

Product Data Sheet

Product Name: Imipramine (hydrochloride)

Cat. No.: GC12885

Chemical Properties

Cas. No. 113-52-0

Chemical Name 10,11-dihydro-N,N-dimethyl-5H-dibenz[b,f]azepine-5-propanamine, monohydrochloride

SMILES CN(C)CCCN1C2=C(C=CC=C2)CCC3=C1C=CC=C3.Cl

Formula $C_{19}H_{24}N_2 \cdot HCl$

M.Wt 316.9

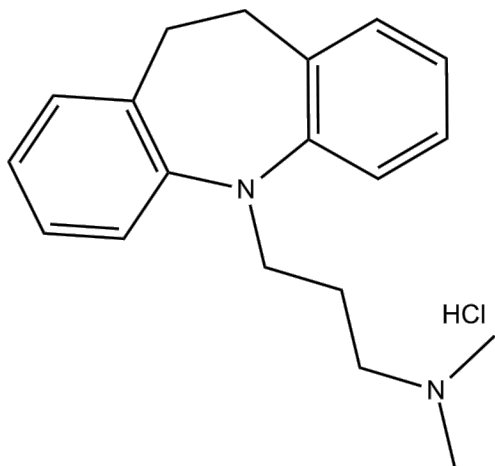
Solubility $\geq 12.5\text{mg/mL}$ in DMSO

Storage Store at -20°C , protect from light

General tips For obtaining a higher solubility, please warm the tube at 37°C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Protocol

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

Animal experiment:

Rats: The Wistar (WIS) and Wistar Kyoto (WKY) rats are divided into four groups: (1) a control WIS rat group, (2) an imipramine-treated WIS rat group, (3) a control WKY rat group and (4) an imipramine-treated WKY rat group. Distilled water (10 mL/kg) or imipramine solution (10 mg/10 mL/kg) is orally administered for 28 days except on the day of the open field test, when nothing is administered in order to avoid the acute effect of single administration on the open field test[5].

Mice: C57BL/6 mice subjected to repeated social defeat (RSD), home cage control (HCC) are randomly selected into four groups: RSD/imipramine, RSD/vehicle, HCC/imipramine, and HCC/vehicle. Mice in the RSD/imipramine received daily intraperitoneal (i.p.) injections of imipramine (20 mg/kg) for 24 days after the 6 cycles of RSD. HCC/imipramine received daily i.p. imipramine at the same dose while RSD/vehicle and HCC/vehicle groups received i.p. injections of vehicle (sodium chloride, 0.9%) for 24 days at the same time point[3].

References:

- [1]. Balkovetz DF, et al. Evidence for an imipramine-sensitive serotonin transporter in human placental brush-border membranes. J Biol Chem. 1989 Feb 5;264(4):2195-8.
- [2]. Yasuda S, et al. Imipramine ameliorates pain-related negative emotion via induction of brain-derived neurotrophic factor. Cell Mol Neurobiol. 2014 Nov;34(8):1199-208.
- [3]. Ramirez K, et al. Imipramine attenuates neuroinflammatory signaling and reverses stress-induced social avoidance. Brain Behav Immun. 2015 May;46:212-20.
- [4]. Erburu M, et al. Chronic mild stress and imipramine treatment elicit opposite changes in behavior and in gene expression in the mouse prefrontal cortex. Pharmacol Biochem Behav. 2015 Aug;135:227-36.
- [5]. Nagasawa M, et al. Chronic imipramine treatment differentially alters the brain and plasma amino acid metabolism in Wistar and Wistar Kyoto rats. Eur J Pharmacol. 2015 Sep 5;762:127-35.
- [6]. Tokarski K, et al. Imipramine counteracts corticosterone-induced alterations in the effects of the activation of 5-HT(7) receptors in rat hippocampus. J Physiol Pharmacol. 2009 Jun;60(2):83-8.

Background

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

Imipramine (hydrochloride) is a tricyclic antidepressant and is mainly used in the treatment of major depression and enuresis [1].

Antidepressants are antagonists of many neurotransmitter receptors in human brain [3].

Imipramine is the first tricyclic antidepressant that acts mainly as an inhibitor of serotonin and norepinephrine transporters [2]. In radioligand binding assays, imipramine inhibited serotonin and norepinephrine transporters with K_D values of 1.4 and 37 nM, respectively [2]. Imipramine is also inhibited histamine H1 receptor, muscarinic acetylcholine receptor and α_1 -adrenergic receptor with K_d values of 37, 46, and 32 nM, respectively [4].

In rodents, imipramine abolished the depressive syndrome produced by the acute administration of reserpine. Imipramine also possessed central anticholinergic activity and attenuate the activity of the centrally acting muscarinic agents tremorine and oxotremorine. Imipramine inhibited the presynaptic uptake of NA and 5-HT, and relatively weak against DA [1].

References:

- [1]. Spencer PS. Review of the pharmacology of existing antidepressants. Br J Clin Pharmacol. 1977;4Suppl 2:57S-68S.
- [2]. Tatsumi M, Groshan K, Blakely RD, et al. Pharmacological profile of antidepressants and related compounds at human monoamine transporters. Eur J Pharmacol. 1997 Dec 11;340(2-3):249-58.
- [3]. Cusack B, Nelson A, Richelson E. Binding of antidepressants to human brain receptors: focus on newer generation compounds. Psychopharmacology (Berl). 1994 May;114(4):559-65.

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA