Small Molecules

Anacardic Acid

Epigenetic modifier; Inhibits histone acetyltransferase (HAT)

Catalog #	73192	1 mg
	73194	5 mg

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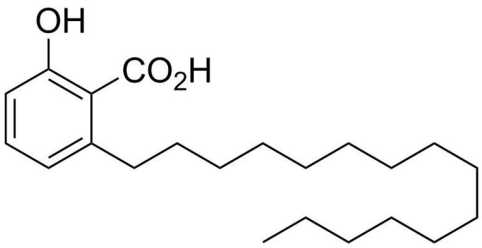
Product Description

Anacardic Acid is a 6-alkyl salicyclic acid that inhibits the histone acetyltransferase (HAT) activity of the transcription co-activators p300 and p300/CREB-binding protein-associated factor (pCAF; IC_{50} values of 8.5 and 5 µM, respectively; Balasubramanyam et al.). Anacardic Acid inhibits HAT-dependent transcription and protein SUMOylation (Cui et al.; Fukuda et al.). In addition, Anacardic Acid is an activator of Aurora kinase A-mediated phosphorylation of Histone H3 (Kishore et al.). At higher concentrations (25 µM), Anacardic Acid suppresses NF-κB activation and inhibits IκB-α phosphorylation (Sung et al.).

Molecular Name:	Anacardic Acid
Alternative Names:	Not applicable
CAS Number:	16611-84-0
Chemical Formula:	$C_{22}H_{36}O_3$
Molecular Weight:	348.5 g/mol
Purity:	≥ 98%
Chemical Name:	2-hydroxy-6-pentadecylbenzoic acid
Structure:	

Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect from prolonged exposure to light. For long-term storage store with a desiccant. Stable as supplied for 12 months from date of receipt.
Solubility:	· DMSO ≤ 25 mM · Absolute ethanol ≤ 25 mM For example, to prepare a 10 mM stock solution in DMSO, resuspend 1 mg in 287 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

DIFFERENTIATION
· Enhances cardiomyocyte differentiation from mouse embryonic stem cells (Re et al.).
IMMUNOLOGY
· Induces macrophage activation (Gnanaprakasam et al.).
· Exhibits inhibitory and bactericidal activities against methicillin-resistant Staphylococcus aureus (Muroi & Kubo).
CANCER RESEARCH
· Potentiates the apoptosis induced by cytokine and chemotherapeutic agents in cancer cells (Sung et al.).
· Sensitizes tumor cells to ionizing radiation in vitro (Sun et al.).

References

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Fukuda I et al. (2009) Ginkgolic acid inhibits protein SUMOylation by blocking formation of the E1-SUMO intermediate. Chem Biol 16(2): 133–40.
Gnanaprakasam JN et al. (2015) The anacardic 6-pentadecyl salicylic acid induces macrophage activation via the phosphorylation of ERK1/2, JNK, P38 kinases and NF-κB. Int Immunopharmacol 29(2): 808–17.
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Muroi H & Kubo I. (1996) Antibacterial activity of anacardic acid and totarol, alone and in combination with methicillin, against methicillin-resistant Staphylococcus aureus. J Appl Bacteriol 80(4): 387–94.
Re A et al. (2015) Anacardic acid and thyroid hormone enhance cardiomyocytes production from undifferentiated mouse ES cells along functionally distinct pathways. Endocrine 53(3): 681–8.
Sun Y et al. (2006) Inhibition of histone acetyltransferase activity by anacardic acid sensitizes tumor cells to ionizing radiation. FEBS Lett 580(18): 4353–6.
Sung B et al. (2008) Anacardic acid (6-nonadecyl salicylic acid), an inhibitor of histone acetyltransferase, suppresses expression of nuclear factor-κB-regulated gene products involved in cell survival, proliferation, invasion, and inflammation through inhibition of the inhibitory subunit of nuclear factor-κBα kinase, leading to potentiation of apoptosis. Blood 111(10): 4880–91.

Related Small Molecules

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