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Title:	A Phosphine-Free Manganese Catalyst Enables Stereoselective Synthesis of (1 + n)-Membered Cycloalkanes from Methyl Ketones and 1,n-Diols
Authors:	Kundu, A. (/jspui/browse?type=author&value=Kundu%2C+A.) Adhikari, D. (/jspui/browse?type=author&value=Adhikari%2C+D.)
Keywords:	Borrowing hydrogen Cycloalkane Hemilability Ligand design Manganese catalysis
Issue Date:	2020
Publisher:	American Chemical Society
Citation:	ACS Catalysis, 10(4), pp. 2615-2626
Abstract:	Herein, we report the stereoselective synthesis of (1 + n)-membered cycloalkane from methyl ketone and 1,n-diol. A manganese(I) complex bearing a phosphine-free ligand catalyzed the reaction, which involved the formation of two C–C bonds via a sequence of intermolecular- and intramolecular-borrowing hydrogenation reactions. It produces 2 mol of water as the sole byproduct, making the process atom economical and environmentally benign. Multisubstituted cycloalkanes were obtained in good to excellent yields with very high selectivities. A thorough mechanistic analysis by high-level DFT computation rationalizes the choice of the pincer and establishes the role of hemilability of the ligand for this efficient transformation.
Description:	Only IISERM authors are available in the record.
URI:	https://pubs.acs.org/doi/10.1021/acscatal.9b05567 (https://pubs.acs.org/doi/10.1021/acscatal.9b05567) http://hdl.handle.net/123456789/3395 (http://hdl.handle.net/123456789/3395)
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