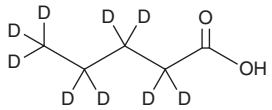
PRODUCT INFORMATION

Pentanoic Acid-d_9

Item No. 28870

CAS Registry No.: 115871-50-6
Synonyms: C5:0-d_9, FA 5:0-d_9, Valeric Acid-d_9
MF: $C_5HD_9O_2$
FW: 111.2
Purity: ≥98%
UV/Vis.: λ_{max}: 210 nm
Supplied as: A liquid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

Pentanoic acid-d_9 is intended for use as an internal standard for the quantification of pentanoic acid by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Pentanoic acid-d_9 is supplied as a liquid. A stock solution may be made by dissolving the pentanoic acid-d_9 in the solvent of choice, which should be purged with an inert gas. Pentanoic acid-d_9 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of pentanoic acid-d_9 in these solvents is approximately 30 mg/ml.

Description

Pentanoic acid is a short-chain saturated fatty acid. It is a gut microbiota metabolite and has also been found in the essential oil of *V. alliariifolia* and in goat milk.[1-3] Pentanoic acid (0.85 mM) inhibits the proliferation, migration, and invasion of Hep3B, SNU-449, and HepG2 liver cancer cells.[4] It increases survival and prevents increases in peripheral blood levels of IL-6, TNF-α, and malondialdehyde (MDA) in irradiated mice, as well as prevents decreases in colon length in a mouse model of colitis induced by dextran sodium sulfate (DSS; Item No. 23250), when administered at a concentration of 0.3 mg/ml in the drinking water.[5] Fecal levels of pentanoic acid are increased in patients with colorectal cancer.[1]

References

1. Weir, T.L., Manter, D.K., Sheflin, A.M., *et al.* Stool microbiome and metabolome differences between colorectal cancer patients and healthy adults. *PLoS One* **8(8)**, 70803 (2013).
2. Bardakci, H., Demirci, B., Yesilada, E., *et al.* Chemical composition of the essential oil of the subterranean parts of *Valeriana alliariifolia*. *Rec. Nat. Prod.* **6(1),** 89-92 (2012).
3. Sant'Ana, A.M.S., Bessa, R.J.B., Alves, S.P., *et al.* Fatty acid, volatile and sensory profiles of milk and cheese from goats raised on native semiarid pasture or in confinement. *Int. Dairy J.* **91,** 147-154 (2018).
4. Han, R., Nusbaum, O., Chen, X., *et al.* Valeric acid suppresses liver cancer development by acting as a novel HDAC inhibitor. *Mol. Ther. Oncolytics* **19**, 8-18 (2020).
5. Li, Y., Dong, J., Xiao, H., *et al.* Gut commensal derived-valeric acid protects against radiation injuries. *Gut Microbes* **11(4)**, 789-806 (2020).

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.

WARRANTY AND LIMITATION OF REMEDY
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