Small Molecules

StemRegenin 1 (Hydrochloride)

Aryl hydrocarbon receptor (AHR) antagonist

Catalog #	72352	1 mg
	72354	5 mg

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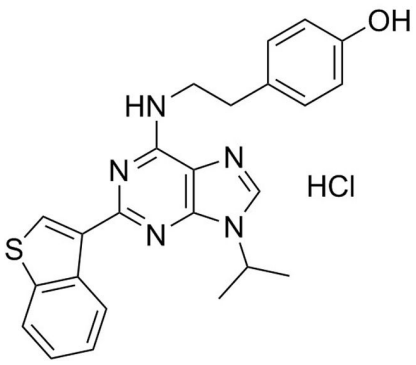
Product Description

StemRegenin1 (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 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 (Hydrochloride)
Alternative Names:	SR1 (Hydrochloride)
CAS Number:	N/A
Chemical Formula:	$C_{24}H_{23}N_5OS \cdot HCl$
Molecular Weight:	466.0 g/mol
Purity:	≥98%
Chemical Name:	4-(2-((2-(benzo[b]thiophen-3-yl)-9-isopropyl-9H-purin-6-yl)amino)ethyl) phenol, monohydrochloride
Structure:	



Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect from prolonged exposure to light. For product expiry date, please contact techsupport@stemcell.com.
Solubility:	· DMSO ≤ 10 mM For example, to prepare a 5 mM stock solution in DMSO, resuspend 1 mg in 429 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 induced pluripotent stem cells (iPS; Gori et al.).
CANCER RESEARCH
· Collaborates with UM729 in preventing differentiation of AML cells in culture (Pabst et al.).

References

Boitano AE et al. (2010) Aryl hydrocarbon receptor antagonists promote the expansion of human hematopoietic stem cells. Science 329(5997): 1345–8.
Csaszar E et al. (2012) Rapid expansion of human hematopoietic stem cells by automated control of inhibitory feedback signaling. Cell Stem Cell 10(2): 218–29.
Gori JL et al. (2012) Efficient generation, purification, and expansion of CD34(+) hematopoietic progenitor cells from nonhuman primate-induced pluripotent stem cells. Blood 120(13): e35–44.
Pabst C et al. (2014) Identification of small molecules that support human leukemia stem cell activity ex vivo. Nat Methods 11(4): 436–42.
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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