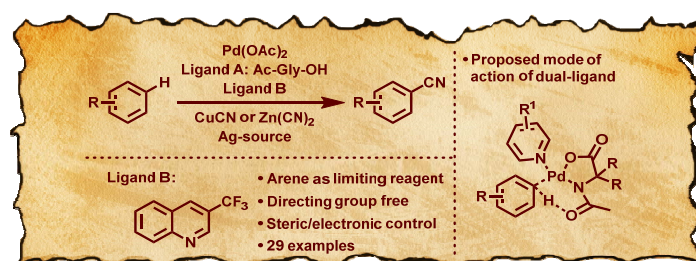


DUAL LIGAND-ENABLED NONDIRECTED C–H CYANATION OF ARENES

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Directing group (DG) assisted C–H activation methods have drawn significant attention to incorporate various functional groups into arenes owing to their potential to offer an efficient alternative to cross-coupling reactions.^[1] The major drawback of this method is that it relies on the pre-installation of a DG before the reaction and also its removal after the desired functionalization. Non-directed methods to functionalize C–H bonds of arenes through C–H activation are limited by the requirement of excess arene, typically as a co(solvent).^[2] The cyanation is one of the most studied organic transformations owing to the prevalence of the native cyano group in drug molecules and diverse transformations of this group into other functional groups. Herein we have developed, based on our previous study on non-directed C–H olefination of arenes,^[3] a catalytic system which can deliver the cyano group with the arene being used as the limiting reagent. The use of 3-(trifluoromethyl)quinoline and *N*-acetyl-glycine as ligands enable the cyanation of a variety of arenes with the regiochemistry being determined by a combination of both steric and electronic effects of the arene.^[4] The possibility to cyanate arenes bearing electron-donating as well as moderately electron-withdrawing substituents is expected to render this method attractive in the context of late-stage modification.



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