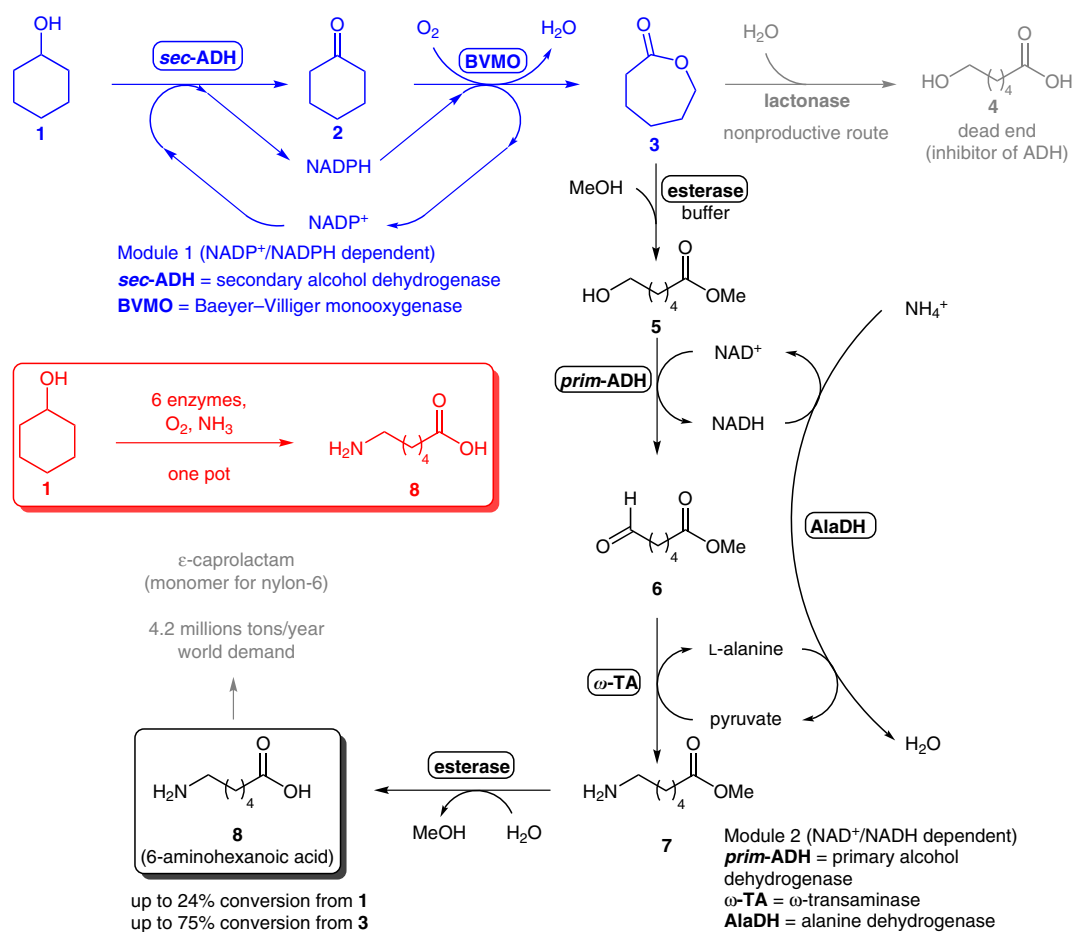


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Introducing an In Situ Capping Strategy in Systems Biocatalysis To Access 6-Aminohexanoic acid
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A One-Pot Biocatalytic Sequence to 6-Aminohexanoic Acid



Significance: Kroutil and co-workers report two sequential biocatalytic self-sufficient redox modules (the co-factor required for a step is regenerated in successive step) for the synthesis of 6-aminohexanoic acid, the precursor of ε-caprolactam (the monomer of nylon-6). The process affords the desired product **8** from **1** (up to 24% conversion) or **3** (up to 75% conversion). The key of the system is to circumvent the formation of **4** via in situ capping (esterification).

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Comment: The production of ε-caprolactam is one of the largest industrial processes in the world, and therefore, new environmentally friendly synthetic sequences are continuously required. The authors design an unprecedented sequence (two independent modules) in which **8** is obtained from cheap starting materials (**1** or **3**) via the methyl ester key intermediate **5**, at the sole expense of O₂ and NH₃.

Category

Organo- and Biocatalysis

Key words

aminohexanoic acid

nylon

capping strategy

enzyme catalysis

SYNFACTS
of the month