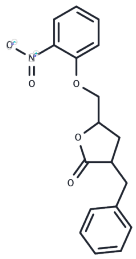
Data Sheet (Cat.No.T14033)

TargetMol

3BDO

Chemical Properties



CAS No. : 890405-51-3

Formula: C18H17NO5

Molecular Weight: 327.33

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	3BDO is a new mTOR activator. 3BDO inhibits autophagy.
Targets(IC50)	Apoptosis,Autophagy,mTOR
In vitro	Phosphorylation of RPS6KB1 and EIF4EBP1 is significantly increased by 3BDO with vector alone but suppressed with FKBP1A overexpression. Rapamycin fails to decrease the phosphorylation of MTOR and RPS6KB1 in the presence of 3BDO. 3BDO suppresses the increase in MAP1LC3B puncta induced by rapamycin and inhibits its effect in HUVECs. Phosphorylation of Ser residues is decreased in HUVECs treated with 10 μM rapamycin, and 60 μM 3BDO reverses this phosphorylation. These results demonstrate that 3BDO suppresses the increased MAP1LC3B puncta, MAP1LC3B-II levels, and decreased SQSTM1 protein levels induced by rapamycin. Additionally, 3BDO decreases FLJ11812 levels in HUVECs in a dose- and time-dependent manner, while overexpression of FLJ11812 reverses the inhibition of autophagy induced by 3BDO[1].
In vivo	Immunofluorescence assay demonstrates that treatment with 3BDO enhances p-p70S6K levels while reducing ATG13 protein levels in the plaque endothelium of mice, without affecting the phosphorylation of mTOR's immediate downstream targets p70S6K and 4EBP1. Comparatively, in apoE-/- mice, 3BDO treatment notably inhibits endothelium autophagy and apoptosis, thereby offering protection against endothelial injury in atherosclerosis. Furthermore, 3BDO treatment contributes to the stabilization of established atherosclerotic lesions in apoE-/- mice and results in a significant reduction in the serum levels of IL-6 and IL-8.

Solubility Information

Solubility	DMSO: 150 mg/mL (458.25 mM),Sonication is recommended. Ethanol: 20 mg/mL (61.1 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 4 mg/mL (12.22 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may*

In vivo Formulation	*vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.055 mL	15.2751 mL	30.5502 mL
5 mM	0.611 mL	3.055 mL	6.110 mL
10 mM	0.3055 mL	1.5275 mL	3.055 mL
50 mM	0.0611 mL	0.3055 mL	0.611 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Ge D, et al. Identification of a novel MTOR activator and discovery of a competing endogenous RNA regulating autophagy in vascular endothelial cells. Autophagy. 2014 Jun;10(6):957-71.
Lai X, Wang M, Zhang Z, et al.ZNPs reduce epidermal mechanical strain resistance by promoting desmosomal cadherin endocytosis via mTORC1-TFEB-BLOC1S3 axis.Journal of Nanobiotechnology.2024, 22(1): 312.
Shuang Chen,Caihua Li,Zeng Tu,Tao CaiOff-label use of Baricitinib improves moderate and severe atopic dermatitis in China through inhibiting MAPK and PI3K/Akt/mTOR pathway via targeting JAK-STAT signaling of CD4+ cells.Frontiers in Pharmacology.2024
Peng N, et al. An activator of mTOR inhibits oxLDL-induced autophagy and apoptosis in vascular endothelial cells and restricts atherosclerosis in apolipoprotein E?/? mice. Sci Rep. 2014 Jul 1;4:5519.