Data Sheet (Cat.No.TYD-04835)

TBE56

Chemical Properties

CAS No. :	1459836-79-3
Formula:	C37H43N5O6S
Molecular Weight:	685.84
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	TBE56 is a molecular glue serving as a BACH1 degrader, with an EC50 of 44 nM. It is a weak NRF2 inducer and is the biotinylated form of TBE31. TBE56 interacts with BACH1 via an E3 ligase FBX022-mediated mechanism to promote its degradation. It reduces Fe2+ accumulation, ROS generation, and malondialdehyde (MDA) levels in bone marrow mesenchymal stem cells (BMSCs) overexpressing Prominin-2, while increasing the GSH/GSSG ratio and upregulating GPX4. In a puncture-induced spinal disc degeneration (IVDD) model in SD rats, TBE56 significantly improves disc degeneration, making it useful for studying IVDD.
In vitro	TBE56 at a concentration of 100 nM for 3 hours significantly reduces BACH1 protein levels in HaCaT cells, with an EC50 of 44 nM. At a concentration of 100 nM for 16 hours, TBE56 induces HMOX1 mRNA expression in HaCaT cells. Additionally, TBE56 within the range of 0.05-5 μM for 5-16 hours induces HMOX1 mRNA expression in A549, H1299, MDA-MB-231, and MDA-MB-468 cells while promoting BACH1 degradation and reducing nuclear BACH1 levels in a dose-dependent manner. When applied at 100 nM for 6 hours, TBE56 decreases the migration and invasion capabilities of wild-type MDA-MB-231 cells. With 110 nM for 3 hours of pretreatment, TBE56 significantly reduces Fe 2+ accumulation and ROS production in Prominin-2-overexpressed BMSCs. The same pretreatment also enhances the GSH/GSSG ratio and decreases MDA content in these cells. Furthermore, TBE56 at 110 nM for 16 hours of pretreatment notably improves the viability of degenerative NPCs and reduces LDH release.
In vivo	TBE56, when used to pretreat bone marrow mesenchymal stem cells (BMSCs) with Prominin-2 overexpression at a concentration of 1×10^4 cells/μL and administered via intradiscal injection at 10 μL per rat every two weeks for a duration of two months, significantly ameliorates disc degeneration in a puncture-induced IVDD model in SD rats.

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.4581 mL	7.2903 mL	14.5807 mL
5 mM	0.2916 mL	1.4581 mL	2.9161 mL
10 mM	0.1458 mL	0.729 mL	1.4581 mL
50 mM	0.0292 mL	0.1458 mL	0.2916 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.