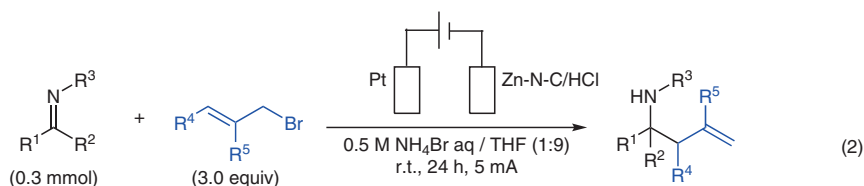
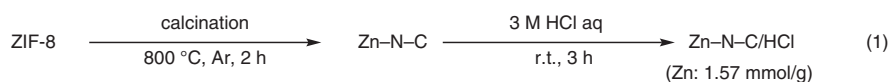


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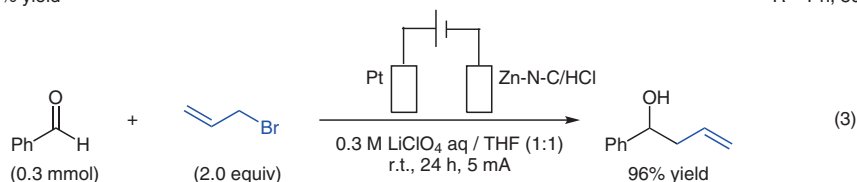
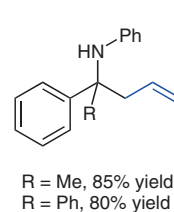
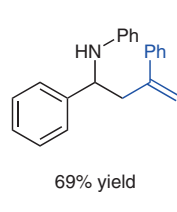
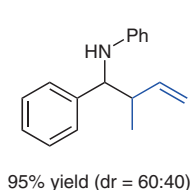
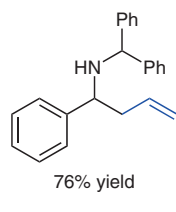
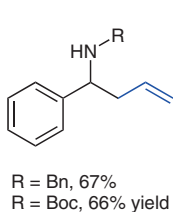
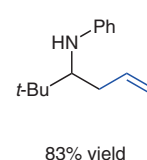
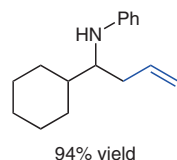
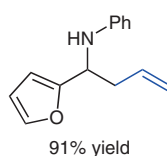
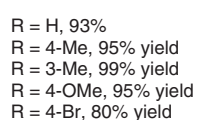
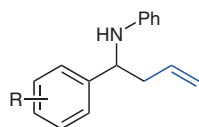
Heterogeneous Single-Atom Zinc on Nitrogen-Doped Carbon Catalyzed Electrochemical Allylation of Imines

J. Am. Chem. Soc. **2023**, *145*, 11939–11944, DOI: 10.1021/jacs.3c03674.

Electrochemical Allylation of Imines Promoted by Single-Atomic Zinc on Nitrogen-Doped Carbon



Selected examples:



Significance: Single-atomic zinc supported on nitrogen-doped carbon (Zn-N-C/HCl) was prepared by calcination of a zeolite imidazolate framework-8 (ZIF-8) followed by HCl aq treatment (eq. 1). Zn-N-C/HCl, fixed on a cathode, catalyzed the electrochemical allylation of the imines with allyl bromides to give the corresponding homoallylic amines in up to 99% yield (eq. 2). Benzaldehyde also underwent the allylation with allyl bromide in 96% yield (eq. 3).

Comment: Zinc-leaching from the cathode was suppressed to 1.2–3.5 mol% under the allylation conditions. The electrochemical allylation of benzylideneaniline with allyl bromide was also carried out under continuous-flow conditions over 50 hours, where the turnover number (TON) of Zn-N-C/HCl was 9.0 and Zn-leaching was <2 mol%.

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Synthesis

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allylation

imines

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nitrogen-doped
carbon

Synfact
of the
Month

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