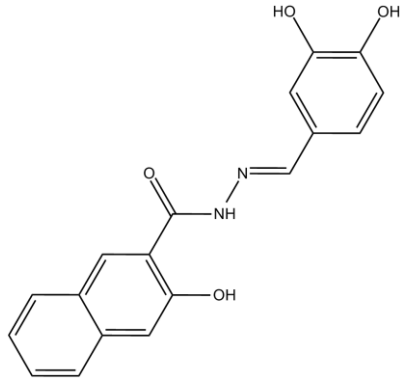
Product Name: Dynasore

Revision Date: 3/12/2019

Product Data Sheet

Chemical Properties



Product Name:	Dynasore
Cas No.:	304448-55-3
M.Wt:	322.31
Formula:	C18H14N2O4
Synonyms:	N/A
Chemical Name:	(E)-N'-(3,4-dihydroxybenzylidene)-3-hydroxy-2-naphthohydrazide
Canonical SMILES:	OC1=C(C(N/N=C/C(C=C2)=CC(O)=C2O)=O)C=C(C=CC=C3)C3=C1
Solubility:	≥16.12mg/mL in DMSO
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.
Shopping Condition:	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request

Biological Activity

Targets :	Membrane Transporter/Ion Channel
Pathways:	ATPase

Description:

Dynasore is a noncompetitive inhibitor of GTPases with the IC50 value of 15 μM[1] [2]. GTPases (singular GTPase) are hydrolase enzymes that play an important role in GTP binding and hydrolyzing. GTPases involve in many processes, like, transduction signal, protein biosynthesis, translocation proteins through membranes, and transporting vesicles within the cell. It has been reported that dynasore could inhibit the GTPase activity of dynamin1, dynamin2 and Drp1 [3] [4]. Dynasore is a potent GTPases inhibitor and functions on the sites of dynamin1, dynamin2 or Drp1. When tested with HL-1 cells, treated cells with dynasore blocked the endocytic process via

inhibiting the activity of dynamin [1]. Using genetically encoded pH-sensitive fluorescent probe synaptopHluorin to study the role of dynasore in the synapses expressing spH, and the results showed that dyansore treatment resulted in the normal stimulus-triggered increase in fluorescence intensity via reducing the GTPase activity of dynamin which in turn blocked the synaptic endocytosis[4]. Dynasore worked as inhibitor of dynamin GTPase activity which blocks dynamin-dependent endocytosis not only in cells, but also including neurons [3].

***Reference**:*
[1].Zheng, J., et al., Chymase mediates injury and mitochondrial damage in cardiomyocytes during acute ischemia/reperfusion in the dog. PLoS One, 2014. 9(4): p. e94732.
[2].McCluskey, A., et al., Building a better dynasore: the dyngo compounds potently inhibit dynamin and endocytosis. Traffic, 2013. 14(12): p. 1272-89.
[3].Kirchhausen, T., E. Macia, and H.E. Pelish, Use of dynasore, the small molecule inhibitor of dynamin, in the regulation of endocytosis. Methods Enzymol, 2008. 438: p. 77-93.
[4].Newton, A.J., T. Kirchhausen, and V.N. Murthy, Inhibition of dynamin completely blocks compensatory synaptic vesicle endocytosis. Proc Natl Acad Sci U S A, 2006. 103(47): p. 17955-60.

Protocol

Cell experiment:

Cell lines	Hela cells
Preparation method	The solubility of this compound in DMSO is > 16.1 mg/mL. General tips for obtaining a higher concentration: Please warm the tube at 37 °C for 10 minutes and/or shake it in the ultrasonic bath for a while. Stock solution can be stored below - 20 °C for several months.
Reacting conditions	
Applications	In Hela cells preincubated with 80 μM Dynasore for 30 mins, the uptake, trafficking and intracellular accumulation of transferrin were all significantly blocked. Moreover, Dynasore dose-dependently inhibited transferrin uptake. In addition, the effect of Dynasore on transferrin uptake was proved to be reversible.

***Reference**:*
[1]. Macia E, Ehrlich M, Massol R, Boucrot E, Brunner C, Kirchhausen T. Dynasore, a cell-permeable inhibitor of dynamin. Dev Cell. 2006 Jun;10(6):839-50.

Product Citations

1. Wang H, Liu W, et al. "Inhibitor analysis revealed that clathrin-mediated endocytosis is involed in cellular entry of type III grass carp reovirus." Virol J. 2018 May 24;15(1):92. PMID:29793525

2. Mai J, Li X, et al. "DNA Thioaptamer with Homing Specificity to Lymphoma Bone Marrow Involvement." Mol Pharm. 2018 May 7;15(5):1814-1825. PMID:29537266
3. Schappe MS, Szteyn K, et al."Chanzyme TRPM7 Mediates the Ca(2+) Influx Essential for Lipopolysaccharide-Induced Toll-Like Receptor 4 Endocytosis and Macrophage Activation." Immunity. 2018 Jan 16;48(1):59-74.e5. PMID:29343440

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. Shortterm 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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