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Cobalt-Catalyzed Ortho Alkylation of Aromatic Imines with Primary and Secondary Alkyl Halides

Cobalt–NHC-Catalyzed ortho-Alkylation of Aromatic Imines with Alkyl Halides

**Significance:** A novel method for the direct ortho-alkylation of aromatic imines has been disclosed. 10 mol% of cobalt(II) bromide (CoBr₂) in combination with an N-heterocyclic carbene (NHC) ligand catalyzes the reaction of an alkyl halide with the aromatic imine to deliver the corresponding ortho-alkylated ketones after acidic work-up.

**Comment:** The activation of the alkyl halide is proposed to occur through single-electron transfer from a cobalt species to generate an alkyl radical. Recombination of the cobalt and the radical centers may cause the C–C bond formation.

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**Selected examples:**

- 77% yield with L₂
- 86% yield with L₁
- 82% yield with L₁
- 81% yield with L₂
- 78% yield with L₁