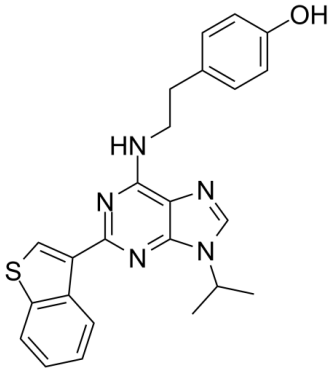
Data Sheet

Product Name:	StemRegenin 1
Cat. No.:	CS-1643
CAS No.:	1227633-49-9
Molecular Formula:	C24H23N5OS
Molecular Weight:	429.54
Target:	Aryl Hydrocarbon Receptor
Pathway:	Immunology/Inflammation
Solubility:	DMSO : ≥ 100 mg/mL (232.81 mM); H2O : < 0.1 mg/mL (insoluble)



BIOLOGICAL ACTIVITY:

StemRegenin 1 is a potent aryl hydrocarbon receptor (**AhR**) antagonist with **IC_{50}** of 127 nM. IC50 & Target: IC50: 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].

PROTOCOL (Extracted from published papers and Only for reference)

Cell Assay: StemRegenin 1 (SR1) is prepared in DMSO and stored, and then diluted with appropriate medium before use[1].[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].

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.

CAIndexNames:

Phenol, 4-[2-[[2-benzo[b]thien-3-yl-9-(1-methylethyl)-9H-purin-6-yl]amino]ethyl]-

SMILES:

CC(C)N1C2=NC(C3=CSC4=C3C=CC=C4)=NC(NCCC5=CC=C(O)C=C5)=C2N=C1

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

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