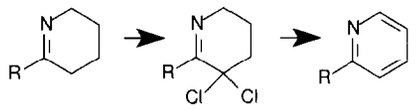
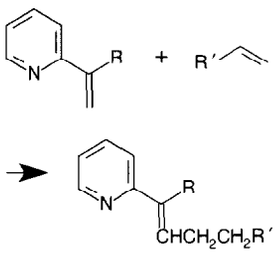
Synthesis of pyridine derivatives

Pyridines have numerous applications as potential pharmaceutical agents. Kimpe, N.D., Keppens, M. and Fonck, G. [*Chem. Commun.* (1996) 5, 635–636] describe a facile, mild synthesis of pyridines using a regioselective α,α-dichlorination of cyclic six-membered imines with *N*-chlorosuccinimide followed by a double dehydrochlorination using methanolic bases (Scheme 1).



Scheme 1

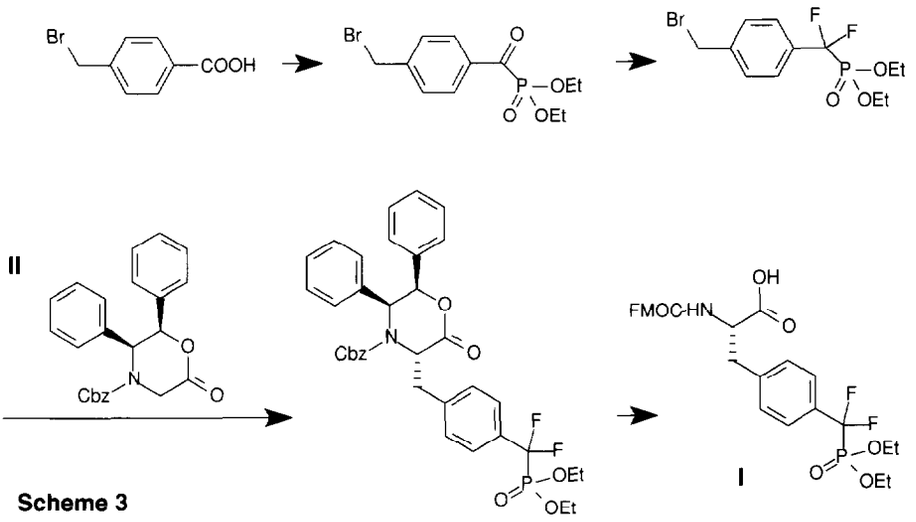
In the same issue, Lim, Y-G., Kang, J-B. and Kim, Y.H. [*Chem. Commun.* (1996) 5, 585–586] describe the use of a rhodium (I) catalyst to couple alkenes to 2-vinylpyridines to give alkylated products (Scheme 2).



Scheme 2

Phosphotyrosine isosteres

Nonhydrolyzable phosphotyrosine mimics may be used to synthesize peptides that have potential utility in modulating cellular signal transduction pathways through blockade of interactions between receptors and secondary mediates containing tyrosine residues in the active binding domain. A group from Affymax [Solas, D., Hale, R.L. and Patel, D.V., *J. Org. Chem.* (1996) 61, 1537–1539] describe a new asymmetric synthesis of *N*-α-Fmoc-4-(phosphonodifluoromethyl)-L-phenylalanine **I** using an imino lactone **II** as a chiral auxiliary (Scheme 3). This approach should also facilitate the preparation of alternative phosphotyrosene isosteres.

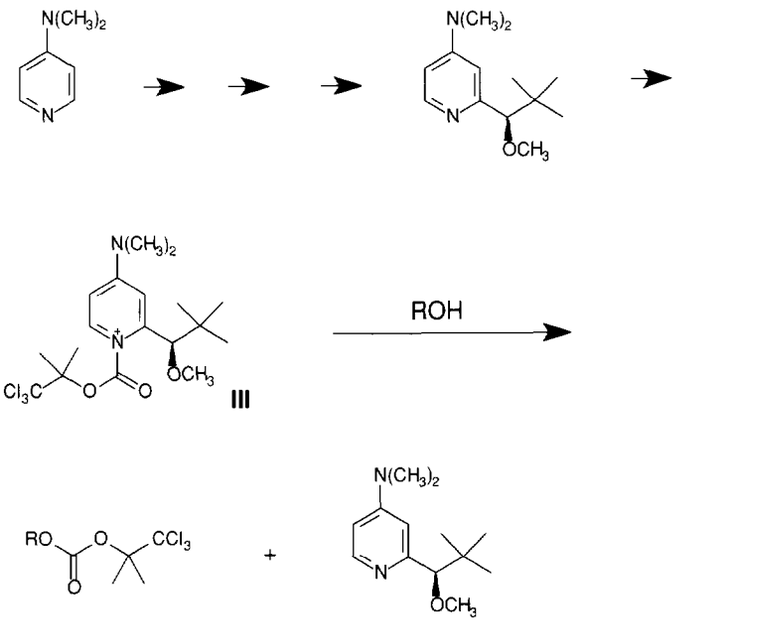


Scheme 3

Kinetic resolution using nonenzymatic acylating agents

Lipases are routinely used as acyl transfer catalysts for the kinetic resolution of chiral alcohols and esters. More recently, there has been an upsurge in interest in the use of enantioselective nonenzymatic acylating agents for this purpose. Vedejs, E. and Chen, X. [*J. Am. Chem. Soc.* (1996) 118, 1809–1810] describe the use of a chiral (dimethylamino)pyridine derivative **III** for the enantioselective acylation of secondary alcohols (Scheme 4). Enantiomerically enriched acylated products were obtained in 20–44% yield, depending on the alcohol, with about 90% enantiomeric excess.

Although much more efficient enantioselective acylation may be achieved using lipases, the studies of Vedejs and Chen serve to demonstrate that such nonenzymatic acyl transfer agents may hold future potential.



Scheme 4