SY-LB-35

Cat. No.: HY-150795

CAS No.: 2603461-70-5

Molecular Formula: $C_{15}H_{11}N_3O$

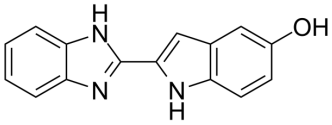
Molecular Weight: 249.27

Target: TGF-beta/Smad; PI3K; Akt; ERK; JNK

Pathway: Stem Cell/Wnt; TGF-beta/Smad; PI3K/Akt/mTOR; MAPK/ERK Pathway

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 : 100 mg/mL (401.17 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	4.0117 mL	20.0586 mL	40.1171 mL
	5 mM	0.8023 mL	4.0117 mL	8.0234 mL
	10 mM	0.4012 mL	2.0059 mL	4.0117 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (10.03 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (10.03 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

SY-LB-35 is a potent bone morphogenetic protein (BMP) receptor agonist. SY-LB-35 can stimulate significant increases in cell number and cell viability in the C2C12 myoblast cell line, and causes shifts towards the S and G2/M phases of the cell cycle. SY-LB-35 stimulates canonical Smad and non-canonical PI3K/Akt, ERK, p38 and JNK intracellular signaling pathways[1].

IC_{50} & Target

BMP[1]

In Vitro

SY-LB-35 (0.01-1000 μM; 24 h) stimulates significant increases in cell number and cell viability in the C2C12 myoblast cell line [1].

SY-LB-35 (0.01-10 μM; 30 min or 15 min) stimulates Smad phosphorylation and nuclear translocation, activates the PI3K/Akt pathway and direct the cytoplasmic localization of p-Akt, stimulates the phosphorylation and activation of PI3K in the C2C12

cells[1].

SY-LB-35 (0.01-10 μM; 24 h) causes the cell cycle shifting to S and G2/M phases in the C2C12 cells[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, 0.1, 1, 10, 100 and 1000 μM
Incubation Time:	24 h
Result:	Stimulated significant increases in cell number and cell viability.

Western Blot Analysis[1]

Cell Line:	C2C12 cells
Concentration:	0.01, 0.1, 1 and 10 μM
Incubation Time:	30 or 15 min
Result:	Stimulated Smad phosphorylation and nuclear translocation, activated the PI3K/Akt pathway and direct the cytoplasmic localization of p-Akt, stimulated the phosphorylation and activation of PI3K in the C2C12 cells.

Cell Cycle Analysis[1]

Cell Line:	C2C12 cells
Concentration:	0.01, 0.1, 1 and 10 μM
Incubation Time:	24 h
Result:	Caused the cell cycle shifting to S and G2/M phases.

REFERENCES

[1]. Najafi S, 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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