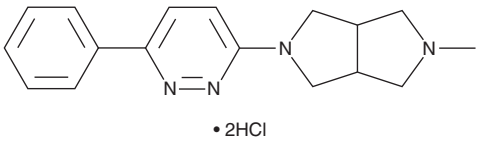
PRODUCT INFORMATION

A-582941

Item No. 42375

CAS Registry No.: 848591-90-2
Formal Name: octahydro-2-methyl-5-(6-phenyl-3-pyridazinyl)-pyrrolo[3,4-c] pyrrole, dihydrochloride
MF: $C_{17}H_{20}N_4 \bullet 2HCl$
FW: 353.3
Purity: ≥98%
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

A-582941 is supplied as a solid. A stock solution may be made by dissolving the A-582941 in the solvent of choice, which should be purged with an inert gas. A-582941 is slightly soluble (0.1-1 mg/ml) in ethanol.

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 A-582941 can be prepared by directly dissolving the solid in aqueous buffers. A-582941 is soluble (≥10 mg/ml) in PBS (pH 7.2). We do not recommend storing the aqueous solution for more than one day.

Description

A-582941 is an agonist of α7 nicotinic acetylcholine receptors (nAChRs).[1] It induces inward currents in *Xenopus* oocytes expressing the rat or human receptor (EC_{50}s = 2.45 and 4.26 µM, respectively), which can be reversed by methyllycaconitine (Item No. 21398). A-582941 selectively binds to α7 nAChRs (K_is = 10.8 and 16.7 nM for the rat and human receptors, respectively) over a panel of greater than 75 receptors and ion channels, including muscarinic receptors, at 10 µM but does bind to the serotonin (5-HT) receptor subtype 5-HT_3 (K_i = 154 nM). *In vivo*, A-582941 (12 mg/kg) improves cognitive deficits in the 3xTg transgenic mouse model of Alzheimer's disease.[2] It increases accuracy in the delayed match-to-sample (DMTS) test in rhesus monkeys when administered at a dose of 10 mg/kg.[2]

References

1. Bitner, R.S., Bunnelle, W.H., Anderson, D.J., *et al.* Broad-spectrum efficacy across cognitive domains by α7 nicotinic acetylcholine receptor agonism correlates with activation of ERK1/2 and CREB phosphorylation pathways. *J. Neurosci.* **27(39)**, 10578-10587 (2007).
2. Medeiros, R., Castello, N.A., Cheng, D., *et al.* α7 nicotinic receptor agonist enhances cognition in aged 3xTg-AD mice with robust plaques and tangles. *Am. J. Pathol.* **184(2)**, (2014).

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent *via* email to your institution.

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