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Synthesis of Heterocycles via Pd-Ligand Controlled Cyclization of 2-Chloro-*N*-(2-vinyl)aniline: Preparation of Carbazoles, Indoles, Dibenzazepines and Acridines

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Pd-Ligand Controlled Cyclization for the Preparation of Heteroaromatics

Category

Metal-Mediated Synthesis

Key words

heterocycles

cyclization

carbazoles

indoles

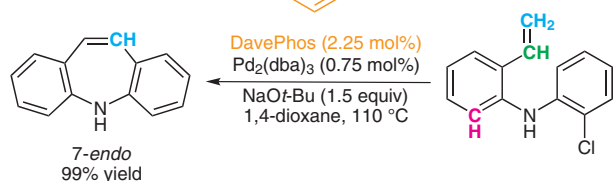
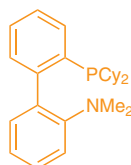
dibenzazepines

acridines

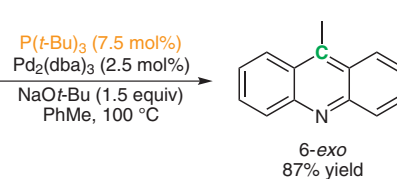
palladium

SYNFACT
of the month

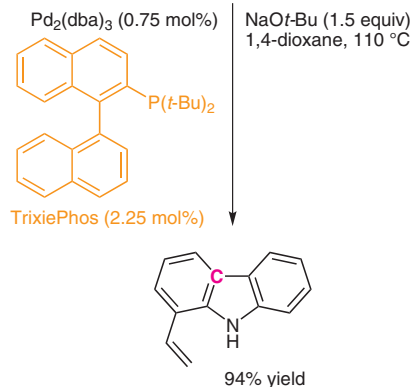
Synthesis of dibenzazepines:



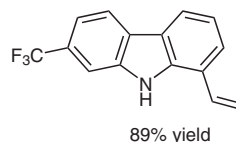
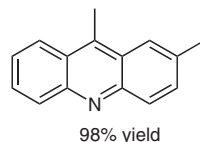
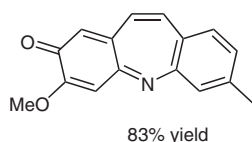
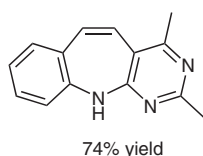
Synthesis of acridines:



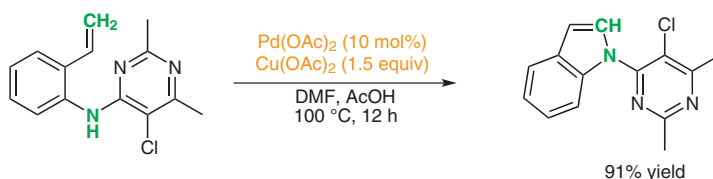
Synthesis of carbazoles:



Selected examples:



Synthesis of indoles:



Significance: Various vinyl diphenylamine intermediates are selectively cyclized to the corresponding five-, six- or seven-membered heteroaromatics. The regioselectivity of these palladium-catalyzed cyclizations is almost exclusively directed by the used ligand.

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Comment: By using 2-bromostyrene and 2-chloro-aniline derivatives in this palladium-catalyzed reaction with DavePhos as ligand, a direct one-pot synthesis was achieved, furnishing 5*H*-diazepines in good to excellent yields.