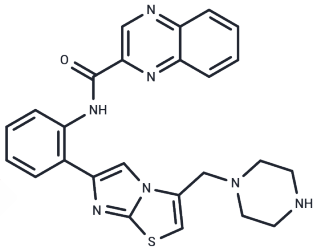
Data Sheet (Cat.No.T5096)

TargetMol

SRT 1720

Chemical Properties



CAS No. : 925434-55-5

Formula: C25H23N7OS

Molecular Weight: 469.56

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	SRT 1720 is a selective activator of human SIRT1 (EC1.5: 0.16 μM) and exhibits more than 230-fold lower potency for SIRT2 and SIRT3.
Targets(IC50)	Autophagy,Sirtuin
In vitro	The maximum activation ratio of SRT1720 versus the closest sirtuin homologs, SIRT2 (EC1.5 = 37 μM) and SIRT3 (EC1.5 > 300 μM) is up to 781%. SRT1720 binds to the SIRT1 enzyme-peptide substrate complex at an allosteric site amino-terminal to the catalytic domain and lower the Michaelis constant for acetylated substrates. Higher concentrations of SRT1720 (15 μM) induces a modest (10-20%) decrease in normal cell viability. SRT1720 also significantly inhibits VEGF-dependent MM cell migration [1].
In vivo	SRT 1720 (10, 30, 100 mg/kg, p.o.) significantly reduces hyperinsulinemia after 4 weeks, partially normalizing insulin levels akin to rosiglitazone treatment, reduces fasting blood glucose to near normal levels in Lepob/ob mice[1], protects against diet-induced obesity in mice by modulating metabolic adaptation through SIRT1 targets such as PGC1α and FOXO1[2], and during emphysema development (50-100 mg/kg, p.o.), attenuates elastase-induced airspace enlargement and lung function impairment, and reduces arterial oxygen saturation in WT mice[3].
Animal Research	Nine-week-old C57BL/6 male mice are fed a high-fat diet (60% calories from fat) until their mean body weight reaches approximately 40 g. The mice are then divided into test groups (6-10 per group). SRT1460 (100 mg/kg), SRT1720 (100 mg/kg), SRT501 (500 mg/kg) and rosiglitazone (5 mg/kg) are administered once daily via oral gavage. The vehicle used is 2% HPMC + 0.2% DOSS. Individual mouse body weights are measured twice weekly. At 2, 4, 6, 8 and 10 weeks of dosing a fed blood glucose measurement are taken and after 5 weeks of treatment, an IPGTT is conducted on all mice from each of the groups. After 10 weeks of treatment, an ITT is conducted. Statistical analysis is completed using the JMP program. Data are analyzed by a one way ANOVA with a comparison to control using a Dunnett's Test. A p-value < 0.05 indicates a significant difference between groups.

Solubility Information

Solubility	DMSO: 1 mg/mL (2.13 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 1 mg/mL (2.13 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.1297 mL	10.6483 mL	21.2965 mL
5 mM	0.4259 mL	2.1297 mL	4.2593 mL
10 mM	0.213 mL	1.0648 mL	2.1297 mL
50 mM	0.0426 mL	0.213 mL	0.4259 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Milne JC et al. Small molecule activators of SIRT1 as therapeutics for the treatment of type 2 diabetes. Nature. 2007 Nov 29;450(7170):712-6

Wu Q, Hu Y, Jiang M, et al. Effect of Autophagy Regulated by Sirt1/FoxO1 Pathway on the Release of Factors Promoting Thrombosis from Vascular Endothelial Cells. International journal of molecular sciences. 2019, 20(17): 4132.

Lian L, Le Z, Wang Z, et al.SIRT1 Inhibits High Glucose-Induced TXNIP/NLRP3 Inflammasome Activation and Cataract Formation.Investigative Ophthalmology & Visual Science.2023, 64(3): 16-16.

Chauhan D, et al. Preclinical evaluation of a novel SIRT1 modulator SRT1720 in multiple myeloma cells. Br J Haematol. 2011 Dec;155(5):588-98.

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Datta C, Das P, Dutta S, et al.AMPK activation reduces cancer cell aggressiveness via inhibition of monoamine oxidase A (MAO-A) expression/activity.Life Sciences.2024: 122857.

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