SB-431542 (GMP)

Cat. No.: HY-10431G

CAS No.: 301836-41-9

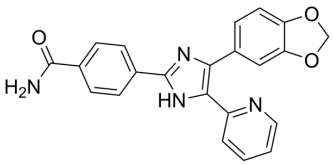
Molecular Formula: $C_{22}H_{16}N_4O_3$

Molecular Weight: 384.39

Target: TGF-β Receptor

Pathway: TGF-beta/Smad

Storage: -20°C, sealed storage, away from moisture and light
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light)



BIOLOGICAL ACTIVITY

Description

SB-431542 (GMP) is SB-431542 (HY-10431) produced by using GMP guidelines. GMP small molecules works appropriately as an auxiliary reagent for cell therapy manufacture. SB-431542 is a TGF-β receptor kinase inhibitor (TRKI) in SMAD signaling[1][2][3].

IC_{50} & Target

ALK4	ALK5	ALK7
1 μM (IC_{50})	0.75 μM (IC_{50})	2 μM (IC_{50})

In Vitro

SB-431542 (GMP) (10 μM; 10 days) induces human pluripotent stem cells (hPSCs) to post-mitotic cortical neurons differentiation[1].
SB-431542 (GMP) (10 μM) facilitates directed differentiation into midbrain dopamine neurons (mDA)[2].
SB-431542 (GMP) (3.8 μM) promotes differentiation of hPSCs to multipotent hematopoietic progenitors that arise from $SOX17^+$ hemogenic endothelium in vitro[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

RT-PCR[1]

Cell Line:	Human pluripotent stem cells (hPSCs)
Concentration:	10 μM
Incubation Time:	10 days
Result:	Showed downregulation of the pluripotency marker OCT4 and induction of neural and neuronal markers PAX6, FOXG1 and DCX, as well as markers of early born cortical neurons, including TBR1 (preplate, subplate and layer VI) and REELIN, in LSB+X/P/S/D conditions.

CUSTOMER VALIDATION

- Immunity. 2022 Mar 15;S1074-7613(22)00124-8.
- Nat Genet. 2024 Jan 24.
- Cell Metab. 2022 Aug 15;S1550-4131(22)00313-8.

- Nat Biomed Eng. 2022 Nov 24.
- Gut. 2022 Jan 7;gutjnl-2021-325018.

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REFERENCES

[1]. Yuchen Qi, et al. Combined small-molecule inhibition accelerates the derivation of functional cortical neurons from human pluripotent stem cells. Nat Biotechnol. 2017 Feb;35(2):154-163.

[2]. Tae Wan Kim, et al. Biphasic Activation of WNT Signaling Facilitates the Derivation of Midbrain Dopamine Neurons from hESCs for Translational Use. Cell Stem Cell. 2021 Feb 4;28(2):343-355.e5.

[3]. Monica Nafria, et al. Protocol for the Generation of Definitive Hematopoietic Progenitors from Human Pluripotent Stem Cells. STAR Protoc. 2020 Oct 16;1(3):100130.

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