



Swiss Science Concentrates

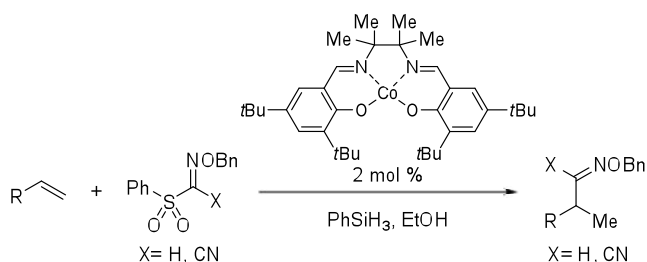
A CHIMIA Column

Short Abstracts of Interesting Recent Publications of Swiss Origin

Cobalt Catalyzed Functionalization of Unactivated Alkenes: Regioselective Reductive C-C Bond Forming Reactions

B. Gaspar and E. M. Carreira* *J. Am. Chem. Soc.* **2009**, *131*, 13214
ETH Zürich

This article reports interesting cobalt-catalyzed hydroaldoximation and hydrocyanooximation of unactivated alkenes. Secondary and tertiary aldoximes and oximonitriles are synthesized with excellent regioselectivity under mild conditions, and conversion of the products to valuable intermediates is documented. The reactions expand the arsenal of reductive carbon-carbon bond forming reactions as well as regioselective functionalizations of unactivated double bonds.

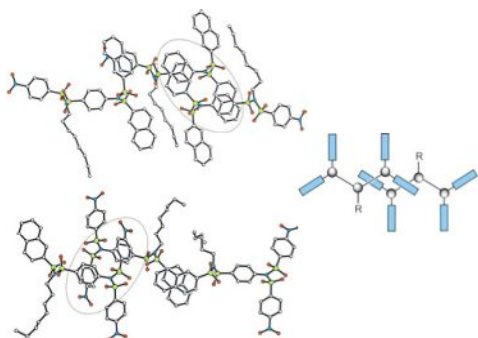


Engineering Crystals of Dendritic Molecules

O. Lukin,* D. Schubert, C. M. Müller, W. B. Schweizer, V. Gramlich, J. Schneider, G. Dolgonos, and A. Shivanyuk *Proc. Natl. Acad. Sci. USA* **2009**, *106*, 10922

ETH Zürich; National Taras Shevchenko University (Kiev); Bremen University

In this article, detailed single-crystal X-ray studies of conformationally flexible sulfonimide-based dendritic molecules with systematically varied molecular architectures are reported. A precise analysis by the authors of the packing patterns shows that despite their lack of strong directive functional groups there is a repeatedly reproduced intermolecular interaction mode consisting in an anchor-type packing of complementary second-generation branches of neighboring molecules. Quantum chemical calculations of the molecule-molecule interaction energies agree at the qualitative level with the packing preferences found in the crystalline state.

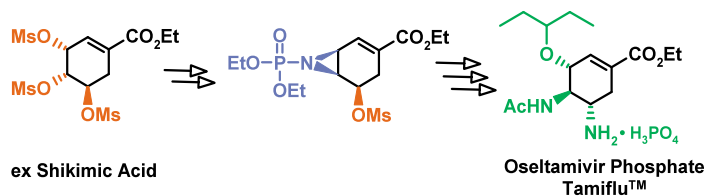


Efficient Access to Oseltamivir Phosphate (Tamiflu) via the O-Trimesylate of Shikimic Acid Ethyl Ester

M. Karpf* and R. Trussardi* *Angew. Chem. Int. Ed.* **2009**, *48*, 5760

F. Hoffmann-La Roche Ltd., Basel

A new and short synthesis of Tamiflu starting from (–)-shikimic acid is described. This new route includes only eight steps and requires only three workups, without any need of protecting group manipulations or chromatographic purifications. This novel approach represents the most direct way to access Tamiflu and this with an overall yield of 20% already at a technically undeveloped stage.



Controlling and Imaging the Functional-Group Distribution on Mesoporous Silica

N. Gartmann and D. Brühwiler*, *Angew. Chem. Int. Ed.* **2009**, *48*, 6354

University of Zurich

Functionalized mesoporous silica has received much attention owing to applications in various fields, including catalysis, drug delivery, and sensing. Controlling the distribution of functional groups on the large surface area of these materials is essential. In this article, the authors describe a simple and general method for the modification of external mesoporous silica surfaces. The distribution of fluorescence-labeled amino groups on silica was imaged by confocal laser scanning microscopy. The mobility of the aminosilane precursor determines the degree of external vs. pore-surface functionalization.

