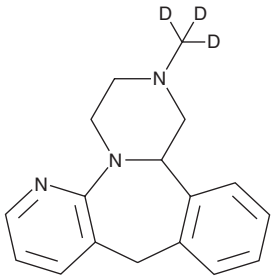
PRODUCT INFORMATION

Mirtazapine-d_3

Item No. 40121

CAS Registry No.:	1216678-68-0
Formal Name:	1,2,3,4,10,14b-hexahydro-2-(methyl-d_3)-pyrazino[2,1-a]pyrido[2,3-c][2]benzazepine
Synonym:	6-Azamianserin-d_3
MF:	$C_{17}H_{16}D_3N_3$
FW:	268.4
Chemical Purity:	≥98% (Mirtazapine)
Deuterium Incorporation:	≥99% deuterated forms (d_1-d_3); ≤1% d_0
Supplied as:	A 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

Mirtazapine-d_3 is intended for use as an internal standard for the quantification of mirtazapine 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).

Mirtazapine-d_3 is supplied as a solid. A stock solution may be made by dissolving the mirtazapine-d_3 in the solvent of choice, which should be purged with an inert gas. Mirtazapine-d_3 is slightly soluble in chloroform and methanol.

Description

Mirtazapine is a tetracyclic antidepressant.[1] It selectively binds to the histamine H_1 receptor, α_{2A}- and α_{2C}-adrenergic receptors, and the serotonin (5-HT) receptor subtypes 5-HT_{2A} and 5-HT_{2C} (K_is = 1.6, 20, 18, 69, and 39 nM, respectively) over the α_1-adrenergic receptor, 5-HT_7, norepinephrine transporter (NET), and dopamine D_1, -D_2, and -D_3 receptors (K_is = 608, 265, 1,640, 4,167, >5,454, and 5,723 nM, respectively). Mirtazapine inhibits tryptamine-induced cyanosis, bilateral convulsions, and backward locomotion in rats (ED_{50}s = 0.8, 0.32, and 0.5 mg/kg, respectively). It prevents the acquisition and reinstatement of cocaine-induced place preference in rats.[2] Mirtazapine (40 mg/kg) decreases immobility time in the forced swim test in mice.[3] Formulations containing mirtazapine have been used in the treatment of major depressive disorder. This product is also available as an analytical reference standard (Item Nos. 31762 | 21126).

References

1. Fernández, J., Alonso, J.M., Andrés, J.I., *et al.* Discovery of new tetracyclic tetrahydrofuran derivatives as potential broad-spectrum psychotropic agents. *J. Med. Chem.* **48(6)**, 1709-1712 (2005).
2. Barbosa-Méndez, S., Matus-Ortega, M., Jacinto-Gutiérrez, S., *et al.* Mirtazapine impairs acquisition and reinstatement of cocaine-induced place preference in rats. *Eur. J. Pharmacol.* **820**, 183-190 (2018).
3. Muguruza, C., Rodríguez, F., Rozas, I., *et al.* Antidepressant-like properties of three new α2-adrenoceptor antagonists. *Neuropharmacology* **65**, 13-19 (2013).

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