Small Molecules

Sirtinol

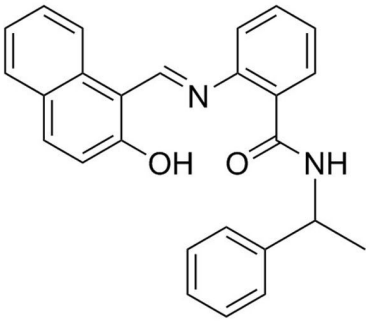
Epigenetic modifier; Inhibitor of Sir2p, SIRT1, and SIRT2

Catalog #	73822	1 mg
	73824	10 mg

STEMCELL™ TECHNOLOGIES
Scientists Helping Scientists™ | WWW.STEMCELL.COM
TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713
INFO@STEMCELL.COM • TECHSUPPORT@STEMCELL.COM
FOR GLOBAL CONTACT DETAILS VISIT OUR WEBSITE

Product Description

Sirtinol is a cell-permeable inhibitor of sirtuin NAD+-dependent histone deacetylases (HDACs), including yeast Sir2p (IC_{50} = 68 µM; Grozinger et al.), human SIRT1 (IC_{50} = 131 µM; Schuetz et al.), and SIRT2 (IC_{50} = 38 µM; Grozinger et al.). It does not inhibit human HDAC1 activity (Grozinger et al.). Sirtinol also activates the auxin signaling pathway in Arabidopsis (Dai et al.).

Molecular Name:	Sirtinol
Alternative Names:	Sir Two Inhibitor Naphthol
CAS Number:	410536-97-9
Chemical Formula:	$C_{26}H_{22}N_2O_2$
Molecular Weight:	394.5 g/mol
Purity:	≥ 98%
Chemical Name:	2-[[(Z)-(2-oxonaphthalen-1-ylidene)methyl]amino]-N-(1-phenylethyl)benzamide
Structure:	

Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect product from prolonged exposure to light. For long-term storage store with a desiccant. For product expiry date, please contact techsupport@stemcell.com.
Solubility:	· DMSO ≤ 25 mM For example, to prepare a 10 mM stock solution in DMSO, resuspend 1 mg in 253 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

IMMUNOLOGY
· Suppresses inflammatory signaling in human dermal microvascular endothelial cells (Orecchia et al.).
CANCER RESEARCH
· Enhances apoptosis and cell death in leukemic cells, but not in healthy leukocytes and hematopoietic progenitors (Cea et al.).
· Induces senescence-like growth arrest in human cancer cell lines MCF-7 and H1299 (Ota et al.; Wang et al.).

References

Cea M et al. (2011) Synergistic interactions between HDAC and sirtuin inhibitors in human leukemia cells. PLoS One 6(7): e22739.
Dai X et al. (2005) Genetic and chemical analyses of the action mechanisms of sirtinol in Arabidopsis. Proc Natl Acad Sci U S A 102(8): 3129–34.
Grozinger CM et al. (2001) Identification of a class of small molecule inhibitors of the sirtuin family of NAD-dependent deacetylases by phenotypic screening. J Biol Chem 276(42): 38837–43.
Orecchia A et al. (2011) Sirtinol treatment reduces inflammation in human dermal microvascular endothelial cells. PLoS One 6(9): e24307.
Ota H et al. (2006) Sirt1 inhibitor, Sirtinol, induces senescence-like growth arrest with attenuated Ras-MAPK signaling in human cancer cells. Oncogene 25(2): 176–85.
Schuetz A et al. (2007) Structural basis of inhibition of the human NAD+-dependent deacetylase SIRT5 by suramin. Structure 15(3): 377–89.
Wang J et al. (2012) Sirtinol, a class III HDAC inhibitor, induces apoptotic and autophagic cell death in MCF-7 human breast cancer cells. Int J Oncol 41(3): 1101–9.

Related Small Molecules

For a complete list of small molecules available from STEMCELL Technologies, please visit our website at www.stemcell.com/smallmolecules or contact us at techsupport@stemcell.com.

This product is hazardous. Please refer to the Safety Data Sheet (SDS).