StemRegenin 1 (SR1) is an antagonist of the aryl hydrocarbon receptor (AhR). It promotes ex vivo expansion of CD34+ human hematopoietic stem cells (Boitano et al.; Csaszar et al.) and the generation of CD34+ hematopoietic progenitor cells from non-human primate induced pluripotent stem (iPS) cells (Gori et al.). SR1 has been shown to collaborate with UM729 (Catalog #72332) in preventing differentiation of acute myeloid leukemia (AML) cells in culture (Pabst et al.). SR1 also stimulates the proliferation and differentiation of CD34+ hematopoietic progenitor cells into dendritic cells (Thordardottir et al.).

**Structure:**

![Structure of StemRegenin 1](image)

**Product Description**

StemRegenin 1 (SR1) is an antagonist of the aryl hydrocarbon receptor (AhR). It promotes ex vivo expansion of CD34+ human hematopoietic stem cells (Boitano et al.; Csaszar et al.) and the generation of CD34+ hematopoietic progenitor cells from non-human primate induced pluripotent stem (iPS) cells (Gori et al.). SR1 has been shown to collaborate with UM729 (Catalog #72332) in preventing differentiation of acute myeloid leukemia (AML) cells in culture (Pabst et al.). SR1 also stimulates the proliferation and differentiation of CD34+ hematopoietic progenitor cells into dendritic cells (Thordardottir et al.).

**Molecular Name:** StemRegenin 1
**Alternative Names:** SR1
**CAS Number:** 1227633-49-9
**Chemical Formula:** C₂₄H₂₃N₅O₅S
**Molecular Weight:** 429.5 g/mol
**Purity:** ≥ 98%
**Chemical Name:** 4-[[2-[benzo[b]thien-3-yl-9-(1-methylethyl)-9H-purin-6-yl]amino]ethyl]-phenol

**Properties**

**Physical Appearance:** A crystalline solid

**Storage:**

- Product stable at -20°C as supplied. Protect from prolonged exposure to light.
- Stable as supplied for 12 months from date of receipt.

**Solubility:**

- DMSO ≤ 25 mM
- For example, to prepare a 10 mM stock solution in DMSO, resuspend 1 mg in 233 μL of DMSO.

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.
Published Applications

MAINTENANCE AND SELF-RENEWAL
- Promotes maintenance and expansion of human hematopoietic stem cells in culture (Boitano et al.; Csaszar et al.).

DIFFERENTIATION
- Stimulates differentiation of CD34+ hematopoietic progenitor cells into functional human dendritic cells (Thordardottir et al.).
- Promotes hematopoietic differentiation of iPS cells (Gori et al.).

CANCER RESEARCH
- Collaborates with UM729 in preventing differentiation of AML cells in culture (Pabst et al.).

References

Thordardottir S et al. (2014) The aryl hydrocarbon receptor antagonist StemRegenin 1 promotes human plasmacytoid and myeloid dendritic cell development from CD34+ hematopoietic progenitor cells. Stem Cells Dev 23(9): 955–67.

Related Small Molecules

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