SY-LB-57

Cat. No.: HY-150793

CAS No.: 2253719-35-4

Molecular Formula: $C_{16}H_{13}N_3O$

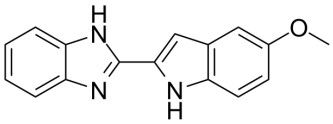
Molecular Weight: 263.29

Target: TGF-β Receptor

Pathway: TGF-beta/Smad

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 16.67 mg/mL (63.31 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.7981 mL	18.9905 mL	37.9809 mL
	5 mM	0.7596 mL	3.7981 mL	7.5962 mL
	10 mM	0.3798 mL	1.8990 mL	3.7981 mL

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description

SY-LB-57 is a highly potent bone morphogenetic protein (BMP) receptor signaling agonist. SY-LB-57 can be used in studies of diseases such as fractures and pulmonary arterial hypertension[1].

In Vitro

SY-LB-57 (0.01-1000 μM, 24 h) can significantly induce cell proliferation at concentrations below 10 μM with an IC_{50} value of 807.93 μM in C2C12 cells[1].

SY-LB-57 (0.01-10 μM, 15-30 min) increases the phosphorylation of Smad protein and promotes p-Smad nuclear translocation while activates the PI3K/Akt pathway and induces cytoplasmic localization of p-Akt[1].

SY-LB-57 (0.01-10 μM, 24 h) can induce cell cycle shift towards proliferation[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	C2C12 cells
Concentration:	0.01-1000 μM

Incubation Time:	24 hours
Result:	Resulted in 85% reduction in the cell viability of C2C12 at 1 mM while increased cell viability by 280%, 290%, 200%, 150% and 50% at 0.01 μM, 0.1 μM, 1 μM, 10 μM and 100 μM, respectively.

Western Blot Analysis[1]

Cell Line:	C2C12 cells
Concentration:	0.01-10 μM
Incubation Time:	15min or 30 min
Result:	Significantly increased phosphorylation of Smad protein, 50% to 257% higher compared to control after 30 min. Showed a significant increase in p-Akt expression levels, exceeding the control by 667-1081% after 15 min.

Cell Cycle Analysis[1]

Cell Line:	C2C12 cells
Concentration:	0.01-10 μM
Incubation Time:	24 hours
Result:	Resulted in a significant decrease in the percentage of G0/G1 phase cells and a dramatic increase in S and G2/M phase cells.

REFERENCES

[1]. Sheyda Najafi, et al. Discovery of a novel class of benzimidazoles as highly effective agonists of bone morphogenetic protein (BMP) receptor signaling. Sci Rep. 2022 Jul 15;12(1):12146.

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