



## Swiss Science Concentrates

A CHIMIA Column

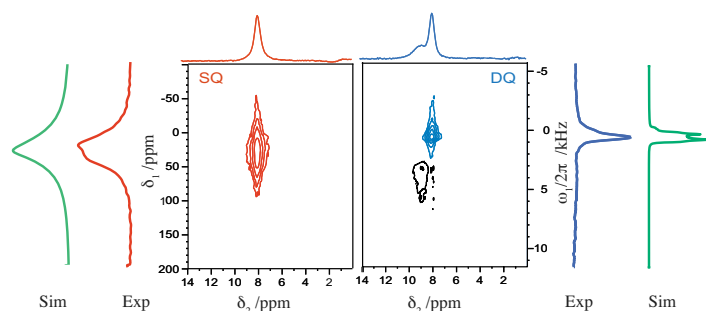
Short Abstracts of Interesting Recent Publications of Swiss Origin

### Evidence for Dynamics on a 100 ns Time Scale from Single- and Double-Quantum Nitrogen-14 NMR in Solid Peptides

S. Cavadini, A. Abraham\*, S. Ulzega, and G. Bodenhausen, *J. Am. Chem. Soc.* **2008**, *130*, 10850

EPF Lausanne; Ecole Normale Supérieure (Ulm), Paris

Solid state NMR is an attractive tool to probe subtle dynamic processes such as librational motions or hopping between conformations on micro- to millisecond time scales. In this context, this article describes how indirect detection of  $^{14}\text{N}$  spectra *via* protons in the manner of heteronuclear multiple-quantum correlation (HMQC) allows one to obtain single- (SQ) and double-quantum (DQ)  $^{14}\text{N}$  spectra in solids. A comparison of the SQ and DQ line widths as a function of temperature together with simulations reveals motions in the tripeptide AAG with rates of the order of  $10^7 \text{ s}^{-1}$  at  $49^\circ\text{C}$ .

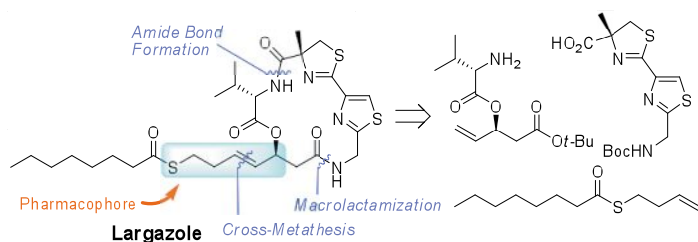


### Synthesis and Biological Activity of Largazole and Derivatives

T. Seiser, F. Kamena, and N. Cramer\*, *Angew. Chem., Int. Ed.* **2008**, *47*, 6483

ETH Zürich

The search for new pharmaceutically relevant lead structures still focuses on natural products – and compounds from marine sources in particular. In this article, a modular synthesis of the potent anti-cancer compound largazole and related synthetic analogues is described. Largazole, recently isolated in only scarce amounts, was prepared in 19% overall yield through a synthetic route with a longest linear sequence of nine steps. Activity tests showed the necessity of the thiobutenyl moiety for antiproliferative activity. Interestingly, varying the side chain underlined how important is the right distance between the thio functionality and the cyclic core of the molecule.

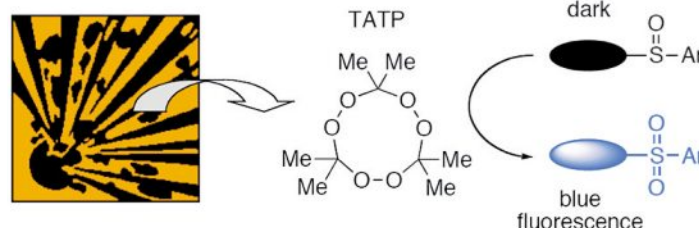


### Fluorescent Signaling Based on Sulfoxide Profluorophores: Application to the Visual Detection of the Explosive TATP

S. Malashikhin and N. S. Finney\*, *J. Am. Chem. Soc.* **2008**, *130*, 12846

University of Zurich

Triacetone triperoxide (TATP), an unstable organic peroxide known since the 19th century, has emerged recently as an improvised explosive of choice for terrorists. Although detectable using standard analytical methods, it is invisible to the 'naked' eye. In this article, the authors describe a first visual fluorescence-based assay for TATP. The assay utilizes as signaling mechanism the transformation of non-emissive pyrenyl sulfoxide profluorophores into visibly emissive pyrenyl sulfones upon oxidation. Although not without limitations, these first-generation fluorescent probes can provide a visual response to *ca.* 100 nmol of TATP. In addition, the success of this assay suggests the potential for broader application of aryl sulfoxides in fluorescent chemosensing.



### A Short Route to $\alpha$ -Tocopherol

K. Liu, A. Chougnnet, and W.-D. Woggon\*, *Angew. Chem., Int. Ed.* **2008**, *47*, 5827

University of Basel

This article reports on a simple, very short route to (*all-R*)- $\alpha$ -tocopherol **1**, which is the biologically most important member of the vitamin E family. Compound **1** is known to act as a very efficient radical-chain-breaking antioxidant in tissues. The key step of the synthesis is a remarkably diastereoselective domino aldol/oxa-Michael reaction, supported by proline derivative **2** (30 mol%).

