Year in Review: JACS 1993

Mindy Levine

September 15, 2006

Annual Stat Sheet

Total number of papers published: 2323

Data as of 9/13/06

Most cited papers:

Murray CB, Norris DJ, Bawendi, MG

Synthesis and characterization of nearly monodisperse CDE (E = S, Se, Te) semiconductor nanocrystallites

Times cited: 1899

Nazeeruddin MK, Kay A, Rodicio I, et al.

Conversion of light to electricity by cis-X2bis(2,2;-bipyridyl-4,4'-dicarboxylate)ruthenium (II) charge-transfer sensitizers (X = Cl, Br, I, CN, and SCN) on nanocrystalline TiO2 electrodes

Times cited: 1383

Grzesiek S, Bax A

The importance of not saturating H2O in protein NMR - application to sensitivity enhancement and NOE measurements

Times cited: 686

Carpino LA

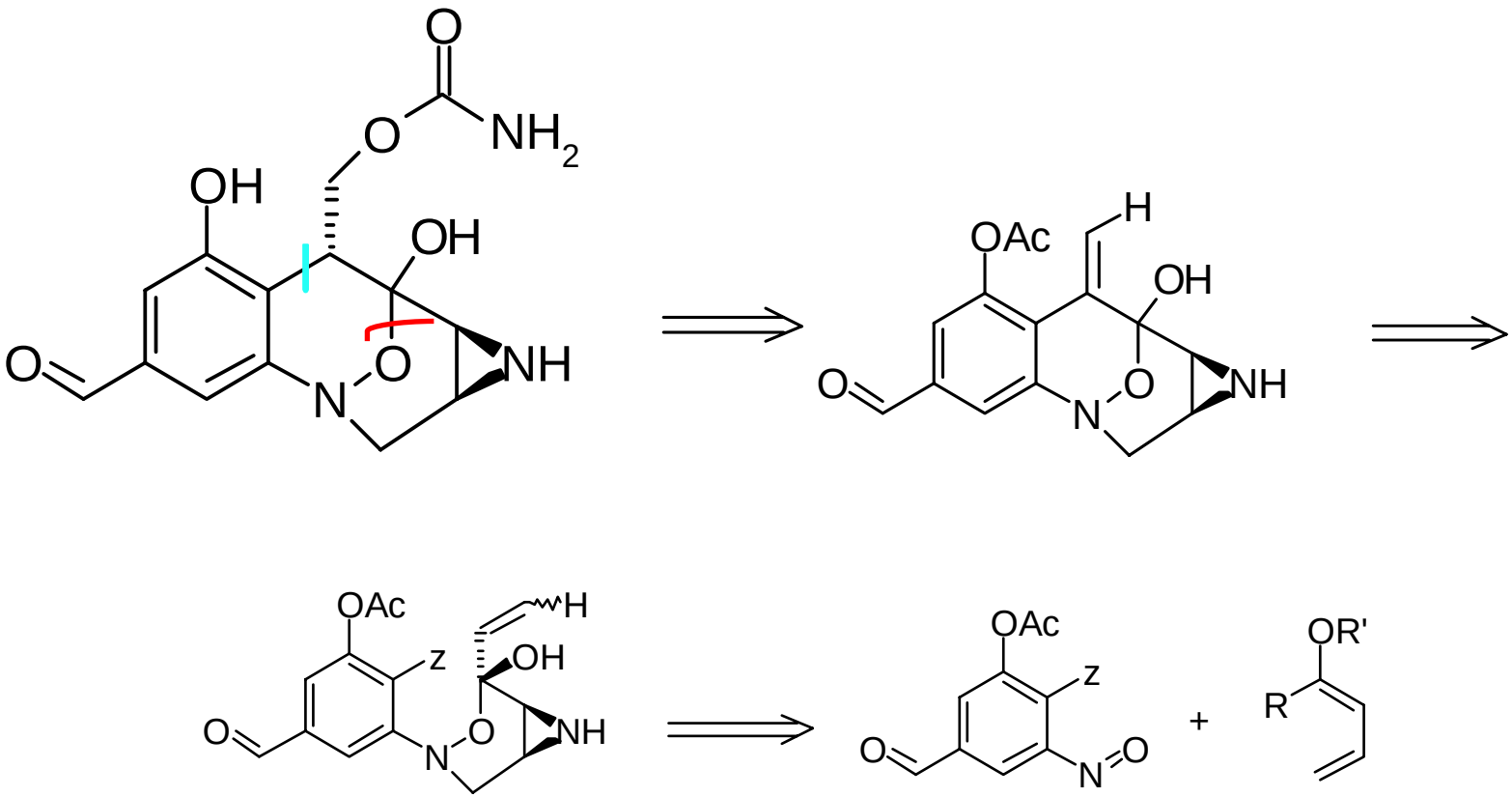
1-hydroxy-7-azabenzotriazole - an efficient peptide coupling additive

Times cited: 676

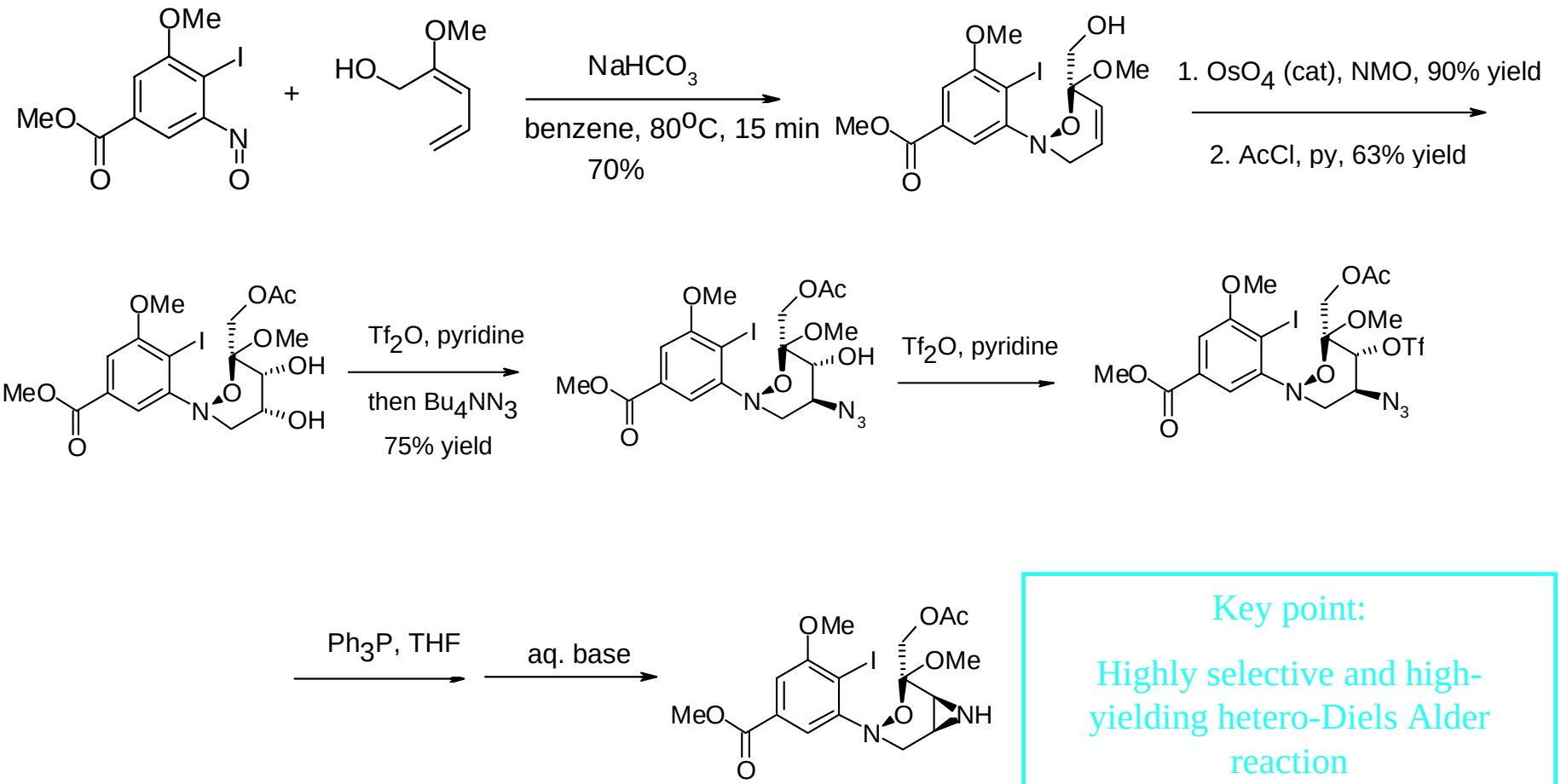
Most prolific authors:

Rheingold, AL (19); Schaefer, HF (15); Schreiber, SL (11); Adam, W (10); Bergman, RG (10); Schleyer, PV (10); Houk, KN (9); Nicolaou, KC (9); Scaiano, JC (9); Trost, BM (9); Wilson, SR (9); Boger, DL (8); Danishefsky, SJ (8)

FR900482-Danishefsky - p.6094



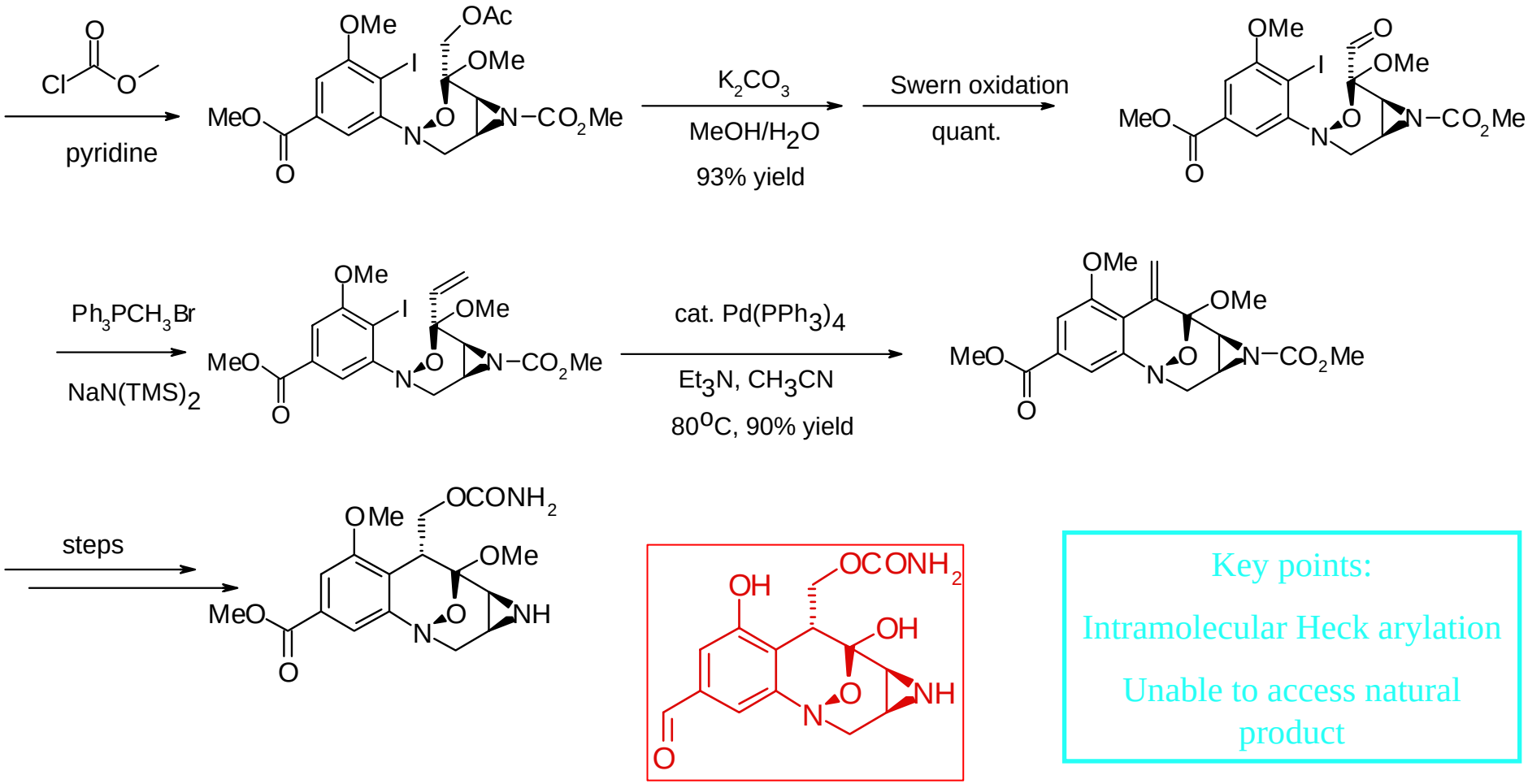
More on FR900482



Key point:

Highly selective and high-yielding hetero-Diels Alder reaction

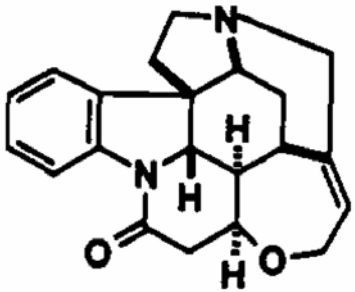
And still more on FR900482



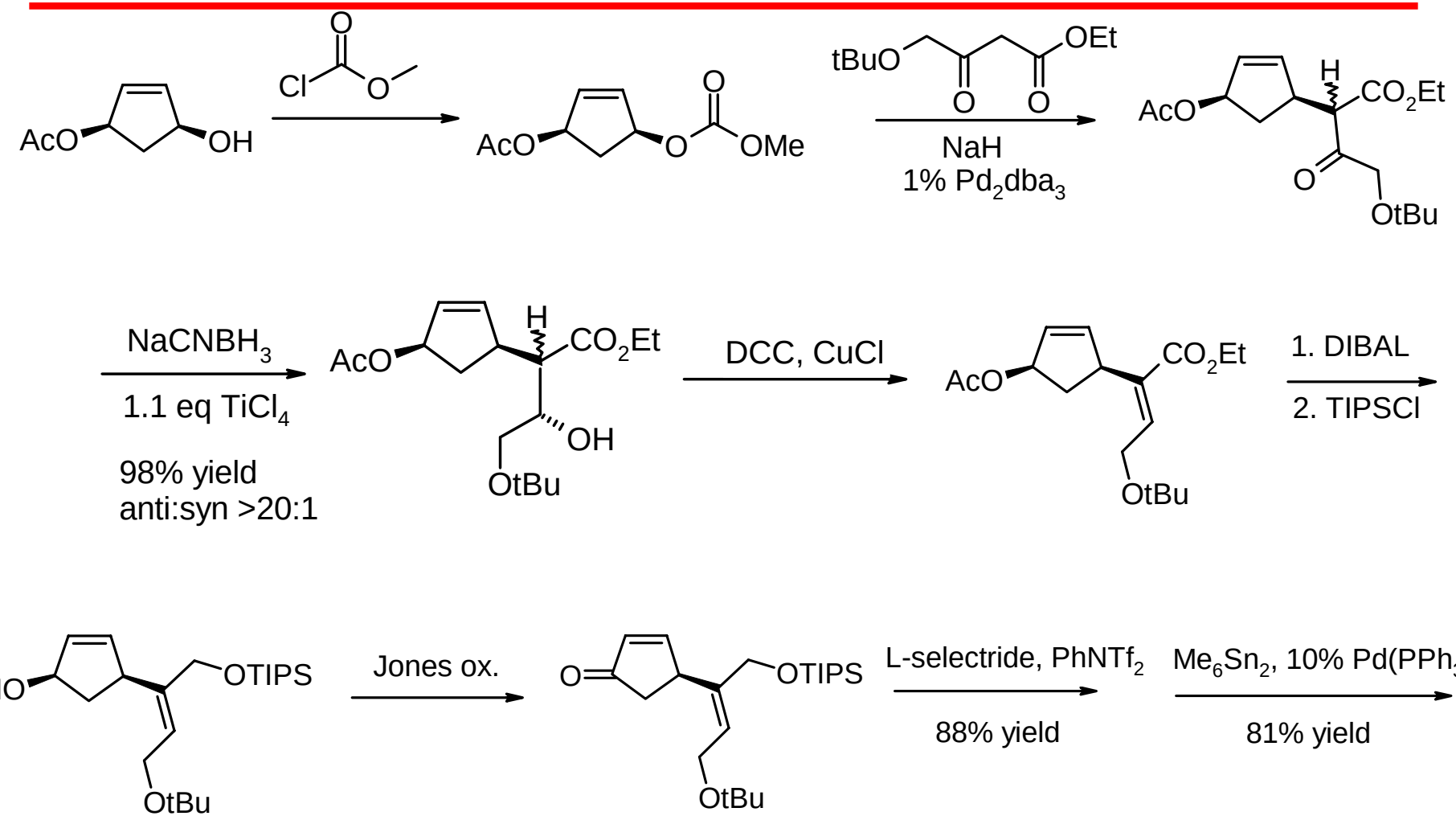
Key points:

Intramolecular Heck arylation

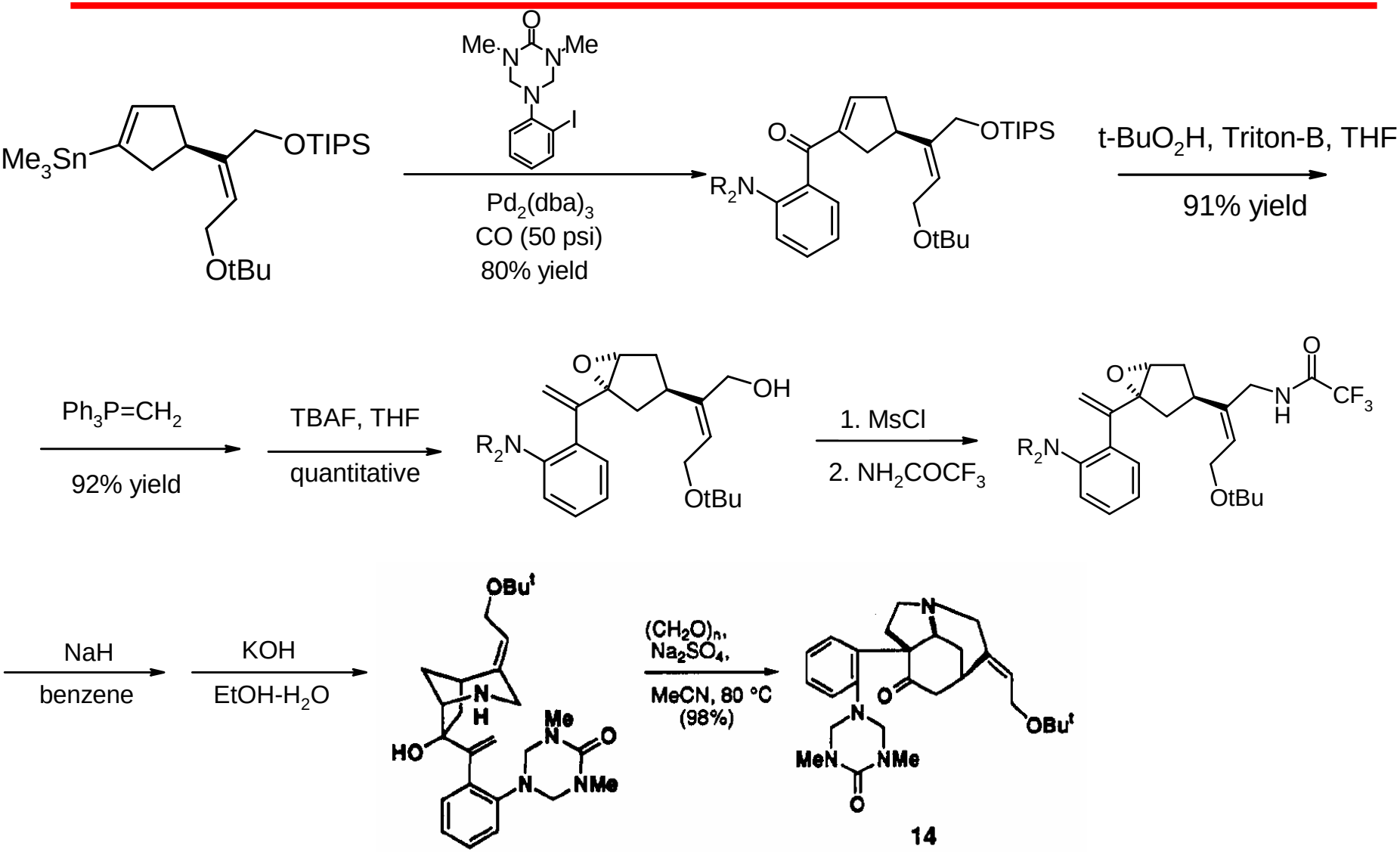
Unable to access natural product



Strychnine - Overman - p.9293



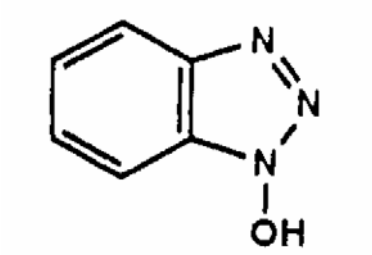
Strychnine continued



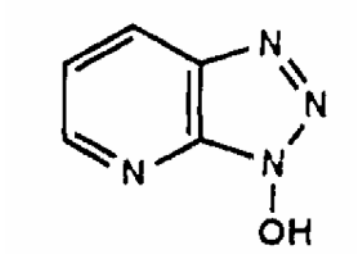
Key point: Facile assembly of strychnine core

1-hydroxy-7-azabenzotriazole - HOAt- p.4397

Previous standard coupling reagent: HOBt

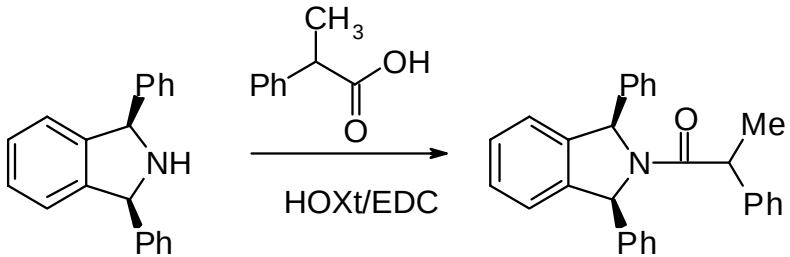


New reagent: HOAt



Advantages of HOAt:

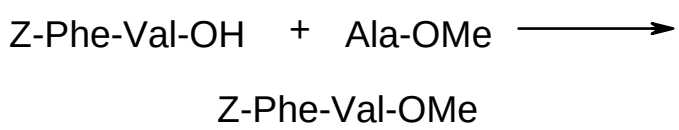
1. Faster reaction



HOAt - 87% yield in 30-50 min

HOBt - incomplete after 7.5 hrs

2. Less racemization



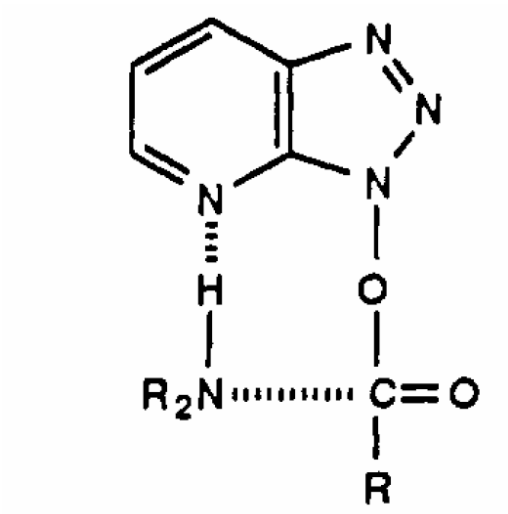
HOAt - less than 1% racemization

HOBt - 4.1% racemization

A little more about HOAt

Postulated mechanism:

1. Activated ester
2. Neighboring group effect



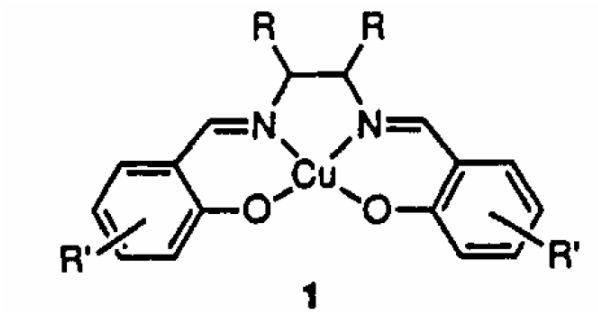
Key point:

This is very useful

(and obviously a lot of other people think so as well) (cited 676 times)

Jacobsen asymmetric aziridination - p.5326

Previously used epoxidation catalyst:



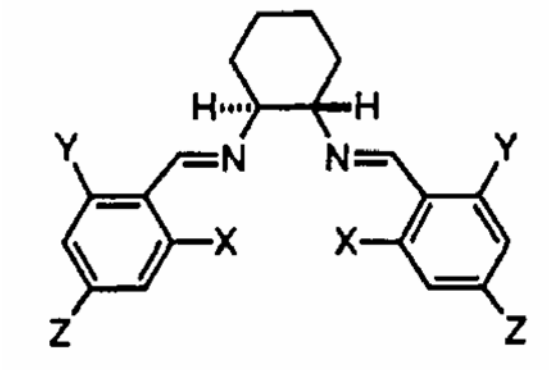
1

-This did not work for aziridination

-Neither did other catalysts with tetradentate ligands

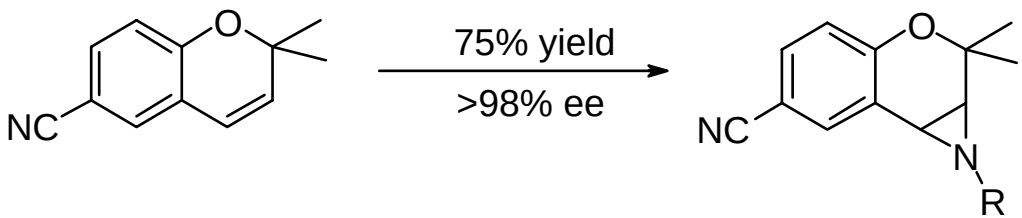
-Multiple coordination sites on Cu may be required

Aziridination catalyst:



X=Y=Cl, Z=H

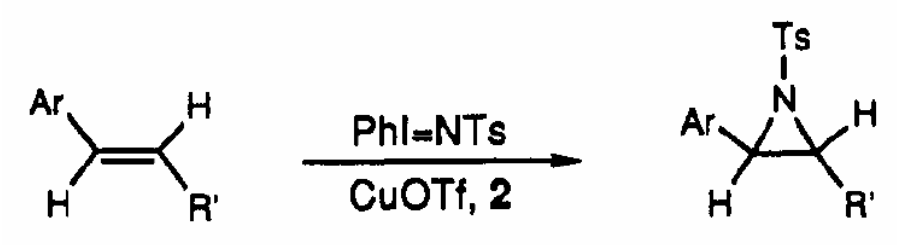
Example:



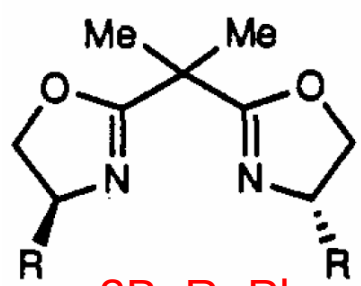
Reaction conditions:

10 mol% catalyst, 10 mol% Cu(OTf), 1.5 eq PhI=NTs

Evans asymmetric aziridination - p.5328

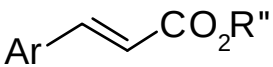
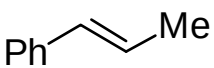
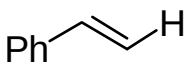


Compound 2:



2B: R=Ph

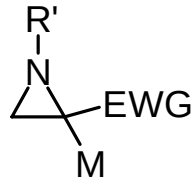
2C: R=CMe_3

Substrate class:	Ideal solvent:	Ideal catalyst:
	Benzene	2B
	Acetonitrile	2C
	Styrene	2C

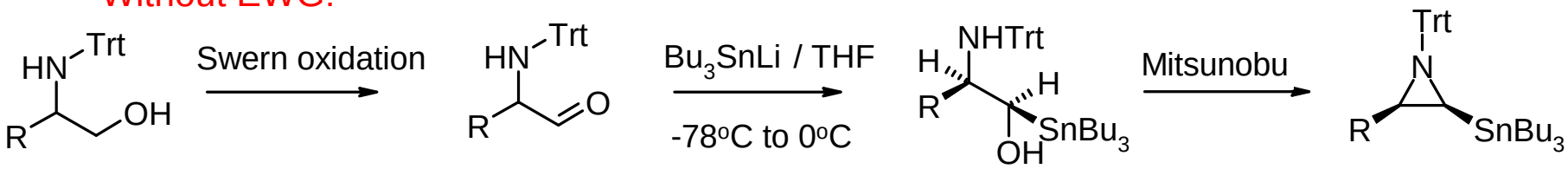
Getting bored of aziridines yet?

Lithiated aziridine reagents - p. 1607

Previously known:

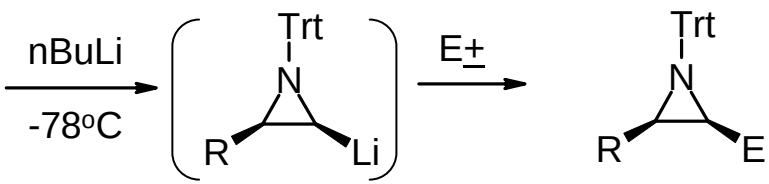


Without EWG:



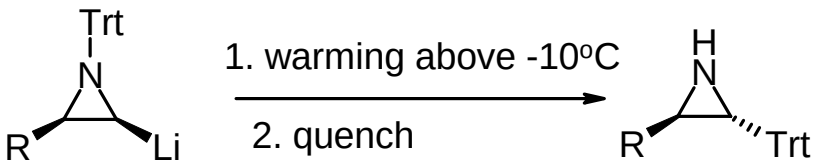
R=CH_2OMOM >40:1 dr

R=CH_3 high dr

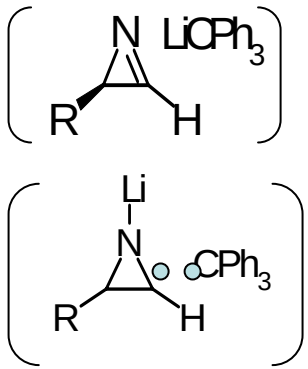


One last aziridine slide

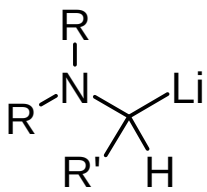
Thermal decomposition:



Proposed intermediates:



Previously known:



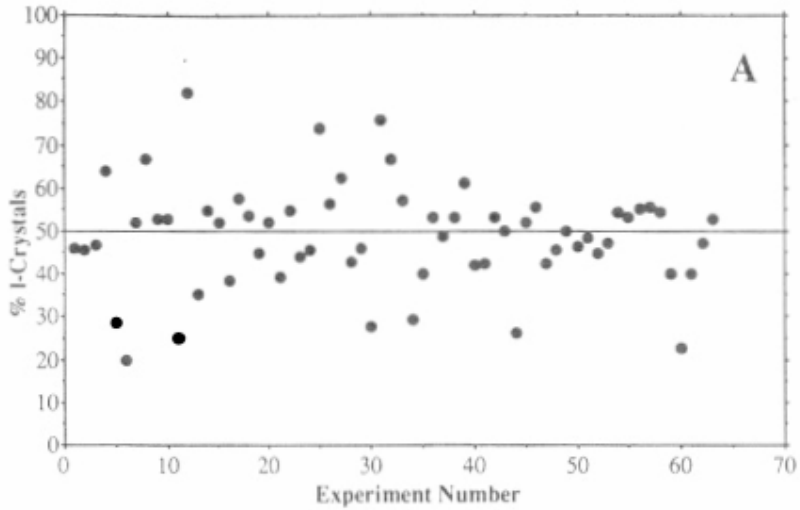
Accessible via Sn-Li exchange

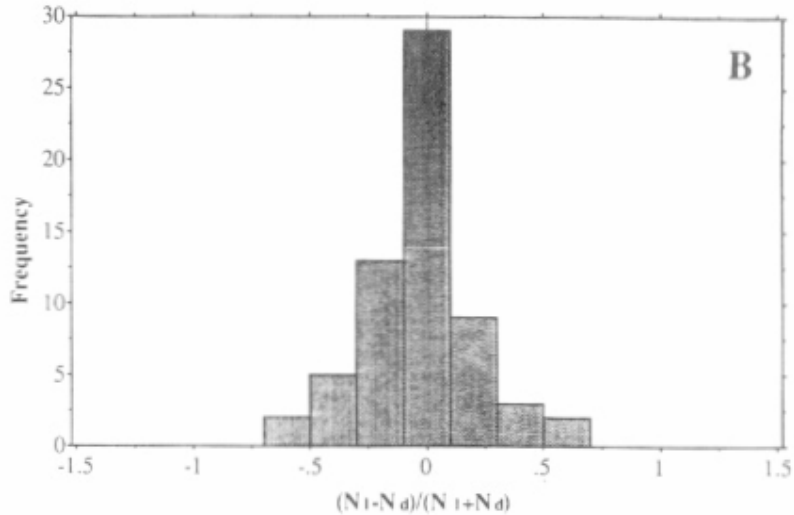
Usually fails if R'=alkyl

Here we have an exception

Chiral symmetry breaking - p.10211

Crystallizing $NaClO_3$ - without stirring





Crystallizing $NaClO_3$ - with stirring