T. SAKAI, T. SOETA, K. ENDO, S. FUJINAMI, Y. UKAJI* (KANAZAWA UNIVERSITY, JAPAN) Magnesium—Tartramide Complex Mediated Asymmetric Strecker-Type Reaction of Nitrones Using Cyanohydrin *Org. Lett.* **2013**, *15*, 2422–2425.

Asymmetric Strecker-Type Reaction of Nitrones Using Cyanohydrin

 R^1 = Ph, PMP, 4-ClC₆H₄, 4-BrC₆H₄, 1-Naph, 2-Naph, Me, Cy, *t*-Bu R^2 = Bn, Me, Ph, CHPh₂

Selected examples:

Significance: An asymmetric Strecker-type reaction of various nitrones with acetone cyanohydrin using a magnesium–(R,R)-tartramide complex was developed to successfully prepare optically active (S)- α -amino nitrile derivatives in excellent yield. Thereby, the acetone cyanohydrin serves as a less harmful and easy-to-handle synthetic equivalent of HCN and TMSCN.

Comment: The reaction mechanism is proposed to proceed as follows: first, the reaction of cyanohydrin and the (*R*,*R*)-tartramide with MeMgBr forms the corresponding bromomagnesium salts. The tartramide magnesium salt might be further deprotonated by DBU to form a magnesium atecomplex which coordinates the nitrone. Transfer of the cyano group from the cyanohydrin magnesium salt to the nitrone occurs from the *re* face, forming specifically the (*S*)-enantiomer.

SYNFACTS Contributors: Paul Knochel, Nadja M. Barl Synfacts 2013, 9(8), 0875 Published online: 18.07.2013 **DOI:** 10.1055/s-0033-1339421; **Reg-No.:** P09013SF

Metal-Mediated Synthesis

Key words

magnesium

tartramide

nitrones

cyanohydrin



Strecker reaction