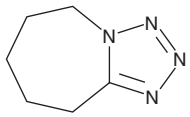
PRODUCT INFORMATION

Pentylenetetrazole

Item No. 18682

CAS Registry No.: 54-95-5
Formal Name: 6,7,8,9-tetrahydro-5H-etrazolo[1,5-a]azepine
Synonyms: α,β-Cyclopentamethylenetetrazole, 1,5-Pentamethylenetetrazole, PTZ, NSC 5729, NSC 66489
MF: $C_6H_{10}N_4$
FW: 138.2
Purity: ≥98%
Supplied as: A crystalline 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

PTZ is supplied as a crystalline solid. A stock solution may be made by dissolving the PTZ in the solvent of choice. PTZ is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of PTZ in these solvents is approximately 30 mg/ml.

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 PTZ can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of PTZ in PBS, pH 7.2, is approximately 3 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

PTZ is a central nervous system modulator that is used to experimentally induce seizures in animals.[1] Subcutaneous PTZ has been used extensively to screen for compounds that block the production of nonconvulsive (absence or myoclonic) seizures.[2,3] PTZ has diverse, site-specific effects in the brain. However, it is an antagonist of $GABA_A$ receptors and some drugs that block PTZ-induced seizures, including benzodiazepines, act at the $GABA_A$ receptor.[4,5]

References

1. Löscher, W. Critical review of current animal models of seizures and epilepsy used in the discovery and development of new antiepileptic drugs. *Seizure* **20(5)**, 359-368 (2011).
2. Snider, N.T., Nast, J.A., Tesmer, L.A., *et al.* A cytochrome P450-derived epoxygenated metabolite of anandamide is a potent cannabinoid receptor 2-selective agonist. *Mol. Pharmacol.* **75(4)**, 965-972 (2009).
3. Kaufmann, K., Romaine, I.M., Days, E., *et al.* ML297 (VU0456810), the first potent and selective activator of the GIRK potassium channel, displays antiepileptic properties in mice. *ACS Chem. Neurosci.* **4(9)**, 1278-1286 (2013).
4. Chaix, Y., Ferraro, T.N., Lapouble, E., *et al.* Chemoconvulsant-induced seizure susceptibility: Toward a common genetic basis. *Epilepsia* **48 Suppl 5**, 48-52 (2007).
5. White, H.S. Clinical significance of animal seizure models and mechanism of action studies of potential antiepileptic drugs. *Epilepsia* **38 Suppl 1**, S9-S17 (1997).

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