

Product data sheet



MedKoo Cat#: 531295 Name: StemRegenin 1 CAS#: 1227633-49-9 Chemical Formula: C ₂₄ H ₂₃ N ₅ OS Exact Mass: 429.1623 Molecular Weight: 429.54	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

StemRegenin 1 is an aryl hydrocarbon receptor (AHR) antagonist. StemRegenin 1 exhibits no inhibitory activity against a panel of 61 kinases and preferentially inhibits human AHR. StemRegenin 1 promotes the expansion of CD34+ cells ex vivo. In hematopoietic stem cell (HSC) culture, the compound induces a 50-fold increase in CD34-expressing cells, and HSCs cultured with StemRegenin 1 show increased engraftment in mice. Combination of StemRegenin 1 with DMOG increases the proportion of primitive HSCs and improves long-term engraftment. The product also promotes expansion of human promyelocytic leukemia cell line NB4.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	62.50	145.50

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.33 mL	11.64 mL	23.28 mL
5 mM	0.47 mL	2.33 mL	4.66 mL
10 mM	0.23 mL	1.16 mL	2.33 mL
50 mM	0.05 mL	0.23 mL	0.47 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

- Koide R, Kulkeaw K, Tanaka Y, Swain A, Nakanishi Y, Sugiyama D. Aryl Hydrocarbon Receptor Antagonist StemRegenin 1 Promotes the Expansion of Human Promyelocytic Leukemia Cell Line, NB4. *Anticancer Res.* 2016 Jul;36(7):3635-43. PMID: 27354634.
- Boitano AE, Wang J, Romeo R, Bouchez LC, Parker AE, Sutton SE, Walker JR, Flaveny CA, Perdew GH, Denison MS, Schultz PG, Cooke MP. Aryl hydrocarbon receptor antagonists promote the expansion of human hematopoietic stem cells. *Science.* 2010 Sep 10;329(5997):1345-8. doi: 10.1126/science.1191536. Epub 2010 Aug 5. Erratum in: *Science.* 2011 May 6;332(6030):664. PMID: 20688981; PMCID: PMC3033342.

In vivo study

- Hwang YJ, Shin DY, Kim MJ, Jang H, Kim S, Yang H, Jang WI, Park S, Shim S, Lee SB. StemRegenin 1 Mitigates Radiation-Mediated Hematopoietic Injury by Modulating Radioresponse of Hematopoietic Stem/Progenitor Cells. *Biomedicines.* 2023 Mar 8;11(3):824. doi: 10.3390/biomedicines11030824. PMID: 36979803; PMCID: PMC10045038.

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2. Koide R, Kulkeaw K, Tanaka Y, Swain A, Nakanishi Y, Sugiyama D. Aryl Hydrocarbon Receptor Antagonist StemRegenin 1 Promotes the Expansion of Human Promyelocytic Leukemia Cell Line, NB4. *Anticancer Res.* 2016 Jul;36(7):3635-43. PMID: 27354634.

7. Bioactivity

Biological target:

StemRegenin 1 is a potent AHR antagonist with IC50 of 127 nM.

In vitro activity

StemRegenin 1 promoted the ex vivo expansion of CD34+ cells. Culture of hematopoietic stem cells with SR1 led to a 50-fold increase in cells expressing CD34 and a 17-fold increase in cells that retain the ability to engraft immunodeficient mice. Mechanistic studies show that SR1 acts by antagonizing the aryl hydrocarbon receptor.

Reference: *Science*. 2010 Sep 10;329(5997):1345-8. <https://pubmed.ncbi.nlm.nih.gov/20688981/>

In vivo activity

StemRegenin 1 may help increase patient survival after irradiation because it modulated the radioresponse of hematopoietic stem/progenitor cells. Treatment with StemRegenin 1 after irradiation of C57BL/6 mice significantly mitigated TBI-induced death (80% survival vs. 30% saline treatment survival) with enhanced recovery of peripheral blood cell counts.

Reference: *Biomedicines*. 2023 Mar 8;11(3):824. <https://pubmed.ncbi.nlm.nih.gov/36979803/>

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.