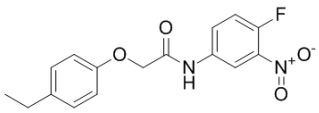
SJ000291942

Cat. No.:	HY-112331		
CAS No.:	425613-09-8		
Molecular Formula:	$C_{16}H_{15}FN_2O_4$		
Molecular Weight:	318.3		
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 : ≥ 150 mg/mL (471.25 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
	1 mM	3.1417 mL	15.7085 mL	31.4169 mL
	5 mM	0.6283 mL	3.1417 mL	6.2834 mL
	10 mM	0.3142 mL	1.5708 mL	3.1417 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 (7.85 mM); Clear solution
2. Add each solvent one by one: **10% DMSO >> 90% corn oil**
   Solubility: ≥ 2.5 mg/mL (7.85 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

SJ000291942 is an activator of the canonical bone morphogenetic proteins (**BMP**) signaling pathway. BMPs are members of the transforming growth factor beta (**TGFβ**) family of secreted signaling molecules.

IC_{50} & Target

BMP[1]

In Vitro

Embryos treated with SJ000291942 display the most severe ventralization and SJ000291942 is also the most potent. SJ000291942 also causes more mortality, and at lower doses than controls and the other two compounds. This demonstrates our compounds cause ventralization of embryos consistent with increased BMP signaling activity.

SJ000291942 causes an increase in bmp2b and szl expression. Zebrafish assays suggest that SJ000291942 activates the canonical BMP signaling pathway. To extend these observations, immunoblotting of protein lysates from C33A-2D2 cells stimulated with SJ000291942 at different times is performed. SJ000291942 activates phosphorylation of SMAD1/5/8 in serum-free medium. Like in zebrafish embryos, SJ000291942 is most active. SJ000291942 induces p-SMAD1/5/8 maximally at 1hr of treatment. Immunoblotting analysis of lysates from C33A-2D2 treated with SJ000291942 reveals clear induction of the phosphorylated Extracellular Signal-regulated protein Kinase, ERK1/2 (P-ERK1/2) by SJ000291942. The highest dose (100 and 300ng) BMP4 treatments generate a gene expression signature most similar to osteoblast expression. Low dose (10ng) BMP4 treatment aligns closely with 25μM compound 3 treatment and with 25μM SJ000291942[1].

REFERENCES

[1]. Genthe JR, et al. Ventromorphins: A New Class of Small Molecule Activators of the Canonical BMP Signaling Pathway. ACS Chem Biol. 2017 Sep 15;12(9):2436-2447.

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