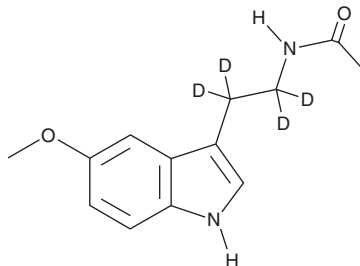


# PRODUCT INFORMATION



## Melatonin-d<sub>4</sub> Item No. 22291

**CAS Registry No.:** 66521-38-8  
**Formal Name:** N-[2-(5-methoxy-1H-indol-3-yl)ethyl-1,1,2,2-d<sub>4</sub>]-acetamide  
**MF:** C<sub>13</sub>H<sub>12</sub>D<sub>4</sub>N<sub>2</sub>O<sub>2</sub>  
**FW:** 236.3  
**Chemical Purity:** ≥98% (Melatonin)  
**Deuterium Incorporation:** ≥99% deuterated forms (d<sub>1</sub>-d<sub>4</sub>); ≤1% d<sub>0</sub>  
**UV/Vis.:** λ<sub>max</sub>: 225, 280 nm  
**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

Melatonin-d<sub>4</sub> is intended for use as an internal standard for the quantification of melatonin (Item No. 14427) 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).

Melatonin-d<sub>4</sub> is supplied as a crystalline solid. A stock solution may be made by dissolving the melatonin-d<sub>4</sub> in the solvent of choice, which should be purged with an inert gas. Melatonin-d<sub>4</sub> is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of melatonin-d<sub>4</sub> in ethanol is approximately 20 mg/ml and approximately 30 mg/ml in DMSO and DMF.

### Description

Melatonin is an indoleamine neurohormone whose levels vary in a daily cycle, thereby allowing the entrainment of the circadian rhythms of several biological functions in animals, plants, and microbes.<sup>1</sup> Many biological effects of melatonin are transduced through melatonin receptors, including the MT<sub>1</sub>, MT<sub>2</sub>, and MT<sub>3</sub> subtypes.<sup>1</sup> Melatonin also acts as a powerful antioxidant that protects lipids, proteins, and DNA against oxidative damage.<sup>2,3</sup> Glutathione peroxidase, superoxide dismutases, and catalase are upregulated by melatonin, and melatonin scavenges free radicals as a terminal antioxidant.<sup>2,3</sup>

### References

1. Boutin, J.A., Audinot, V., Ferry, G., *et al.* Molecular tools to study melatonin pathways and actions. *Trends Pharmacol. Sci.* **26**(8), 412-419 (2005).
2. Reiter, R.J., Tan, D.X., Manchester, L.C., *et al.* Biochemical reactivity of melatonin with reactive oxygen and nitrogen species. *Cell Biochem. Biophys.* **34**(2), 237-256 (2001).
3. Reiter, R.J., Tang, L., Garcia, J.J., *et al.* Pharmacological actions of melatonin in oxygen radical pathophysiology. *Life Sci.* **60**(25), 2255-2271 (1997).

#### 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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