

PRODUCT DATA SHEET

D,L-2,6-Dimethylheptanoic acid

Catalog number: 1207

Common Name: 2,6-Dimethyl C7:0 fatty acid

Source: synthetic

Solubility: chloroform

CAS number: N/A

Molecular Formula: C₉H₁₈O₂

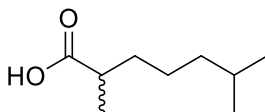
Molecular Weight: 158

Storage: -20°C

Purity: TLC > 98%; GC > 98%; identity confirmed by MS

TLC System: hexane/ethyl ether/acetic acid (80:20:1 by Vol.)

Appearance: clear oil



Application Notes:

D,L-2,6-Dimethylheptanoic acid is a simple natural product derived in animal tissues from the metabolism of phytol by the oxidation of phytanic acid which results in the formation of 2,6-dimethylheptanoic acid along with other compounds.¹ Phytanic acid and pristanic acid are initially oxidized in peroxisomes to 4,8-dimethylnonanoyl-CoA, which is converted to the corresponding acylcarnitine (presumably by peroxisomal carnitine octanoyltransferase), and exported to the mitochondrion. After transport across the mitochondrial membrane and transfer of the acylgroup to coenzyme A, further oxidation to 2,6-dimethylheptanoyl-CoA occurs.² The alkyl chain of cholesterol contains 2,6-dimethylheptane which can be converted to 2,6-dimethylheptanoic acid during the degradation of cholesterol. (2*R*)-branched chain fatty acids cannot be enzymatically broken down but must first be converted to the (2*S*) configuration. A mitochondrial enzyme has been found to convert (2*R*,6)-dimethylheptanoyl-CoA to its (2*S*) stereoisomer.³

Selected References:

1. J. Smoot et al. "Structures and concentrations of surfactants in gut fluid of the marine polychaete *Arenicola marina*" *Marine Ecology Progress Series*, Vol. 258, pp. 161-169, 2003
2. N. Verhoeven et al. "Phytanic acid and pristanic acid are oxidized by sequential peroxisomal and mitochondrial reactions in cultured fibroblasts" *Journal of Lipid Research*, Vol. 39, pg. 66-74, 1998
3. S. Ferdinandusse et al. "Subcellular localization and physiological role of α -methylacyl-CoA racemase" *Journal of Lipid Research*, Vol. 41, pp. 1890-1896, 2000

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