

## Melatonin-d3

<http://www.lumiprobe.com/p/melatonin-d3>

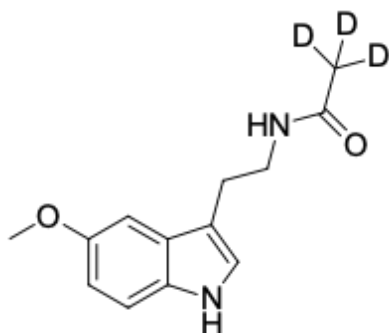
Melatonin-d3 is a deuterium-labeled stable isotopic analogue of the main pineal gland hormone, used as standards in NMR spectroscopy and mass spectrometry.

Melatonin takes part in the regulation of sleep, the activity of the endocrine system, circulatory and immune systems, and its pronounced antioxidant effect is also known. Replacing hydrogen atoms with its stable isotope, deuterium, allows absorption, distribution and metabolism to be determined in in vivo experiments [1]. The use of melatonin-d3 as a standard for mass spectrometry made it possible to accurately determine the melatonin content in biological fluids, such as blood plasma [2], urine [1], breast milk [3].

[1] Leone R.M. and Silman R.E. Melatonin can be differentially metabolized in the rat to produce N-acetylserotonin in addition to 6-hydroxy-melatonin. *Endocrinology*. 1984. 114(5). P.1825-1832.

[2] Zhao H., et al. A novel LC-MS/MS assay for the simultaneous determination of melatonin and its two major metabolites, 6-hydroxymelatonin and 6-sulfatoxymelatonin in dog plasma: Application to a pharmacokinetic study. *J Pharm Biomed Anal*. 2016. 117. P. 390-397.

[3] Jin W., et al. High-throughput quantitation of trace level melatonin in human milk by on-line enrichment liquid chromatography-tandem mass spectrometry. *Anal Chim Acta*. 2021. 1176:338764.



**Structure of Melatonin-d3**

### General properties

- Appearance: gray solid
- Molecular weight: 235.30
- CAS number: 90735-69-6
- Molecular formula:  $C_{13}H_{13}D_3N_2O_2$
- IUPAC name: N-(2-(5-methoxy-1H-indol-3-yl)ethyl)acetamide-2,2,2-d3
- Solubility: Acetonitrile, DMSO
- Quality control: NMR  $^1H$  and HPLC-MS (95+ %, D: 98+ %)
- Storage conditions: 24 months after receipt at  $-20^{\circ}C$  in the dark. Transportation: at room temperature for up to 3 weeks. Desiccate.
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