

Product Data Sheet

Product Name: MS6076
Cat. No.: GC79072

Chemical Properties

Cas. No.

Formula $C_{27}H_{27}F_3N_6O_2$ M.Wt 524.54

Solubility Storage Store at -20°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.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure



Background

MS6076 is a mitochondrial protease ClpP agonist. MS6076 specifically activates the ClpP protease in the mitochondrial matrix, significantly disrupting mitochondrial Electron Transport Chain (ETC) function by accelerating the degradation of unfolded proteins. MS6076 exhibits potent cytotoxicity against a variety of cancer cell lines. MS6076 induces cell apoptosis, increasing cleavage of caspase 3 and PARP. MS6076 can be used for the research of breast cancer [1].

In Vivo, MS6076 (50 mg/kg; i.p.; single dose) is bioavailable and well tolerated in male Swiss Albino mice [1].

Caution: Product has not been fully validated for medical applications. For research use only.

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In Vitro, MS6076 (0.313-10.0 μ M; 15 min) stabilizes human ClpP in MDA-MB-468 cell lysates more potently than ONC212, with effective stabilization observed at 0.313 μ M^[1]. MS6076 (1.0-10.0 μ M; 2 min) binds and stabilizes purified human ClpP, as measured by a significant increase in thermal shift^[1]. MS6076 (0.078-5.0 μ M; 30 min) demonstrates potent cellular permeability and ClpP binding in live MDA-MB-468 cells^[1]. MS6076 (25-200 nM; 24 h) activates ClpP-mediated proteolysis to degrade DAP13 in MDA-MB-468 cells^[1]. MS6076 (50 nM; 12-48 h) disrupts mitochondrial respiration (basal, ATP-linked, and maximal) in MDA-MB-468 cells^[1]. MS6076 (1.0 μ M; 72 h) effectively induces apoptosis in MDA-MB-468 cells at 1.0 μ M over 72 h, as evidenced by increased cleavage of caspase 3 and PARP^[1]. MS6076 (72 h) potently reduces MDA-MB-468 breast cancer cell viability with an IC₅₀ of 10.6 nM over 72 h^[1]. MS6076 (72 h) potently reduces viability across multiple breast cancer cell lines, with IC₅₀ values ranging from 7.0 to 13.9 nM^[1]. MS6076 (72 h) potently reduces viability of ONC212-resistant MDA-MB-468 breast cancer cells with an IC₅₀ of 27.7 nM^[1].

References:

[1]. Xu Z, et al. Targeting the Mitochondrial Protease ClpP for Anticancer Therapy. J Med Chem. 2025;68(20):21377-21393.

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