

# A Short and Productive Synthesis of (R)- $\alpha$ -Lipoic Acid

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(R)- $\alpha$ -Lipoic acid is synthesized in seven steps from the base chemicals methyl acetoacetate or Meldrum's acid and monomethyl adipate. The key steps are the introduction of the stereogenic center by fermentative or homogeneously catalyzed hydrogenation of 3-oxooctanedioic acid diester to (3S)-3-hydroxyoctanedioic acid diester and its regioselective reduction to (6S)-6,8-dihydroxyoctanoic acid ester. The overall yield of (R)- $\alpha$ -lipoic acid, starting from 3-oxooctanedioic acid diester, is 40%.

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