IWP-2 (GMP)

Cat. No.: HY-13912G

CAS No.: 686770-61-6

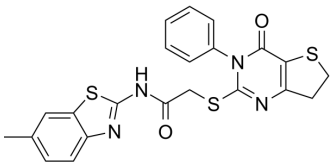
Molecular Formula: $C_{22}H_{18}N_4O_2S_3$

Molecular Weight: 466.6

Target: Wnt

Pathway: Stem Cell/Wnt

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

IWP-2 (GMP) is IWP-2 (HY-13912) produced by using GMP guidelines. GMP small molecules work appropriately as an auxiliary reagent for cell therapy manufacture. IWP-2 is an inhibitor of Wnt processing and secretion with an IC_{50} of 27 nM. IWP-2 targets the membrane-bound O-acyltransferase porcupine (Porcn) and blocks Wnt ligand palmitoylation[1].

IC_{50} & Target

IC50: 27 nM (Wnt)[1]

In Vitro

IWP-2 (GMP) (2 μM, in the first 4 days of Stage IV induction medium) reprograms human somatic cells to pluripotent stem cells[1].

IWP-2 (GMP) (5 μM, day 3 to 5) induces cardiac differentiation of hiPSCs[2].

IWP-2 (GMP) (5 μM, day 1 to 3) increasing the expression of cardiac progenitors and cardiac genes (MYL2, TNNI3, and TNNT2) in hiPSCs[3].

IWP-2 (GMP) (5 μM, day 5-7) together with PIP-S2 induces cardiac mesoderm differentiates into functional cardiomyocytes[4].

IWP-2 (GMP) (5 μM, treated at day 3) induces cardiomyocyte differentiation when applied following a pretreatment with Laduviglusib (GMP) (HY-10182G)[5].

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

RT-PCR[3]

Cell Line:	hiPSCs
Concentration:	5 μM
Incubation Time:	day 1 to 3
Result:	Reduced the expression of anti-cardiac mesoderm genes, and increased the expression of cardiac progenitors and cardiac genes (MYL2, TNNI3, and TNNT2).

CUSTOMER VALIDATION

- Adv Mater. 2021 Oct 10;e2104829.
- Dev Cell. 2020 Dec 21;55(6):679-694.e11.

- Stem Cells Transl Med. 2021 May;10(5):743-755.
- J Cell Physiol. 2020 Jul;235(7-8):5811-5822.
- Biochem Pharmacol. 2019 Nov;169:113608.

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REFERENCES

[1]. Guan J et al. Chemical reprogramming of human somatic cells to pluripotent stem cells. Nature. 2022;605(7909):325-331.

[2]. Hamad S, et al. Generation of human induced pluripotent stem cell-derived cardiomyocytes in 2D monolayer and scalable 3D suspension bioreactor cultures with reduced batch-to-batch variations. Theranostics. 2019 Sep 25;9(24):7222-7238.

[3]. Le MNT, et al. Auto/paracrine factors and early Wnt inhibition promote cardiomyocyte differentiation from human induced pluripotent stem cells at initial low cell density. Sci Rep. 2021 Nov 2;11(1):21426.

[4]. Taniguchi J, et al. A synthetic DNA-binding inhibitor of SOX2 guides human induced pluripotent stem cells to differentiate into mesoderm. Nucleic Acids Res. 2017 Sep 19;45(16):9219-9228.

[5]. Lian X, Zhang J, et al. Directed cardiomyocyte differentiation from human pluripotent stem cells by modulating Wnt/β-catenin signaling under fully defined conditions. Nat Protoc. 2013 Jan;8(1):162-75.

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