Small Molecules

AKT Inhibitor X

PI3K/AKT pathway inhibitor; Inhibits AKT

Catalog # 72952

10 mg

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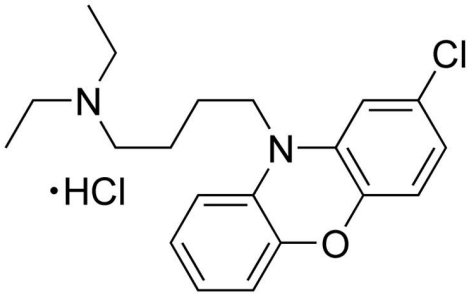
Product Description

AKT Inhibitor X is a cell-permeable phenoxazine-derivative inhibitor of AKT kinase phosphorylation with an IC_{50} of ~1 - 2 µM. AKT Inhibitor X blocks translocation of AKT after insulin-like growth factor 1 (IGF-1) treatment (Thimmaiah et al.). This product is supplied as the hydrochloride salt of the molecule.

Molecular Name: AKT Inhibitor X (Hydrochloride)
Alternative Names: 10-DEBC hydrochloride
CAS Number: 925681-41-0
Chemical Formula: $C_{20}H_{25}ClN_2O \cdot HCl$
Molecular Weight: 381.3 g/mol
Purity: ≥ 95%
Chemical Name: 2-chloro-N,N-diethyl-10H-phenoxazine-10-butanamine, monohydrochloride
Structure:



Properties

Physical Appearance: A crystalline solid

Storage: Product stable at -20°C as supplied. Protect from prolonged exposure to light.
Stable as supplied for 12 months from date of receipt.

Solubility:
· PBS (pH 7.2) ≤ 13 mM
· DMSO ≤ 30 mM
· Absolute ethanol ≤ 40 mM
For example, to prepare a 5 mM stock solution in PBS, resuspend 10 mg in 5.25 mL of PBS.

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

CANCER RESEARCH
· Inhibits growth and induces apoptosis of human rhabdomyosarcoma cell lines (Thimmaiah et al.).
· Inhibits proliferation of breast cancer cell lines, alone or synergistically with chloroquine (Hu et al.).
· Reduces replication of Myxoma virus in a variety of human tumor cell lines (Werden & McFadden).
DISEASE MODELING
· Induces autophagy in neurons and is neuroprotective in a primary neuronal Huntington's disease cellular model (Tsvetkov et al.).

References

Hu C et al. (2008) The efficacy and selectivity of tumor cell killing by Akt inhibitors are substantially increased by chloroquine. Bioorg Med Chem 16(17): 7888–93.
Thimmaiah KN et al. (2005) Identification of N10-substituted phenoxazines as potent and specific inhibitors of AKT signaling. J Biol Chem 280(36): 31924–35.
Tsvetkov AS et al. (2010) A small-molecule scaffold induces autophagy in primary neurons and protects against toxicity in a Huntington disease model. Proc Natl Acad Sci USA 107(39): 16982–7.
Werden SJ & McFadden G. (2010) Pharmacological manipulation of the Akt signaling pathway regulates myxoma virus replication and tropism in human cancer cells. J Virol 84(7): 3287–302.

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