Product Data Sheet

Chemical Properties

Product Name: Pifithrin-\(\mu\)
Cas No.: 64984-31-2
M.Wt: 181.21
Formula: C8H7NO2S
Synonyms: NSC 303580

Chemical Name: 2-phenylethynesulfonamide
Canonical SMILES: C1=CC=C(C=C1)C#CS(=O)(=O)N
Solubility: \(\geq 18.1\text{mg/mL}\) in DMSO
Storage: Store at 4°C
General tips: For obtaining a higher solubility, please warm the tube at 37°C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.
Shopping Condition: Evaluation sample solution: ship with blue ice
All other available size: ship with RT, or blue ice upon request

Biological Activity

Targets: Apoptosis
Pathways: p53

Description:
Pifithrin-\(\mu\) is a potent inhibitor of p53 binding and p53-mediated apoptosis with Kd value of 0.82 mM in vitro[1].
The p53 is encoded in humans by the TP53 gene. The molecular mass of p53 is 53 KD. The p53 has the function of regulating the cell cycle, thus, it functions as preventing cancer, a tumor suppressor. The p53 plays an important role in apoptosis, inhibition of angiogenesis and genomic stability by activating DNA repair proteins, arresting cell growth though holding the cell cycle and
initiating apoptosis. p53 becomes activated in response to DNA damage, osmotic shock, oxidative stress or other myriad stressors. Activated p53 activates the expression of several genes by binding DNA including p21. p21 binds to the G1-S/CDK complexes which is an important molecules for the G1/S transition, then causes cell cycle arrest. The increasing amount of p53 may be a solution for prevention of tumors spreading or treatment of them[1].

Pifithrin-μ is a cell-permeable inhibitor of p53-binding and p53-mediated apoptosis. Pifithrin-μ directly inhibits that p53 binds to mitochondria. Pifithrin-μ also inhibits p53 binds to Bcl-2 and Bcl-xL proteins. PFT-μ binds both Bcl-xL and p53 with Kd = 0.80 mM and 0.82 mM respectively.[1] Pifithrin-μ reduces apoptosis which triggered by nutlin-3 in ML-1 cells at 25μM [2]. Pifithrin-μ also selectively inhibits heat shock protein 70 (HSP 70) activity. Pre-treatment with Pifithrin-μ can rescue primary thymocytes from γ-irradiation or DNA damaging agents in mice.[2]

Reference:

Product Citations


Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most ApexBio products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Short-term storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.
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