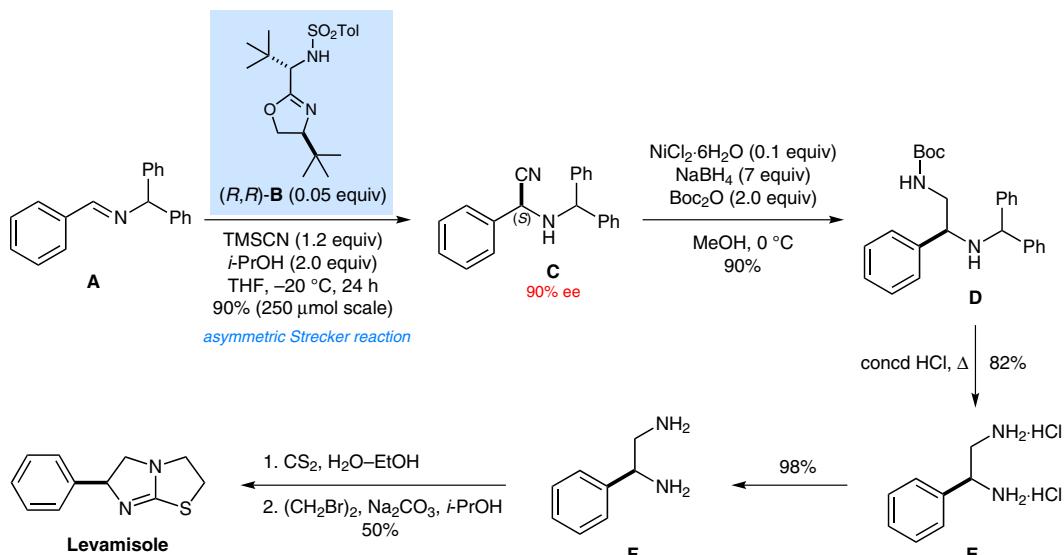
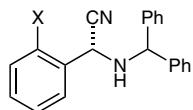


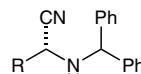
Synthesis of Levamisole



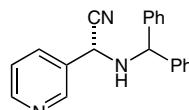
Scope of the substrates in the asymmetric Strecker reaction catalyzed by (S,S)-B:



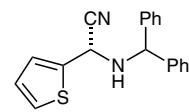
X	Yield (%)	ee (%)
Me	90	94
OMe	93	96
F	78	91
Cl	90	82
Br	93	80
NO ₂	90	82



R	Yield (%)	ee (%)
Bn	90	91
CH ₂ Bn	90	87
t-Bu	91	93
i-Bu	94	90
Hex	90	71
CH=CHPh	93	90



85% (60% ee)



94% (82% ee)

Significance: Levamisole (Ergamisol®) is an antihelminthic that is currently used to treat worm infestations in livestock. The synthesis of levamisole depicted features an asymmetric Strecker reaction of *N*-benzhydryl aldimine **A** with trimethylsilyl cyanide catalyzed by oxazoline (*R,R*)-**B** (5 mol%) as the key step. The chiral α -aminonitrile intermediate **C** was generated in 90% yield and 90% ee.

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Comment: A study of the scope of the asymmetric Strecker reaction (18 examples) revealed that both alkyl and aryl *N*-benzhydryl aldimines participate in the reaction to give the corresponding α -aminonitriles in good yield and generally >80% ee with some exceptions being shown in the box above. For a previous synthesis of levamisole based on asymmetric diamination of styrenes, see: C. Röben et al. *Angew. Chem. Int. Ed.* **2011**, *50*, 9478.