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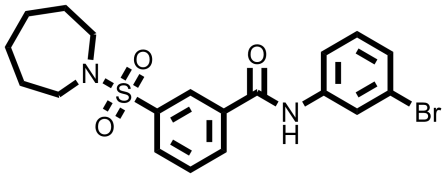
SIRT2 Inhibitor – AK-7

Chemical Name: 3-(1-azepanylsulfonyl)-N-(3-bromphenyl)benzamide



Molecular Weight:	437.35
Formula:	$C_{19}H_{21}BrN_2O_3S$
Purity:	≥98%
CAS#:	420831-40-9
Solubility:	DMSO up to 100 mM
Storage	Powder: 4 °C 1 year DMSO: 4 °C 3 month -20 °C 1 year

Biological Activity:

AK-7 is a cell- and brain-permeable, selective sirtuin SIRT2 inhibitor (IC_{50} ~15.5 μM), displays no effect on SIRT1 or SIRT3. It diminishes neuronal cell death induced by mutant huntingtin fragment. It also down-regulates cholesterol biosynthetic gene expression and reduces total cholesterol levels in neurons in vivo. In two genetic mouse models of Huntington's disease, AK-7 treatment resulted in improved motor function, extended survival, and reduced brain atrophy. AK-7 is a good chemical probe to study SIRT2's roles in metabolic diseases, cancer, age-related disorders, and neurodegenerative diseases.

How to Use:

In vitro: AK-7 was used at 10-25 μM in vitro and in cellular assays.

In vivo: AK-7 was administered by intraperitoneal injection to mice at 15-30 mg/kg/dose twice daily (formulation: 1.5 mg/mL in 25% Cremophor/10% DMSO in water).

Reference:

1. Taylor DM, et al. A brain-permeable small molecule reduces neuronal cholesterol by inhibiting activity of sirtuin 2 deacetylase. (2011) ACS Chem Biol. 6(6):540-6.
2. Chopra V, et al. The sirtuin 2 inhibitor AK-7 is neuroprotective in Huntington's disease mouse models. (2012) Cell Rep. 2(6):1492-7.