

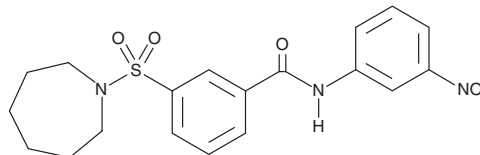
PRODUCT INFORMATION



AK-1

Item No. 21276

CAS Registry No.: 330461-64-8
Formal Name: 3-[(hexahydro-1H-azepin-1-yl)sulfonyl]-
N-(3-nitrophenyl)-benzamide
MF: C₁₉H₂₁N₃O₅S
FW: 403.5
Purity: ≥90%
UV/Vis.: λ_{max}: 263 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

AK-1 is supplied as a crystalline solid. A stock solution may be made by dissolving the AK-1 in the solvent of choice, which should be purged with an inert gas. AK-1 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of AK-1 in these solvents is approximately 0.3, 1, and 10 mg/ml, respectively.

AK-1 is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, AK-1 should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. AK-1 has a solubility of approximately 0.25 mg/ml in a 1:3 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

AK-1 is a sirtuin 2 (SIRT2) inhibitor (IC₅₀ = 12.5 μM).¹ It induces the formation of α-synuclein aggregates in H4 neuroglioma cells expressing α-synuclein and synphilin-1.² AK-1 (5 μM) decreases total cholesterol levels in Neuro2a and primary rat striatal neurons, as well as in hippocampal slice cultures.¹ It increases ubiquitination of hypoxia-inducible factor-1α (HIF-1α) in A549 cells and decreases HIF-1α levels in A549, HeLa, HEK293, and HEK293T cells under hypoxic conditions when used at a concentration of 10 μM.³ AK-1 (1 and 10 μM in the diet) decreases the loss of rhabdomeres in the ommatidium in the *UAS-Httex1p-Q93* transgenic *Drosophila* model of Huntington's disease.⁴ Dietary administration of AK-1 (500 and 1,000 μM) prevents dopaminergic neuronal cell death in the dorsomedial cluster in the *elav-GAL4* transgenic *Drosophila* model of Parkinson's disease.²

References

1. Taylor, D.M., Balabadra, U., Xiang, Z., *et al.* A brain-permeable small molecule reduces neuronal cholesterol by inhibiting activity of sirtuin 2 deacetylase. *ACS Chem Biol.* **6(6)**, 540-546 (2011).
2. Outeiro, T.F., Kontopoulos, E., Altmann, S.M., *et al.* Sirtuin 2 inhibitors rescue α-synuclein-mediated toxicity in models of Parkinson's disease. *Science* **317(5837)**, 516-519 (2007).
3. Lee, S.D., Kim, W., Jeong, J.-W., *et al.* AK-1, a SIRT2 inhibitor, destabilizes HIF-1α and diminishes its transcriptional activity during hypoxia. *Cancer Lett.* **373(1)**, 138-145 (2016).
4. Luthi-Carter, R., Taylor, D.M., Pallos, J., *et al.* SIRT2 inhibition achieves neuroprotection by decreasing sterol biosynthesis. *Proc. Natl. Acad. Sci. USA* **107(17)**, 7927-7932 (2010).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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