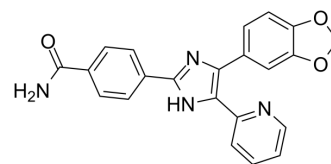


SB-431542 (GMP)

Cat. No.:	HY-10431G
CAS No.:	301836-41-9
Molecular Formula:	C ₂₂ H ₁₆ N ₄ O ₃
Molecular Weight:	384.39
Target:	TGF-β Receptor
Pathway:	TGF-beta/Smad
Storage:	-20°C, 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 1 μM (IC ₅₀)	ALK5 0.75 μM (IC ₅₀)	ALK7 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

- Cell. 2024 Nov 14;187(23):6566-6583.e22.
- Cancer Cell. 2025 May 12;43(5):856-874.e9.
- Nat Methods. 2024 Dec 9.

- Immunity. 2022 Mar 15;S1074-7613(22)00124-8.
- Nat Genet. 2024 Feb;56(2):294-305.

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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.

Caution: Product has not been fully validated for medical applications. For research use only.

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