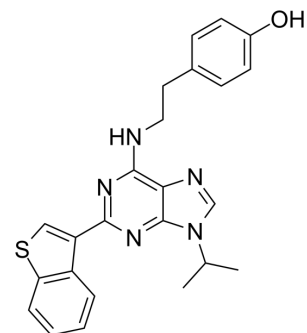


Stemregenin 1

| | | | |
|---------------------------|---|-------|---------|
| Cat. No.: | HY-15001 | | |
| CAS No.: | 1227633-49-9 | | |
| Molecular Formula: | C ₂₄ H ₂₃ N ₅ OS | | |
| Molecular Weight: | 429.54 | | |
| Target: | Aryl Hydrocarbon Receptor | | |
| Pathway: | Immunology/Inflammation | | |
| 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 : 62.5 mg/mL (145.50 mM; Need ultrasonic) | | | | |
| | | Solvent Concentration | Mass 1 mg | 5 mg | 10 mg |
| | Preparing Stock Solutions | 1 mM | 2.3281 mL | 11.6404 mL | 23.2807 mL |
| | | 5 mM | 0.4656 mL | 2.3281 mL | 4.6561 mL |
| 10 mM | | 0.2328 mL | 1.1640 mL | 2.3281 mL | |
| Please refer to the solubility information to select the appropriate solvent. | | | | | |
| In Vivo | <ol style="list-style-type: none"> Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.5 mg/mL (5.82 mM); Clear solution Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: 2.5 mg/mL (5.82 mM); Suspended solution; Need ultrasonic Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.5 mg/mL (5.82 mM); Clear solution | | | | |

BIOLOGICAL ACTIVITY

| | |
|-------------------------------------|--|
| Description | Stemregenin 1 is a potent aryl hydrocarbon receptor (AhR) antagonist with IC ₅₀ of 127 nM. |
| IC₅₀ & Target | IC ₅₀ : 127 nM (AhR) ^[1] |
| In Vitro | Stemregenin 1 (SR1) acts by antagonizing the aryl hydrocarbon receptor (AhR). Stemregenin 1 increases the number of CD34 ⁺ cells after 5 to 7 days with an EC ₅₀ of ~120 nM. Stemregenin 1 inhibits photoaffinity ligand (PAL) binding (IC ₅₀ =40 nM) These results support the conclusion that Stemregenin 1-induced CD34 ⁺ cell expansion is mediated through direct binding and |

inhibition of the AhR^[1]. An aryl hydrocarbon receptor antagonist, Stemregenin 1 (SR1), robustly promotes ex vivo expansion of human CD34⁺ cells. Stemregenin 1 treatment accelerates the proliferation of CD34⁺ cells and decreases the expression levels of VentX^[2].

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

PROTOCOL

Cell Assay ^[1]

A quantity of 250,000 CB-derived CD34⁺ cells are cultured with control conditions (DMSO, 0.01%) or StemRegenin 1 (0.75 μM) for 3 weeks. At this point control cultures had expanded 1080-fold and StemRegenin 1 treated cells expanded 2024-fold relative to starting cell numbers. A quantity of 30 to 30,000 uncultured CD34⁺ CB-derived cells or a fraction of the final culture equivalent to 30 to 10,000 starting cells are transplanted. The cells are injected intravenously via the retro-orbital route into sub-lethally irradiated (300 rads, 200 rads) 6- to 10-week-old NSG mice. Engraftment is performed within 24 h after irradiation. Engraftment is monitored by flow cytometric analysis of blood obtained via retro-orbital sinus or bone marrow using anti-human CD45 and anti-mouse CD45 antibodies. The mice are sacrificed between 13-16 weeks posttransplantation; bone marrow (from both femurs and tibiae), spleen and thymus are collected for analysis. For secondary engraftment, 50% of the bone marrow from each recipient mouse is transplanted into one secondary sub-lethally irradiated NSG mouse. Fifteen weeks after transplantation, bone marrow is harvested from the secondary mice and analyzed by flow cytometry^[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Sci Adv. 2022 Mar 18;8(11):eabf8627.
- J Hazard Mater. 2020 Mar 5;385:121521.
- Theranostics. 2021; 11(18):8797-8812.
- Int J Biol Macromol. 2023 Sep 15;126920.
- Ecotoxicol Environ Saf. 2023 Dec 5:269:115782.

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REFERENCES

[1]. Boitano AE, et al. Aryl Hydrocarbon Receptor Antagonists Promote the Expansion of Human Hematopoietic Stem Cells. Science. 2010 Sep 10;329(5997):1345-8.

[2]. Gao H, et al. Suppression of homeobox transcription factor VentX promotes expansion of human hematopoietic stem/multipotent progenitor cells. J Biol Chem. 2012 Aug 24;287(35):29979-87.

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

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