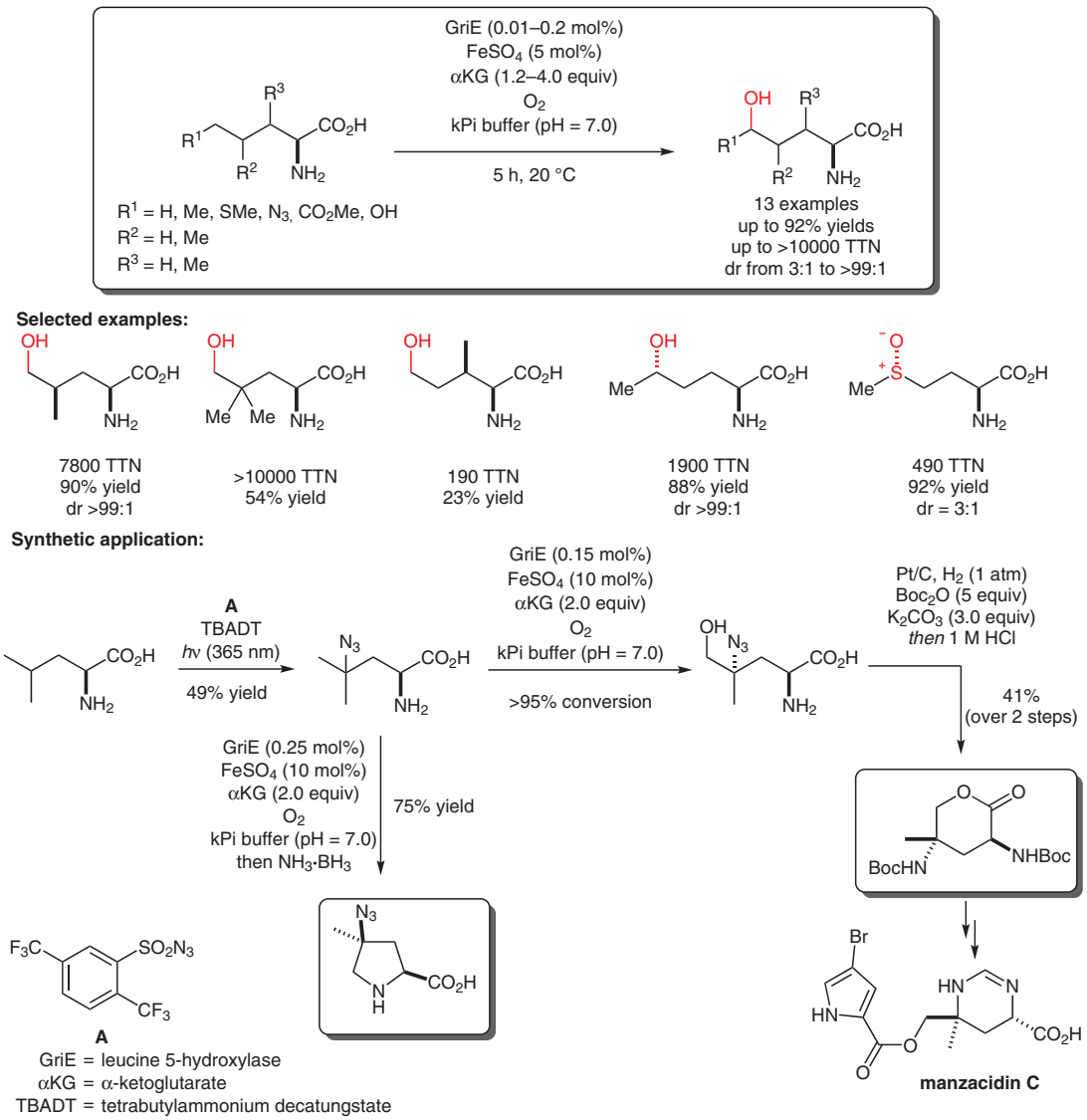
C. R. ZWICK, III, H. RENATA* (THE SCRIPPS RESEARCH INSTITUTE, JUPITER, USA)
Remote C–H Hydroxylation by an α-Ketoglutarate-Dependent Dioxygenase Enables Efficient Chemoenzymatic Synthesis of Manzacidin C and Proline Analogs
J. Am. Chem. Soc. **2018**, *140*, 1165–1169.

Category
Organo- and Biocatalysis

Key words
hydroxylation
dioxygenases
amino acids

Chemoenzymatic Distal C–H Hydroxylation



Significance: Zwick and Renata report the chemoenzymatic hydroxylation of the δ-position of aliphatic amino acids. By using an α-ketoglutarate-dependent dioxygenase, the desired products could usually be obtained in high yield and with high selectivity. This novel methodology was applied to the formal total synthesis of manzacidin C and proline analogues.

Comment: C–H bond functionalization of distal bonds within amino acids represents a major challenge in organic synthesis. Transition-metal-catalyzed systems are typically limited to functionalization of the β-position whereas the δ-position can be functionalized by Hofmann–Löffler–Freytag-type reactions.

SYNFACTS Contributors: Benjamin List, Grigory A. Shevchenko
Synfacts 2018, 14(04), 0419 Published online: 16.03.2018
DOI: 10.1055/s-0037-1609367; **Reg-No.:** B01418SF

2018 © THIEME STUTTGART • NEW YORK

This document was downloaded for personal use only. Unauthorized distribution is strictly prohibited.