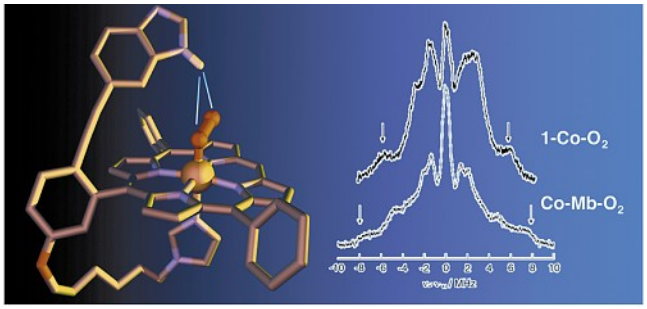
Direct Evidence for Hydrogen Bond to Bound Dioxygen in a Myoglobin/Hemoglobin Model System and in Cobalt Myoglobin by Pulse-EPR Spectroscopy

H. Dube, B. Kasumaj, C. Calle, M. Saito, G. Jeschke, and F. Diederich*, *Angew. Chem., Int. Ed.* **2008**, *47*, 2600
ETH Zürich and Universität Konstanz

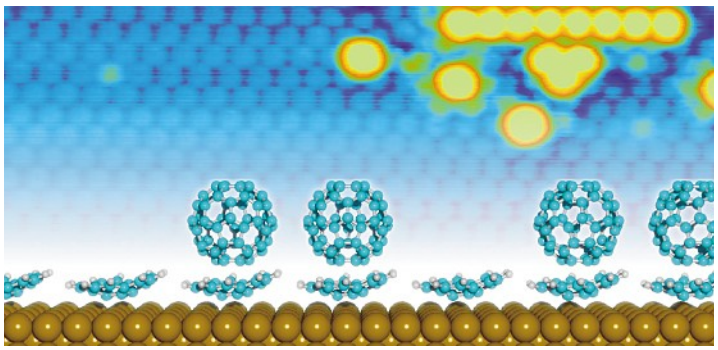
In this article, the synthesis of a cobalt(II) porphyrin model complex for myoglobin and hemoglobin is reported allowing a direct study of its distal hydrogen bonding properties. The authors present evidence of a dipolar distal hydrogen bond to bound dioxygen by pulse Davies-ENDOR spectroscopy and report complete EPR parameters for this interaction. A similar but stronger distal hydrogen bond was revealed for the dioxygen complex of natural myoglobin, demonstrating that this synthetic complex is an excellent functional model.



C_{60}/Corannulene on Cu (110): A Surface-Supported Bistable Buckybowl–Buckyball Host–Guest System

W. Xiao, D. Passerone, P. Ruffieux, K. Aït-Mansour, O. Gröning, E. Tosatti, J.S. Siegel, and R. Fasel*, *J. Am. Chem. Soc.* **2008**, *130*, 4767
Empa, Thun & Dübendorf; INFM/CNR/DEMOCRITOS, Trieste; University of Zurich

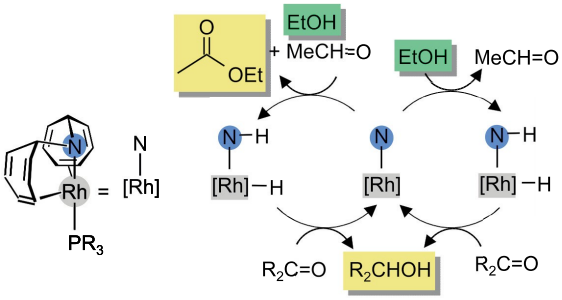
In this article the authors report the formation of surface-supported host–guest complexes of Corannulene (COR) and C_{60} by deposition of C_{60} onto a COR lattice on Cu(110). *In situ* variable temperature scanning tunneling microscopy investigations reveal that the COR–C_{60} host–guest complexation is a thermally activated process. Simple model calculations show that this bi-stability originates from a subtle interplay between homo- and heteromolecular interactions.



Ethanol as Hydrogen Donor: Highly Efficient Transfer Hydrogenations with Rhodium (I) Amides

T. Zweifel, J.-V. Naubron, T. Büttner, T. Ott, and H. Grützmacher*, *Angew. Chem., Int. Ed.* **2008**, *47*, 3245
ETH Zürich

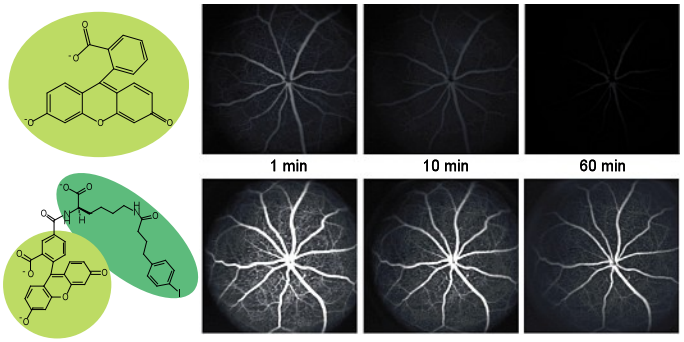
Homogeneously catalyzed transfer hydrogenation is an important and powerful tool in synthetic chemistry. In this article the authors report that Rh(I) amides with a saw-horse structure of type [Rh(trop$_2$N)-(PPh$_3$)] are active catalysts for transfer hydrogenation of ketones and activated olefins using ethanol as hydrogen donor (trop$_2$N = bis(5-H-dibenzo[a,d] cycloheptene-5-yl)amide). Under mild reaction conditions, the corresponding alcohols and ethyl acetate are formed with very high efficiency and a TOF above 500000 h^{-1}.



A Portable A0lbumin Binder from a DNA-Encoded Chemical Library

C. E. Dumelin, S. Trüssel, F. Buller, E. Trachsel, F. Bootz, Y. Zhang, L. Mannocci, S. C. Beck, M. Drumea-Mirancea, M. W. Seeliger, C. Baltes, T. Müggler, F. Kranz, M. Rudin, S. Melkko, J. Scheuermann, and D. Neri*, *Angew. Chem., Int. Ed.* **2008**, *37*, 3196
Universität and ETH Zürich; Universitätsklinikum Tübingen

Plasma–protein binding is effective in improving the pharmacokinetic properties of otherwise short-lived molecules. In this paper, it is shown that a class of small portable albumin binders can be used to improve the *in vivo* circulatory half-life of two widely used contrast agents. In particular, the authors documented the performance of a Gd(III)-DTPA analogue in MRI procedures and the imaging performance of a modified version of fluorescein for the angiographic analysis of the retina of mice.



Prepared by Martina Austeri, Renaud Bach, Nathalie Mehanna, Roman Novikov, Ankit Sharma, Franck Torricelli, Jérôme Lacour
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