

Title: Preparation of P,N-donor ferrocene ligands by coupling reactions

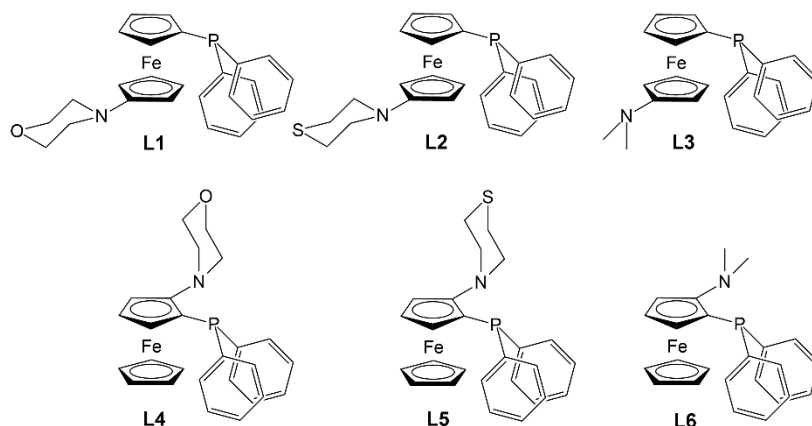
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Abstract:

P,N-donor ligands form a varied group of compounds with wide utilization in homogeneous gold catalysis. This group of ligands uses geometrical features of moieties to which the donors are attached and the difference in hardness of the donor groups resulting in their unique coordination behavior. Ferrocene moiety offers unique geometrical features and flexibility. The chemical stability of ferrocene makes it possible to use various synthetic methods like cross-coupling reactions which are commonly used in organic synthesis. This work describes the preparation of six P,N-donor ferrocene ligands via Negishi cross-coupling reaction and their gold complexes which were further tested in catalytic cyclization of *N*-(prop-2-yn-1-yl)benzamide and oxidative cyclization of phenylacetylene. The electron richness of the phosphine donor moieties was assessed by measuring of  $^1J_{\text{SeP}}$  interaction constant of the corresponding selenides. In this work a general synthetic route to hetero- and homoannularly substituted P,N-donor ferrocene ligands of catalytically active complexes was introduced.



Keywords: ferrocene, hybrid ligand, gold catalysis, Negishi cross-coupling.