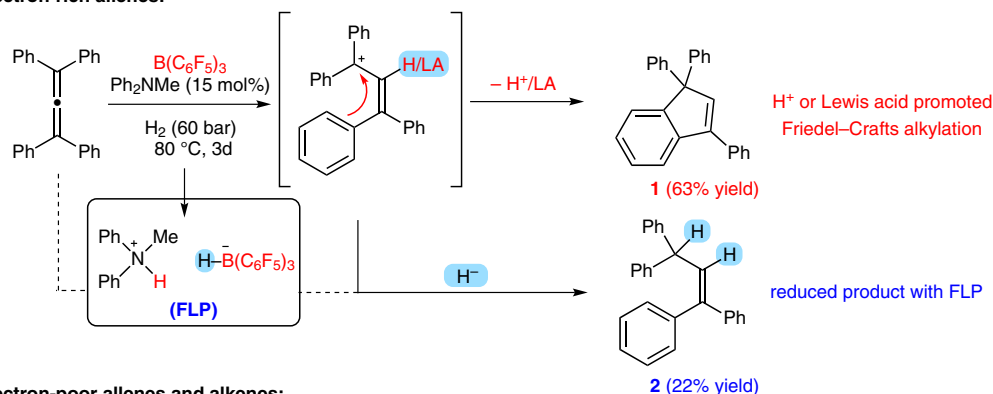


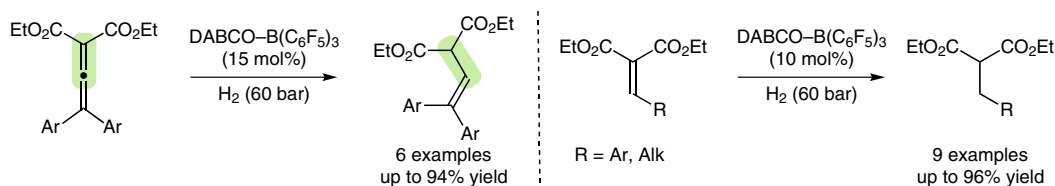
B. INÉS, D. PALOMAS, S. HOLLE, S. STEINBERG, J. A. NICASIO, M. ALCARAZO* (MAX-PLANCK-INSTITUT FÜR KOHLENFORSCHUNG, MÜLHEIM AN DER RUHR, GERMANY)
Metal-Free Hydrogenation of Electron-Poor Allenes and Alkenes
Angew. Chem. Int. Ed. **2012**, *51*, 12367–12369.

Frustrated Lewis Pairs for Catalytic Hydrogenation of Allenes and Alkenes

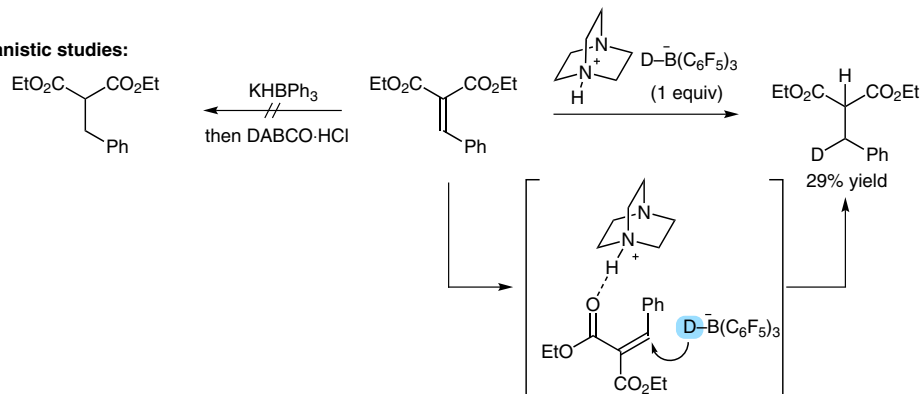
Electron-rich allenens:



Electron-poor allenens and alkenes:



Mechanistic studies:



Significance: The Alcarazo group reports a frustrated Lewis pair (FLP)-catalyzed hydrogenation reaction of electron-poor allenens and alkenes. The reduced products were obtained with good to excellent yield and high chemoselectivity by employing DABCO-B(C₆F₅)₃ as a catalyst pair (10–15 mol%).

Comment: To overcome the inherent reactivity of electron-rich allenens to cyclize to Friedel-Crafts products **1** in the presence Brønsted acids and/or Lewis acids, the authors employ electron-poor substrates to facilitate FLP-catalyzed hydrogenation to the desired product **2**. According to the mechanistic studies, [DABCO-H]⁺ might act as a hydrogen-bond donor to activate the substrate. The hydride from the borohydride is transferred via 1,4-addition.

SYNFACTS Contributors: Benjamin List, Ji-Woong Lee
Synfacts 2013, 9(1), 0098 Published online: 17.12.2012
DOI: 10.1055/s-0032-1317905; **Reg-No.:** B11812SF