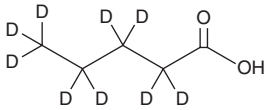
PRODUCT INFORMATION

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: ≥2 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).

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