

# SPOTLIGHTS ...

## The Mitsunobu Reaction

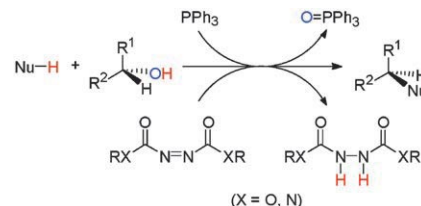
T. Y. S. But, P. H. Toy\*

### 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

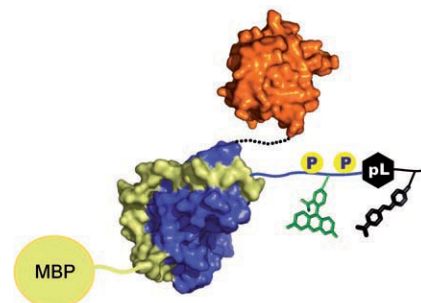
M. E. Hahn, J.-P. Pellois,  
M. Vila-Perelló, T. W. Muir\*

### 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.



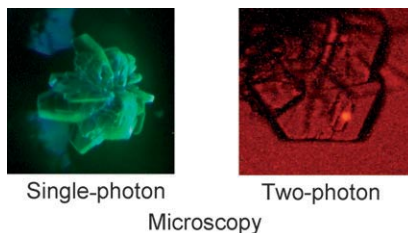
## Lanthanide Luminescence

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).

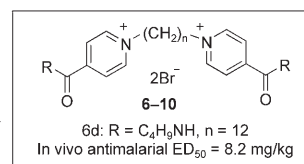
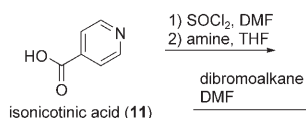
## Synthetic Methods

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

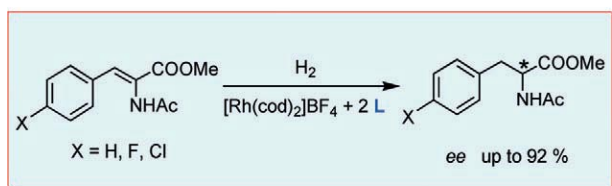
*ChemMedChem*

DOI: 10.1002/cmdc.200700107



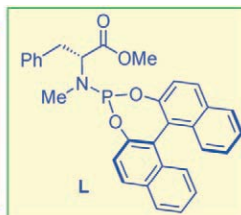
**Managing malaria.** As the area affected by malaria includes a large proportion of developing countries, there is a need for new antimalarials that can be synthesized and supplied inexpensively. In this study, bis-cation dimers, MAP

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.



A series of chiral monodentate ligands combining a 3,5-dioxa-4-phosphacycloheptadinaphthyl unit either with a phenylalanine- or with an alanine-derived

fragment were synthesised and tested in the hydrogenation of 2-(acetylamino)-3-(aryl)propenoic methyl esters.

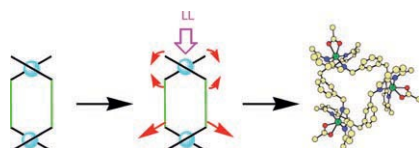


### Asymmetric Catalysis

L. Eberhardt, D. Armspach,\*  
D. Matt,\* L. Toupet, B. Oswald

**Synthesis of Chiral, Monodentate Aminophosphane and Phosphoramidite Ligands Derived from Amino Acid Esters: Application in Rh-Catalysed Asymmetric Olefin Hydrogenation Reactions**

*Eur. J. Inorg. Chem.*  
DOI: [10.1002/ejic.200700474](https://doi.org/10.1002/ejic.200700474)



**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.

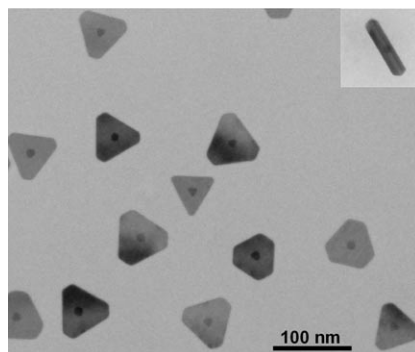
### Supramolecular Chemistry

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](https://doi.org/10.1002/chem.200700848)

**Outside silver, inside gold:** Gold nanoparticles are used as seeds to probe the role of plasmon excitation in the photomediated 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](https://doi.org/10.1002/anie.200703185)



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