## Functionalized, Binuclear *N*-Heterocyclic Carbene Ligands Bearing Phosphine Donors: Synthesis of Metal Complexes and Applications to Homogeneous Catalysis

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$$N^{-R-N} \longrightarrow R^{-N} \longrightarrow$$

Primary electrophile → bisimidazolium as major product

Strong nucleophile leads to high yields

Lee, M.-T. et al. Inorganic Chemistry, 2004, 6822.

## **Successfully Prepared Imidazolium Salts**

$$\begin{array}{c|c} CI^- & N & -N & CI^- \\ Ph_2P & + & + & + & + & + \\ \end{array}$$