# PluriSIn 1

**Cat. No.:** HY-15700

**CAS No.:** 91396-88-2

**Molecular Formula:** $C_{12}H_{11}N_3O$

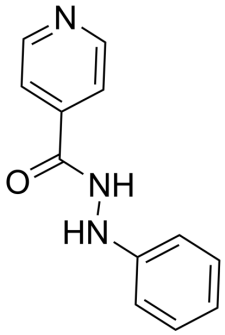
**Molecular Weight:** 213.24

**Target:** Stearoyl-CoA Desaturase (SCD); Apoptosis

**Pathway:** Metabolic Enzyme/Protease; Apoptosis

**Storage:**

| | | |
|---|---|---|
| Powder | -20°C | 3 years |
| | 4°C | 2 years |
| In solvent | -80°C | 2 years |
| | -20°C | 1 year |



## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : ≥ 100 mg/mL (468.96 mM)

* "≥" means soluble, but saturation unknown.

**Preparing Stock Solutions**

| Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|
| 1 mM | 4.6896 mL | 23.4478 mL | 46.8955 mL |
| 5 mM | 0.9379 mL | 4.6896 mL | 9.3791 mL |
| 10 mM | 0.4690 mL | 2.3448 mL | 4.6896 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 (11.72 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (11.72 mM); Clear solution

## BIOLOGICAL ACTIVITY

**Description**

PluriSIn 1 (NSC 14613) is an inhibitor of stearoyl-coA desaturase (SCD), and is a pluripotent cell-specific inhibitor.

**$IC_{50}$ & Target**

SCD[1]

**In Vitro**

PluriSIn 1, a small-molecule inhibitor of stearoyl-coA desaturase (SCD), on induced pluripotent stem cells (iPS)-derived cardiomyocytes (CM). PluriSIn 1 treatment significantly decreases the mRNA and protein level of Nanog, a marker for both cell pluripotency and tumor progression; importantly, we provide evidence that PluriSIn 1 treatment at 20 μM for 1 day significantly induces the apoptosis of Nanog-positive iPS derivates (iPSD). In addition, PluriSIn 1 treatment at 20 μM for 4 days diminished Nanog-positive stem cells in cultured iPSD while not increasing apoptosis of iPS-derived CM. To investigate

whether PluriSIn 1 treatment prevents tumorigenicity of iPSD after cell transplantation, we intramyocardially injected PluriSIn 1- or DMSO-treated iPSD in a mouse model of myocardial infarction (MI). DMSO-treated iPSD readily formed Nanog-expressing tumors 2 weeks after injection, which is prevented by treatment with PluriSIn 1. Moreover, treatment with PluriSIn 1 does not change the expression of cTnI, α-MHC, or MLC-2v, markers of cardiac differentiation (P>0.05, n=4). Importantly, PluriSIn 1-treated iPS-derived CM exhibits the ability to engraft and survive in the infarcted myocardium[1].

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

## PROTOCOL

**Cell Assay** [1]

The differentiation of iPS cells to cardiomyocytes (CM) is induced by embryoid body (EB) formation. When iPS cells reached 70% confluency in 10-cm dishes, cells are digested using 0.25% trypsin/EDTA. Cell pellets are re-suspended in differentiation medium (DMEM with 20% FBS and 10 ng/mL BMP4) to a final concentration of 200,000 cells/mL. Cell suspensions are added to 6-well plates with Ulta-Low Attachment surfaces for 4 d to initiate EB formation. On day 5, EBs are cultured on 0.1% gelatin-coated dishes for 14 d using CF culture medium for the outgrowth of cardiac structures. At this stage, iPS cells undergoing EB formation are termed iPS derivates (iPSD)[1].

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

## CUSTOMER VALIDATION

- Mol Cell. 2019 Mar 7;73(5):1001-1014.e8.
- Sci China Life Sci. 2021 May 27;1-21.
- Int J Biol Macromol. 2023 Dec 4:128583.

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## REFERENCES

[1]. Zhang L, et al. Inhibition of stearoyl-coA desaturase selectively eliminates tumorigenic Nanog-positive cells: improving the safety of iPS cell transplantation to myocardium. Cell Cycle. 2014;13(5):762-71.



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