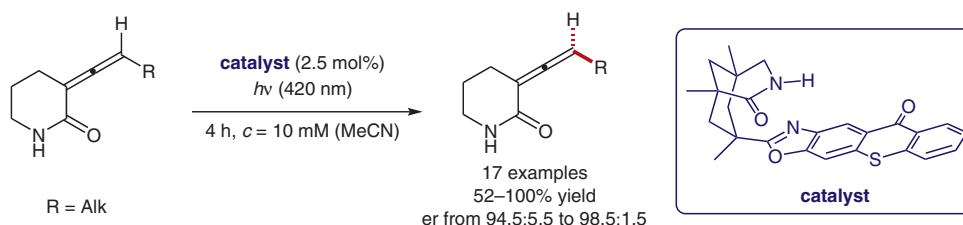


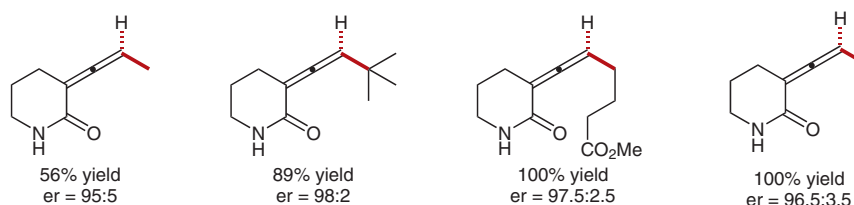
A. HÖLZL-HOBMEIER, A. BAUER, A. V. SILVA, S. M. HUBER, C. BANNWARTH, T. BACH*
(TECHNISCHE UNIVERSITÄT MÜNCHEN, RUHR-UNIVERSITÄT BOCHUM AND
UNIVERSITÄT BONN, GERMANY)

Catalytic Deracemization of Chiral Allenes by Sensitized Excitation with Visible Light
Nature 2018, 564, 240–242.

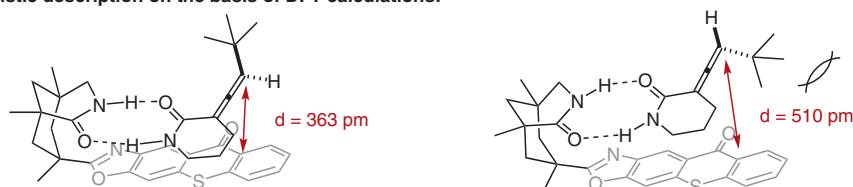
Catalytic Deracemization of Allenes



Selected examples:



Mechanistic description on the basis of DFT calculations:



Significance: Bach and co-workers report an allene deracemization reaction catalyzed by an organic chiral sensitizer under visible light. By using this method, several racemic allenes were converted into enantiomers with yields of $\leq 100\%$ and er values of $\leq 98.5:1.5$. DFT calculations are also provided to support the proposed mechanistic description.

Comment: Light-driven deracemization of chiral compounds might be implicated in the origin of early-stage chirality. The present unprecedented discovery presents an example to support this hypothesis. With different substrate classes, solutions to generate chiral centers might be possible in cases where thermally controlled catalytic deracemizations are entropically disfavored.

Category

Organo- and
Biocatalysis

Key words

photocatalysis

deracemization

allenes

sensitized excitation

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