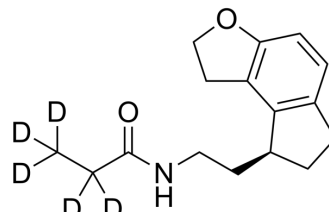


Ramelteon-d₅

Cat. No.:	HY-A0014S
CAS No.:	1134159-63-9
Molecular Formula:	C ₁₆ H ₁₆ D ₅ NO ₂
Molecular Weight:	264.37
Target:	Melatonin Receptor; Isotope-Labeled Compounds
Pathway:	GPCR/G Protein; Neuronal Signaling; Others
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Ramelteon-d ₅ is deuterium labeled Ramelteon. Ramelteon is a potent, highly selective, and orally active agonist of MT1/MT2 with Ki values of 14 and 112 pM, respectively. Ramelteon has the potential for the research of insomnia. Ramelteon consistently reduces sleep onset after long-term treatment, with no next-morning residual effects or rebound insomnia or withdrawal symptoms upon discontinuation[1][2].	
IC₅₀ & Target	MT2	MT1
In Vitro	Stable heavy isotopes of hydrogen, carbon, and other elements have been incorporated into drug molecules, largely as tracers for quantitation during the drug development process. Deuteration has gained attention because of its potential to affect the pharmacokinetic and metabolic profiles of drugs ^[1] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.	

REFERENCES

- [1]. Russak EM, et al. Impact of Deuterium Substitution on the Pharmacokinetics of Pharmaceuticals. *Ann Pharmacother.* 2019;53(2):211-216.
- [2]. Hirai K, et al. Ramelteon (TAK-375) accelerates reentrainment of circadian rhythm after a phase advance of the light-dark cycle in rats. *J Biol Rhythms.* 2005;20(1):27-37.
- [3]. Kato K, et al. Neurochemical properties of ramelteon (TAK-375), a selective MT1/MT2 receptor agonist. *Neuropharmacology.* 2005;48(2):301-310.
- [4]. Mayer G, et al. Efficacy and safety of 6-month nightly ramelteon administration in adults with chronic primary insomnia. *Sleep.* 2009;32(3):351-360.
- [5]. Miyamoto M, et al. The sleep-promoting action of ramelteon (TAK-375) in freely moving cats. *Sleep.* 2004;27(7):1319-1325.

Caution: Product has not been fully validated for medical applications. For research use only.

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