PRODUCT INFORMATION

1-(1-Naphthyl) piperazine (hydrochloride)
Item No. 16150

CAS Registry No.: 104113-71-5
Formal Name: 1-(1-naphthalenyl)-piperazine, monohydrochloride
Synonym: 1-NP
MF: C_{14}H_{16}N_{2} • HCl
FW: 248.7
Purity: ≥98%
UV/Vis.: λ_{max}: 216, 302 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: As supplied, 2 years from the QC date provided on the Certificate of Analysis, when stored properly

Laboratory Procedures

1-(1-Naphthyl) piperazine (1-NP) (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the 1-NP (hydrochloride) in the solvent of choice. 1-NP (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of 1-NP (hydrochloride) in these solvents is approximately 25, 20, and 30 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of 1-NP (hydrochloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 1-NP (hydrochloride) in PBS, pH 7.2, is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

1-NP is a ligand for serotonin (5-hydroxytryptamine, 5-HT) receptors. It acts as an antagonist for 5-HT at 5-HT_1 and 5-HT_2 in rat cortical membranes with IC_{50} values of 6 and 1 nM, respectively. 1-NP also blocks contraction in the rat fundus induced by either 5-HT or tryptamine (IC_{50} = 1 nM for both agonists). 1-NP mimics the 5-HT_1 agonist 1-(m-trifluoromethylphenyl)piperazine (TFMPP, Item No. 11205) in decreasing 5-HT receptor turnover and increasing serum corticosterone, suggesting that, in the absence of 5-HT, 1-NP may act as an agonist of the 5-HT_1 receptor. However, in squirrel monkeys, 1-NP acts as a non-selective 5-HT receptor antagonist in altering operant behavior. 1-NP also binds to the human 5-HT_6 receptor with an affinity comparable to that of 5-HT (K_{i} = 120 and 100 nM, respectively).

References