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Enantioselective Hydrogen-Bond-Donor Catalysis to Access Diverse Stereogenic-at-P(V) Compounds
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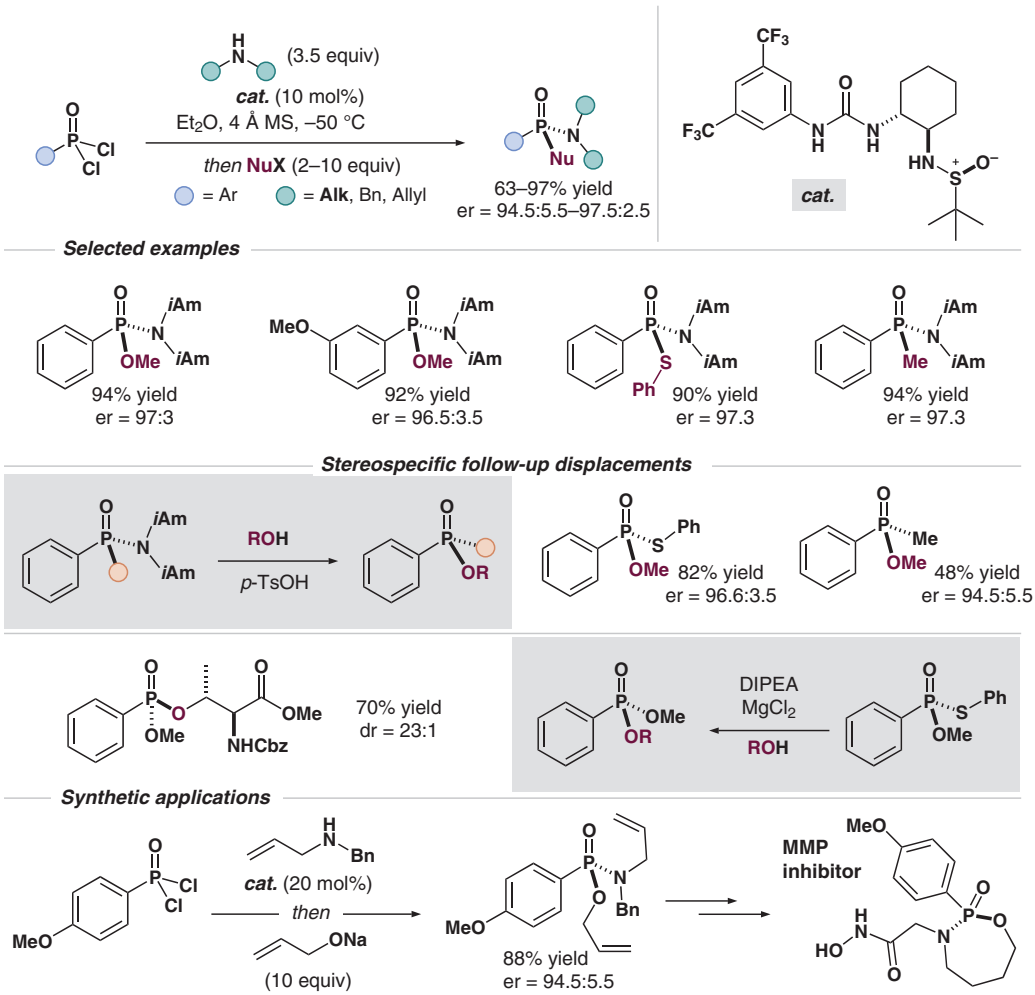
Hydrogen-Bond Catalyst Grants Access to Diverse Scope of Enantioenriched Stereogenic-at-P(V) Building Blocks



Significance: Forbes and Jacobsen report a hydrogen-bond-donor-catalyzed desymmetrization of arylphosphonic dichlorides to give enantioenriched chlorophosphonamidate intermediates, and their stereospecific transformations to furnish a variety of building blocks that are stereogenic at a P(V) atom. Use of a commercially available urea-based organocatalyst gave the corresponding products in generally good yields and with excellent enantiomeric ratios.

Comment: Whereas enantioenriched stereogenic-at-P(V) compounds have emerged as crucial building blocks in medicinal chemistry, their enantioselective synthesis has typically relied on the use of chiral auxiliaries. The authors contribute a broadly applicable method and prove its synthetic potential with the synthesis of known biologically active compounds.

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Category
Organo- and Biocatalysis

Key words
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desymmetrization
stereogenic phosphorus
stereospecific displacement

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