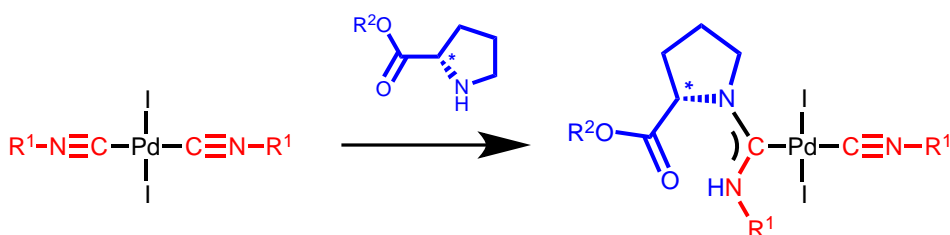


Acyclic diaminocarbenes — classical ligands that make the cross-coupling catalysis sustainable

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Acyclic diaminocarbene ligands (ADCs) have recently gained prominence in catalysis of organic transformations as potential alternative to the widely used *N*-heterocyclic species (NHCs).¹ Being structurally related to NHCs, ADC ligands exhibit comparable donor and steric properties upon coordination to a metal. At the same time, the foremost advantage of metal-ADC species is their availability due to emergence of several strategies for their preparation.^{2,3} Among them, one that is based on a metal-mediated nucleophilic addition to isocyanides permits a straightforward assembly of a wide range of well-defined metal-ADCs (see Scheme 1 for the recent example⁴). In addition, this approach is modular and facilitates an optimization of steric and electronic properties, and, consequently, the activity of the target [M]-ADC catalysts.



This report summarizes the synthetic studies toward preparation of metal-ADCs from isocyanides and provides an overview of most efficient catalytic systems employing ADC-based catalysts.

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