Iron-Catalyzed Hydromagnesiation of Diarylalkynes and Diynes

**Significance:** The authors report a novel iron-catalyzed hydromagnesiation of diarylalkynes in high yield with high stereoselectivity. Furthermore, alkenyl-magnesium compounds can be synthesized from diynes in a chemo-, regio-, and stereo-selective way.

**Comment:** The alkenylmagnesium intermediates can further be functionalized in a one-pot sequence. Reactions with allyl bromide, DMF, PhCHO, Ph2SiHCl, Ph, N-ethyl-N-(2-iodobenzyl)ethanamine and even nickel-catalyzed cross-couplings have been disclosed. The authors suggest a radical mechanism instead of a pure anionic mechanism.