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## The use of isomeric normal and abnormal palladium NHC complexes in direct C5-arylation reaction

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We designed four series of isomeric palladium(II) complexes with normal and abnormal *N-Heterocyclic Carbenes* (NHCs) ligands. These complexes were characterized by <sup>1</sup>H and <sup>13</sup>C NMR spectroscopy, elemental and X-ray crystallography. Their potential application as catalysts in direct C5-arylation reaction between imidazoles and aryl halides were investigated. Using a mere 0.5 mol % Pd loading, coupled products were obtained with moderate to excellent yields. Normal NHCs complexes have better catalytic activity than their abnormal counterpart. DFT calculations were performed to explain the difference.

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