

PRODUCT INFORMATION



MEDICA 16

Item No. 90290

CAS Registry No.: 87272-20-6
Formal Name: 3,3,14,14-tetramethylhexadecanedioic acid
Synonym: FA 18:2
MF: C₂₀H₃₈O₄
FW: 342.5
Purity: ≥98%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

MEDICA 16 is supplied as a crystalline solid. A stock solution may be made by dissolving the MEDICA 16 in the solvent of choice, which should be purged with an inert gas. MEDICA 16 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of MEDICA 16 in these solvents is approximately 100 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of MEDICA 16 can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of MEDICA 16 in PBS (pH 7.2) and 0.15 M Tris-HCl (pH 8.5) is approximately 100 µg/ml and 1 mg/ml, respectively. We do not recommend storing the aqueous solution for more than one day.

Description

MEDICA 16 is a G protein-coupled receptor 40 (GPR40) agonist and GPR120 partial agonist.¹ MEDICA 16 induces intracellular calcium mobilization in cells expressing GPR40 or GPR120 in a concentration-dependent manner. It induces ERK activation in cells expressing GPR40 or GPR120 when used at a concentration of 100 µM. MEDICA 16 also inhibits ATP citrate lyase (K_s = 40 and 200 µM for the oxidized and reduced enzyme, respectively).² Chronic dietary administration of MEDICA 16 (0.25% w/w) decreases liver acetyl-CoA carboxylase (ACC) and AMP-activated protein kinase (AMPK) levels in a model of insulin resistance using JCR:LA-cp rats, which lack functioning leptin receptors.³ MEDICA 16 (0.25% w/w in the diet) reduces plasma insulin levels, decreases fasting plasma triacylglycerol levels, and delays the onset of hyperinsulinemia in JCR:LA-cp rats.⁴

References

1. Hara, T., Hirasawa, A., Sun, Q., *et al.* Novel selective ligands for free fatty acid receptors GPR120 and GPR40. *Naunyn Schmiedebergs Arch Pharmacol.* **380(3)**, 247-255 (2009).
2. Wells, T.N.C. and Saxty, B.A. Redox control of catalysis in ATP-citrate lyase from rat liver. *Eur. J. Biochem.* **204(1)**, 249-255 (1992).
3. Atkinson, L.L., Kelly, S.E., Russell, J.C., *et al.* MEDICA 16 inhibits hepatic acetyl-CoA carboxylase and reduces plasma triacylglycerol levels in insulin-resistant JCR:LA-cp rats. *Diabetes* **51(5)**, 1548-1555 (2002).
4. Russell, J.C., Shillabeer, G., Bar-Tana, J., *et al.* Development of insulin resistance in the JCR:LA-cp rat: Role of triacylglycerols and effects of MEDICA 16. *Diabetes* **47(5)**, 770-778 (1998).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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