Small Molecules

Cyclic Pifithrin-Alpha

p53 inhibitor

Catalog #	72062	5 mg
	72064	10 mg

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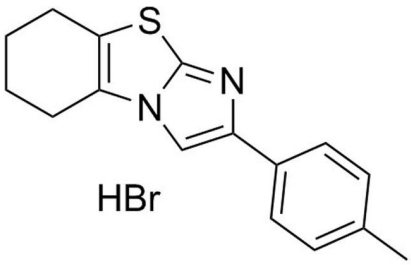
Product Description

Cyclic Pifithrin-Alpha is a cell-permeable and reversible inhibitor of p53-mediated apoptosis and p53-dependent gene transcription. It is a more stable and less cytotoxic analog of the non-cyclic form of pifithrin-alpha, which is rapidly cyclized under normal cell culture conditions. Cyclic Pifithrin-Alpha has also been reported to activate the aryl hydrocarbon receptor (Fernandez-Cruz et al.; Gary & Jensen; Komarov et al.). This product is supplied as a hydrobromide salt of the molecule.

Molecular Name: Cyclic Pifithrin-Alpha (Hydrobromide)
Alternative Names: Cyclic PFT-α; Cyclic Pifithrin-α; PFT-β; Pifithrin-β
CAS Number: 511296-88-1
Chemical Formula: $C_{16}H_{16}N_2S \cdot HBr$
Molecular Weight: 349.3 g/mol
Purity: ≥ 95%
Chemical Name: 5,6,7,8-tetrahydro-2-(4-methylphenyl)-imidazo[2,1-b]benzothiazole, monohydrobromide
Structure:



Properties

Physical Appearance: A crystalline solid

Storage: Product stable at -20°C as supplied. Protect from prolonged exposure to light. For product expiry date, please contact techsupport@stemcell.com.

Solubility:
· DMSO ≤ 1.5 mM
· Absolute ethanol ≤ 1.5 mM
For example, to prepare a 1 mM stock solution in DMSO, resuspend 1 mg in 2.86 mL of fresh DMSO.

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.

Compound has low solubility in aqueous media. 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

MAINTENANCE AND SELF-RENEWAL
· Reduces UV-induced apoptosis of mouse embryonic stem cells (Qin et al.).
· Increases the numbers of mouse hematopoietic stem and progenitor cells in vivo and in vitro, also decreases the radiation-induced death of these cells (Leonova et al.).
REPROGRAMMING
· Increases efficiency of reprogramming mouse embryonic fibroblasts to induced pluripotent stem cells (Liao et al.).

References

Fernández-Cruz ML et al. (2011) Biological and chemical studies on aryl hydrocarbon receptor induction by the p53 inhibitor pifithrin-α and its condensation product pifithrin-β. Life sciences 88(17-18): 774–83.
Gary RK & Jensen DA. (2005) The p53 inhibitor pifithrin-alpha forms a sparingly soluble derivative via intramolecular cyclization under physiological conditions. Molecular pharmaceutics 2(6): 462–74.
Komarov P G et al. (1999) A chemical inhibitor of p53 that protects mice from the side effects of cancer therapy. Science (New York, NY) 285(5434): 1733–7.
Leonova KI et al. (2010) A small molecule inhibitor of p53 stimulates amplification of hematopoietic stem cells but does not promote tumor development in mice. Cell cycle (Georgetown, Tex) 9(7): 1434–43.
Liao J et al. (2013) Inhibition of PTEN tumor suppressor promotes the generation of induced pluripotent stem cells. Molecular therapy : the journal of the American Society of Gene Therapy 21(6): 1242–50.
Qin H et al. (2007) Regulation of apoptosis and differentiation by p53 in human embryonic stem cells. The Journal of biological chemistry 282(8): 5842–52.

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