Small Molecules

AGK2

Epigenetic modifier; Inhibits SIRT2 histone deacetylase

Catalog #	73052	1 mg
	73054	10 mg

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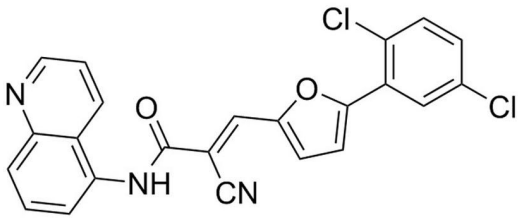
Product Description

AGK2 is a cell-permeable, reversible inhibitor of mammalian sirtuin 2 (SIRT2) activity (IC_{50} = 3.5 µM). It displays minimal activity against SIRT1 or SIRT3 (IC_{50} > 50 µM; Outeiro et al.). Its target, SIRT2, is a nicotinamide adenine dinucleotide (NAD)-dependent histone deacetylase (HDAC) with roles in neurodegeneration, aging, cell cycle progression, and tumorigenesis.

Molecular Name:	AGK2
Alternative Names:	SIRT2 inhibitor
CAS Number:	304896-28-4
Chemical Formula:	$C_{23}H_{13}Cl_2N_3O_2$
Molecular Weight:	434.3 g/mol
Purity:	≥ 95%
Chemical Name:	(E)-2-cyano-3-[5-(2,5-dichlorophenyl)furan-2-yl]-N-quinolin-5-ylprop-2-enamide
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 ≤ 2.3 mM For example, to prepare a 1 mM stock solution in DMSO, resuspend 1 mg in 2.3 mL 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
· Activates the NLRP3 inflammasome in mouse bone marrow-derived macrophages (Youm et al.).
CANCER RESEARCH
· Decreases aldehyde dehydrogenase (ALDH1)+ cancer stem cells in primary breast cancer populations (Zhao et al. 2014).
· Decreases SIRT2-induced autophagy in human cancer cell lines (Zhao et al. 2010).
DISEASE MODELING
· Protects dopaminergic neurons from α-synuclein-mediated toxicity in in vitro and in vivo models of Parkinson's disease (Outeiro et al.).

References

Outeiro TF et al. (2007) Sirtuin 2 inhibitors rescue alpha-synuclein-mediated toxicity in models of Parkinson's disease. Science 317(5837): 516–9.
Youm Y-H et al. (2015) The ketone metabolite β-hydroxybutyrate blocks NLRP3 inflammasome-mediated inflammatory disease. Nat Med 21(3): 263–9.
Zhao D et al. (2014) NOTCH-induced aldehyde dehydrogenase 1A1 deacetylation promotes breast cancer stem cells. J Clin Invest 124(12): 5453–65.
Zhao Y et al. (2010) Cytosolic FoxO1 is essential for the induction of autophagy and tumour suppressor activity. Nat Cell Biol 12(7): 665–75.

Related Small Molecules

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