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产品名称：N-(3-溴苯基)-3-[(六氢-1H-氮杂卓-1-基)磺酰基]-苯甲酰胺
产品别名：AK-7

生物活性：

Description	AK-7 is a selective cell- and brain-permeable SIRT2 inhibitor, with an IC_{50} of 15.5 μM.
IC_{50} & Target	SIRT2
	15.5 μM (IC_{50})
In Vitro	AK-7 (10 μM) reduces cholesterol levels in naive N2a neuroblastoma cells and hippocampal slice cultures from wild-type mice. AK-7 (1 μM) shows neuroprotective effect of AK-7 in striatal Huntington's disease (HD) neurons[1]. AK-7 (12.5 μM) decreases ratio of DA neurons in primary midbrain cultures[3].
In Vivo	AK-7 (15 mg/kg/dose, i.p.) is brain-permeable in wild-type and HD mice[1]. AK-7 (10, 20 mg/kg, i.p.) improves the behavior and neuropathological phenotype and extends survival of R6/2 HD mice. AK-7 (20 mg/kg) ameliorates HD neuropathology in R6/2 mice. AK-7 also reduces the polyglutamine aggregation in R6/2 brain. In addition, AK-7 treated 140CAG mice show motor performance changes that parallel untreated wild-type mice, with the 20 mg/kg dose being most effective and significantly different from untreated 140CAG mice[2].
Solvent&Solubility	***In Vitro:***
	DMSO : ≥ 50 mg/mL (114.32 mM)
	* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.2865 mL	11.4325 mL	22.8650 mL
	5 mM	0.4573 mL	2.2865 mL	4.5730 mL
	10 mM	0.2286 mL	1.1432 mL	2.2865 mL

*请根据产品在不同溶剂中的溶解度选择合适的溶剂配制储备液；一旦配成溶液，请分装保存，避免反复冻融造成的产品失效。

储备液的保存方式和期限：-80°C, 6 months; -20°C, 1 month。-80°C 储存时，请在 6 个月内使用，-20°C 储存时，请在 1 个月内使用。

In Vivo:

请根据您的实验动物和给药方式选择适当的溶解方案。以下溶解方案都请先按照 In Vitro 方式配制澄清的储备液，再依次添加助溶剂：

——为保证实验结果的可靠性，澄清的储备液可以根据储存条件，适当保存；体内实验的工作液，建议您现用现配，当天使用； 以下溶剂前显示的百分比是指该溶剂在您配制终溶液中的体积占比；如在配制过程中出现沉淀、析出现象，可以通过加热和/或超声的方式助溶

1.请依序添加每种溶剂： 10% DMSO→40% PEG300 →5% Tween-80 → 45% saline

Solubility: ≥ 2.5 mg/mL (5.72 mM); Clear solution

此方案可获得 ≥ 2.5 mg/mL (5.72 mM，饱和度未知) 的澄清溶液。

以 1 mL 工作液为例，取 100 μL 25.0 mg/mL 的澄清 DMSO 储备液加到 400 μL PEG300 中，混合均匀；向上述体系中加入 50 μL Tween-80，混合均匀；然后继续加入 450 μL 生理盐水定容至 1 mL。

2.请依序添加每种溶剂： 10% DMSO →90% corn oil

	Solubility: ≥ 2.5 mg/mL (5.72 mM); Clear solution 此方案可获得 ≥ 2.5 mg/mL (5.72 mM，饱和度未知) 的澄清溶液，此方案不适用于实验周期在半个月以上的实验。 以 1 mL 工作液为例，取 100 μL 25.0 mg/mL 的澄清 DMSO 储备液加到 900 μL 玉米油中，混合均匀。
References	[1]. Taylor DM, et al. A brain-permeable small molecule reduces neuronal cholesterol by inhibiting activity of sirtuin 2 deacetylase. ACS Chem Biol. 2011 Jun 17;6(6):540-6. [2]. Chopra V, et al. The sirtuin 2 inhibitor AK-7 is neuroprotective in Huntington's disease mouse models. Cell Rep. 2012 Dec 27;2(6):1492-7. [3]. Szego EM, et al. Sirtuin 2 enhances dopaminergic differentiation via the AKT/GSK-3β/β-catenin pathway. Neurobiol Aging. 2017 Aug;56:7-16.

实验参考：

Cell Assay	Neuronal nuclear antigen (NeuN)-positive neurons and some astroglia are derived from mechanically dissociated ganglionic eminences of E16 rat embryos. The HD model is based on the expression of mutant huntingtin. Treatments of cultures with AK-7 are at 10 μM for 24 h unless stated otherwise. DMSO is included at the same concentrations as a control. Lower dose, chronic treatments with AK-7 are introduced to neurons at DIV4 and continued weekly coinciding with normal medium change[1].
Animal Administration	AK-7, solubilized at 1.5 mg/mL in 25% Cremophor EL (BASF)/ 10% DMSO in water, is administered by intraperitoneal injection to 11 week old mice at 15 mg/kg/dose, and compound levels in serum and brain are measured following sacrifice. Blood is collected and centrifuged at 7,000 rpm for 7 min, and then serum is aspirated and immediately frozen in liquid nitrogen. Brains are immediately frozen in liquid nitrogen and stored at −80°C. Brains are weighed and then homogenized in four volumes of 10% Cremophor RH40 in water using a Polytron homogenizer, and 2% v/v phosphoric acid is added to the homogenate, vortexed, and centrifuged at 10,000 g at 25°C for 1 h. The supernatant is aspirated, and solid phase extraction is performed immediately. Serum samples are vortexed into 2% v/v phosphoric acid and centrifuged at 2500 rpm for 10 min[1].
References	[1]. Taylor DM, et al. A brain-permeable small molecule reduces neuronal cholesterol by inhibiting activity of sirtuin 2 deacetylase. ACS Chem Biol. 2011 Jun 17;6(6):540-6. [2]. Chopra V, et al. The sirtuin 2 inhibitor AK-7 is neuroprotective in Huntington's disease mouse models. Cell Rep. 2012 Dec 27;2(6):1492-7. [3]. Szego EM, et al. Sirtuin 2 enhances dopaminergic differentiation via the AKT/GSK-3β/β-catenin pathway. Neurobiol Aging. 2017 Aug;56:7-16.