

# SPOTLIGHTS ...

## The Mitsunobu Reaction

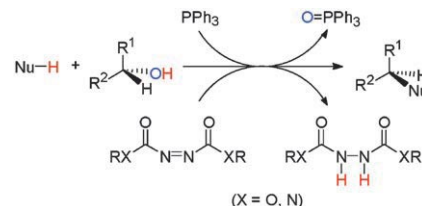
T. Y. S. But, P. H. Toy\*

### The Mitsunobu Reaction: Origin, Mechanism, Improvements, and Applications

*Chem. Asian J.*

DOI: 10.1002/asia.200700182

**Classics never fade away:** The Mitsunobu reaction is a widely used and versatile method for the dehydrative oxidation–reduction condensation of an acid/pronucleophile with an alcohol mediated by phosphine and azo reagents. The history, mechanism, and recent developments of this stereoselective workhorse condensation reaction are reviewed.



## Photoactivation

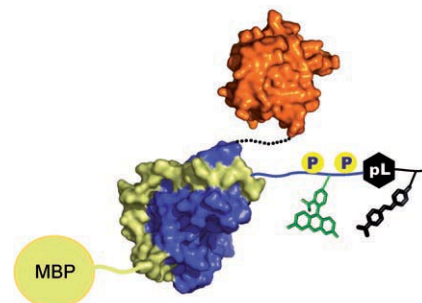
M. E. Hahn, J.-P. Pellois,  
M. Vila-Perelló, T. W. Muir\*

### Tunable Photoactivation of a Post-translationally Modified Signaling Protein and its Unmodified Counterpart in Live Cells

*ChemBioChem*

DOI: 10.1002/cbic.200700404

**Strike a pose...** Expressed protein ligation was used to prepare caged analogues of the signaling protein Smad2 (see illustration). The function and fluorescence of the analogues could be photocontrolled in a correlated fashion. This strategy permitted the titration of the cellular levels of active phosphorylated Smad2 in its biologically relevant, full-length form.



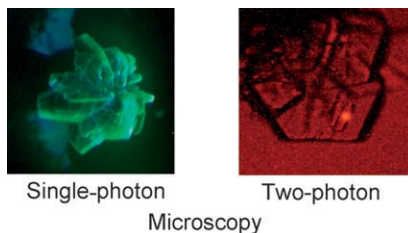
## Lanthanide Luminescence

A. D'Aléo, G. Pompidor, B. Elena,  
J. Vicat, P. L. Baldeck, L. Toupet,  
R. Kahn, C. Andraud,\* O. Maury\*

### Two-Photon Microscopy and Spectroscopy of Lanthanide Bioprobes

*ChemPhysChem*

DOI: 10.1002/cphc.200700375



**Lanthanide bioprobes:** The first two-photon microscopy imaging experiments using tris-dipicolinate terbium complexes as a probe were carried out on derivative protein crystals. Whereas one-photon irradiation results in green luminescence of the entire crystal aggregate, two-photon excitation gives a three-dimensionally resolved spot corresponding to the confocal volume (see picture).

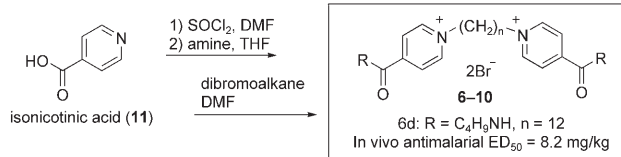
## Synthetic Methods

K. Motoshima, Y. Hiwasa,  
M. Yoshikawa, K. Fujimoto, A. Tai,  
H. Kakuta,\* K. Sasaki

### Antimalarial Cation-dimers Synthesized in Two Steps from an Inexpensive Starting Material, Isonicotinic Acid

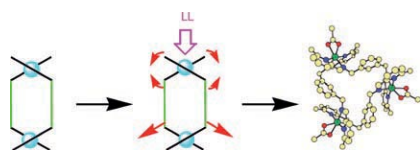
*ChemMedChem*

DOI: 10.1002/cmdc.200700107



**Managing malaria.** As the area affected by malaria includes a large proportion of developing countries, there is a need for new antimalarials that can be synthesized and supplied inexpensively. In this study, bis-cation dimers, MAP

series **6–10** synthesized from an inexpensive isonicotinic acid (**11**) in just two steps, were designed. MAP-412 (**6d**) exhibited a potent in vivo antimalarial activity.



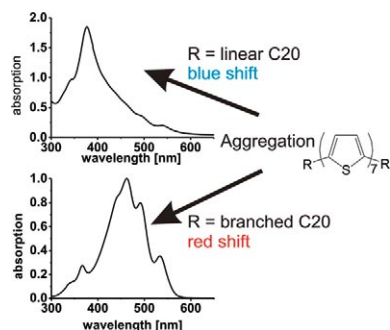
**Taken in with open arms!** Coordination chemistry is used to destabilise a linear array and turn it into a circular helicate (see figure). Changes in the geometry of the metal centre allow the product to be tailored to form dimers or circular helicates.

### Supramolecular Chemistry

J. Hamblin, F. Tuna, S. Bunce, L. J. Childs, A. Jackson, W. Errington, N. W. Alcock, H. Nierengarten, A. Van Dorsselaer, E. Leize-Wagner, M. J. Hannon\*

#### Supramolecular Circular Helicates Formed by Destabilisation of Supramolecular Dimers

*Chem. Eur. J.*  
DOI: 10.1002/chem.200700848



$\alpha$ - and  $\alpha,\omega$ -substituted oligothiophenes show a strong aggregation behaviour in solution depending on the geometry of the alkyl substituents which is reflected by a distinct blue or red shift, respectively, in the absorption spectra. A strong influence of the substituent is also found in the morphology of the aggregates and of thermal properties in the solid state.

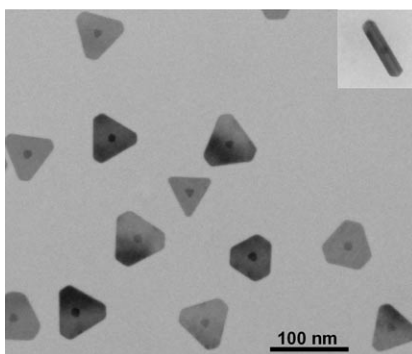
### Aggregation of Oligothiophenes

S. Ellinger, A. Kreyes, U. Ziener,\* C. Hoffmann-Richter, K. Landfester, M. Möller

#### Aggregation Phenomena of Long $\alpha$ - and $\alpha,\omega$ -Substituted Oligothiophenes – the Effect of Branched vs. Linear End-Groups

*Eur. J. Org. Chem.*  
DOI: 10.1002/ejoc.200700566

**Outside silver, inside gold:** Gold nanoparticles are used as seeds to probe the role of plasmon excitation in the photo-mediated growth of silver nanoprisms. This approach generates novel core-shell nanostructures that contain a spherical (see TEM image, inset shows side view) or triangular-prism gold core with a triangular silver prism shell. The architecture of these particles can be tuned by controlling excitation wavelength and gold-core diameter.



### Core-Shell Nanostructures

C. Xue, J. E. Millstone, S. Li, C. A. Mirkin\*

#### Plasmon-Driven Synthesis of Triangular Core-Shell Nanoprisms from Gold Seeds

*Angew. Chem. Int. Ed.*  
DOI: 10.1002/anie.200703185



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