

Product Data Sheet

Product Name: MSN-125

Cat. No.: GC61096

Chemical Properties

Cas. No. 1592908-16-1

SMILES O=C(C1=CC=CC=C1)N[C@@H](CC2=CC=CC=C2)C(N(CC3=CC=C(C=C3)Br)[C@@H]4[C@H](OC5=CC(OCOCOC)=CC=C45)CN)=O

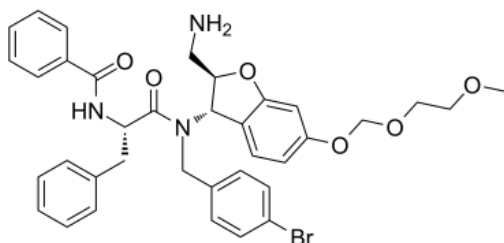
Formula $C_{36}H_{38}BrN_3O_6$ M.Wt 688.61

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



Protocol

Cell experiment [1]:

Cell lines HCT-116 and BMK cells

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

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HCT-116 and BMK cells were seeded at a cell density of 3000 cells/well in a 96 well plate. Cells were plated in DMEM containing 10% FBS and after Preparation Method adhering, cells were treated with MSN-125 (5-10 μ M) for 4 hours followed by addition of actinomycin D (ActD) or staurosporine (STS) for another 24 hours. Then cell death was analyzed by measuring lactate dehydrogenase release.

Reaction
Conditions 5-10 μ M; 27h

Applications MSN-125 inhibited cell death in HCT-116 or BMK cells treated with actinomycin D (ActD) or staurosporine (STS).

References:

[1] Niu X, Brahmabhatt H, Mergenthaler P, et al. A Small-Molecule Inhibitor of Bax and Bak Oligomerization Prevents Genotoxic Cell Death and Promotes Neuroprotection. *Cell Chem Biol.* 2017;24(4):493-506.e5.

Background

MSN-125 is an inhibitor of Bax and Bak oligomerization, with an IC₅₀ of 4 μ M^[1]. Bax and Bak are key proteins in the apoptosis process^[2]. Bax and Bak oligomerization increases the permeability of the mitochondrial outer membrane (MOMP), leads to the release of pro-apoptotic factors such as cytochrome c, thereby initiating the apoptosis program^[3]. MSN-125 inhibits the oligomerization of Bax and Bak, prevents the increase of MOMP, and inhibits cell apoptosis^[4]. MSN-125 is usually used to study the molecular mechanisms of apoptosis, especially in the fields of cancer and neuroprotection^{[5][6]}.

In vitro, MSN-125(5-10 μ M; 27h) inhibited cell death in HCT-116 or BMK cells treated with actinomycin D (ActD) or staurosporine (STS) and protected primary cortical neurons from glutamate excitotoxicity^[1].

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- [2] Pena-Blanco A, Garcia-Saez AJ. Bax, Bak and beyond - mitochondrial performance in apoptosis. *FEBS J*. 2018;285(3):416-431.
- [3] Yamazaki T, Galluzzi L. BAX and BAK dynamics control mitochondrial DNA release during apoptosis. *Cell Death Differ*. 2022;29(6):1296-1298.
- [4] Jensen K, WuWong DJ, Wong S, Matsuyama M, Matsuyama S. Pharmacological inhibition of Bax-induced cell death: Bax-inhibiting peptides and small compounds inhibiting Bax. *Exp Biol Med* (Maywood). 2019;244(8):621-629.
- [5] Zhang Z, Hou L, Liu D, Luan S, Huang M, Zhao L. Directly targeting BAX for drug discovery: Therapeutic opportunities and challenges. *Acta Pharm Sin B*. 2024;14(6):2378-2401.
- [6] Spitz AZ, Gavathiotis E. Physiological and pharmacological modulation of BAX. *Trends Pharmacol Sci*. 2022;43(3):206-220.

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