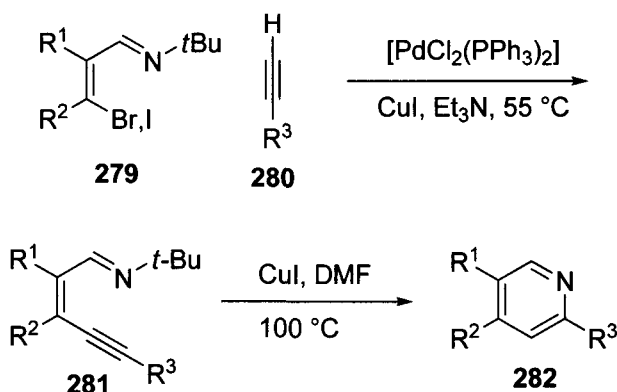


substrates to afford fused-polycyclic pyridines. A bulky substituent was required at the terminal alkyne carbon of **277** for the reaction to proceed in moderate to excellent yields to deliver pyridine derivatives **278**.<sup>179</sup>

*Recent advances in pyridine synthesis with organometallics*

Significant amount of research work on transition metal-catalyzed pyridine synthesis have been development recently, as evidenced by recent reviews.<sup>180</sup> Herein, we only present several representative examples.

Application of carbon–carbon cross-coupling/ $6\pi$ -electrocyclization cascade reactions in pyridine synthesis is well known. Larock and co-workers developed a palladium-catalyzed coupling of vinylic imines **279** with terminal alkynes **280** followed by subsequent copper-catalyzed cyclization of **281** to give aryl, vinyl, and alkyl-substituted pyridines **282** in moderate yields.<sup>181</sup>



Ellman and co-workers developed a rhodium-catalyzed C–H alkenylation followed by  $6\pi$ -electrocyclization to give di-, tri-, tetra-, and penta-substituted pyridines. The dihydropyridine intermediates **285** can be directly aromatized *via* hydrogenolysis to pyridine derivatives **286** in moderate to good yields.<sup>182</sup>

