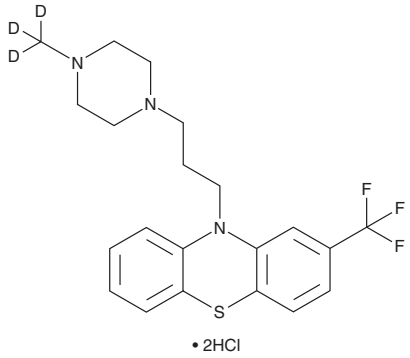
PRODUCT INFORMATION

Trifluoperazine-d_3 (hydrochloride)

Item No. 30718

CAS Registry No.:	1432064-02-2
Formal Name:	10-[3-(4-methyl-d_3-1-piperazinyl) propyl]-2-(trifluoromethyl)-10H-phenothiazine, dihydrochloride
Synonym:	TFP-d_3
MF:	$C_{21}H_{21}D_3F_3N_3S \bullet 2HCl$
FW:	483.4
Chemical Purity:	≥95% (Trifluoperazine)
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

Trifluoperazine-d_3 (hydrochloride) is intended for use as an internal standard for the quantification of trifluoperazine (Item No. 15068) 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).

Trifluoperazine-d_3 (hydrochloride) is supplied as a solid. A stock solution may be made by dissolving the trifluoperazine-d_3 (hydrochloride) in the solvent of choice, which should be purged with an inert gas. Trifluoperazine-d_3 (hydrochloride) is slightly soluble in DMSO and methanol.

Description

Trifluoperazine (TFP) is a phenothiazine compound with anti-adrenergic and anti-dopaminergic actions typical of antipsychotic agents.[1] It antagonizes adrenergic receptors, with selectivity for α_1 over the α_2 subtypes (K_is = 24, 653, 163, and 391 nM for α_{1A}, α_{2A}, α_{2B}, and α_{2C}, respectively). TFP binds with much higher affinity to the dopamine D_2-like receptor (K_d = 0.96 nM) compared to the dopamine D_4-like and the serotonin 5-HT_{2A} receptors (K_ds = 44 and 135 nM, respectively).[2] Furthermore, TFP antagonizes calmodulin (CaM) and alters the calcium-binding properties of calsequestrin (CSQ).[3,4] TFP has been shown to activate type-2 ryanodine receptors independently of its CaM and CSQ activity.[4]

References

1. Kroeze, W.K., Hufeisen, S.J., Popadak, B.A., *et al.* H1-histamine receptor affinity predicts short-term weight gain for typical and atypical antipsychotic drugs. *Neuropsychopharmacology* **28(3)**, 519-526 (2003).
2. Seeman, P., Corbett, R., and Van Tol, H.H. Atypical neuroleptics have low affinity for dopamine D2 receptors or are selective for D4 receptors. *Neuropsychopharmacology* **16(2)**, 93-110 (1997).
3. Zimmer, M. and Hofmann, F. Calmodulin antagonists inhibit activity of myosin light-chain kinase independent of calmodulin. *Eur. J. Biochem.* **142(2)**, 393-397 (1984).
4. Qin, J., Zima, A.V., Porta, M., *et al.* Trifluoperazine: A ryanodine receptor agonist. *Pflugers Arch.* **458(4)**, 643-651 (2009).

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