SRT 1720

Cat. No.: HY-10532

CAS No.: 925434-55-5

Molecular Formula: $C_{25}H_{23}N_7OS$

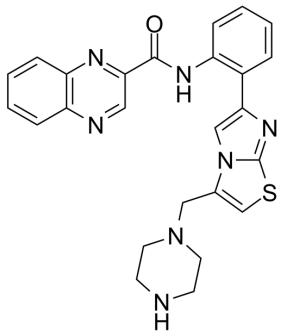
Molecular Weight: 469.56

Target: Sirtuin; Autophagy

Pathway: Cell Cycle/DNA Damage; Epigenetics; Autophagy

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 62.5 mg/mL (133.10 mM; ultrasonic and adjust pH to 5 with HCl)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.1297 mL	10.6483 mL	21.2965 mL
	5 mM	0.4259 mL	2.1297 mL	4.2593 mL
	10 mM	0.2130 mL	1.0648 mL	2.1297 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 50% PEG300 >> 50% saline
   Solubility: 25 mg/mL (53.24 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (4.43 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (4.43 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

SRT 1720 is a selective activator of human SIRT1 with an $EC_{1.5}$ of 0.16 μM, and shows less potent activities agaiinst SIRT2 and SIRT3 with $EC_{1.5}$s of 37 μM and > 300 μM, respectively.

IC_{50} & Target

SIRT1	SIRT2
0.16 μM (EC1.5)	37 μM (EC1.5)

In Vitro

SRT 1720 effectively decreases the acetylation of p53 in cells even in the absence of SIRT1, and this is attributed to inhibition

	of histone acetyltransferase p300[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	SRT 1720 (10, 30, 100 mg/kg, p.o.) significantly reduces the hyperinsulinaemia after 4 weeks, partially normalizing elevated insulin levels similar to rosiglitazone treatment. SRT 1720 treatment significantly reduces fasting blood glucose to near normal levels in $Lep^{ob/ob}$ mice[1]. SRT 1720 has ability to protect against the negative effects of diet-induced obesity in mice, and has a connection to metabolic adaptation in fatty acid and oxidative metabolism through downstream targets of SIRT1 such as PGC1α and FOXO1[2]. SRT 1720 (50-100 mg/kg, p.o.), during emphysema development attenuates elastase-induced airspace enlargement and lung function impairment as well as reduces arterial oxygen saturation in WT mice[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration [1]	Mice: Nine week old C57BL/6 male mice are fed a high fat diet (60% calories from fat) until their mean body weight reach 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 measure is 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 comparison to control using a Dunnett's Test. A p value < 0.05 indicates a significant difference between groups. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Proc Natl Acad Sci U S A. 2019 Feb 19;116(8):2961-2966.
- Hypertension. 2016 Nov;68(5):1191-1199.
- Aging Cell. 2021 Oct 3;e13491.
- Environ Pollut. 2021, 116840.
- Oxid Med Cell Longev. 2021 Feb 28.

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REFERENCES

[1]. 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

[2]. Baur JA, et al. Are sirtuins viable targets for improving healthspan and lifespan? Nat Rev Drug Discov. 2012 Jun 1;11(6):443-61

[3]. Yao H, et al. SIRT1 protects against emphysema via FOXO3-mediated reduction of premature senescence in mice. J Clin Invest. 2012 Jun 1;122(6):2032-45.

[4]. Yu L, et al. Protective effects of SRT1720 via the HNF1α/FXR signalling pathway and anti-inflammatory mechanisms in mice with estrogen-induced cholestatic liver injury. Toxicol Lett. 2016 Dec 15;264:1-11.

Caution: Product has not been fully validated for medical applications. For research use only.

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