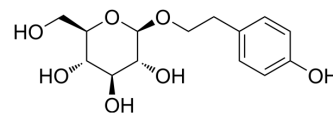


## Salidroside

<b>Cat. No.:</b>	HY-N0109
<b>CAS No.:</b>	10338-51-9
<b>Molecular Formula:</b>	C <sub>14</sub> H <sub>20</sub> O <sub>7</sub>
<b>Molecular Weight:</b>	300.3
<b>Target:</b>	mTOR; Apoptosis; Prolyl Endopeptidase (PREP); PINK1/Parkin
<b>Pathway:</b>	PI3K/Akt/mTOR; Apoptosis; Metabolic Enzyme/Protease; Autophagy; Neuronal Signaling
<b>Storage:</b>	4°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



### SOLVENT & SOLUBILITY

<b>In Vitro</b>	H <sub>2</sub> O : 125 mg/mL (416.25 mM; Need ultrasonic)			
	DMSO : 100 mg/mL (333.00 mM; Need ultrasonic)			
		Solvent Concentration	Mass	
			1 mg	5 mg
<b>Preparing Stock Solutions</b>	1 mM	3.3300 mL	16.6500 mL	33.3000 mL
	5 mM	0.6660 mL	3.3300 mL	6.6600 mL
	10 mM	0.3330 mL	1.6650 mL	3.3300 mL
Please refer to the solubility information to select the appropriate solvent.				
<b>In Vivo</b>	1. Add each solvent one by one: PBS Solubility: 100 mg/mL (333.00 mM); Clear solution; Need ultrasonic			

### BIOLOGICAL ACTIVITY

<b>Description</b>	Salidroside (Rhodiolide) is a prolyl endopeptidase inhibitor. Salidroside alleviates cachexia symptoms in mouse models of cancer cachexia via activating mTOR signalling. Salidroside protects dopaminergic neurons by enhancing PINK1/Parkin-mediated mitophagy.
<b>IC<sub>50</sub> &amp; Target</b>	mTOR
<b>In Vitro</b>	Salidroside (100 µM) inhibits prolyl endopeptidase (PEP) activity (10.6±1.9%). Prolyl endopeptidase is an enzyme that plays a role in the metabolism of proline-containing neuropeptide which is recognized to be involved in learning and memory <sup>[1]</sup> . Salidroside, one of the major phenylpropanoid glycosides found in <i>R. rosea</i> L, is consumed almost daily as a nutritional supplement in many countries and has been identified possessing potential anti-fatigue and anoxia, anti-aging, and anti-Alzheimer's disease activities. Salidroside can improve muscle nutrition via increasing mTOR, p-mTOR, and MyHC

expression<sup>[2]</sup>.

SH-SY5Y cells are exposed to 0-600 $\mu$ M MPP+ for 12-48h and the results show that MPP+ results in a significant decrease of cell viability in a concentration and time-dependent manner. Cells are pretreated with 25-100 $\mu$ M Salidroside (Sal) for 24h and then exposed to 500 $\mu$ M MPP+ for an additional 24h. Salidroside concentration-dependently prevents MPP+-induced decrease of cell viability. Annexin V/PI staining is a common method for the detection of apoptotic cell. Salidroside significantly decreases the number of Annexin V/PI-stained cells treated by MPP+ which is in a concentration-dependent manner. Apoptotic cell could also be morphologically evaluated by Hoechst staining. In Hoechst staining, apoptotic cells are characterized by reduced nuclear size, chromatin condensation, intense fluorescence, and nuclear fragmentation. Salidroside notably inhibits MPP+-induced increase of chromatin condensation, intense fluorescence, and nuclear fragmentation in SH-SY5Y cells<sup>[3]</sup>.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

#### In Vivo

Salidroside is a natural antioxidant extracted from medicinal food plant *Rhodiola rosea*. Salidroside (100 mg/kg/day) shows strong glucose lowering effect on db/db mice which is similar to effect of Metformin (200 mg/kg/day)<sup>[4]</sup>.

Salidroside can be used to induce testicular injury model in mice<sup>[6]</sup>.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

## PROTOCOL

#### Cell Assay <sup>[3]</sup>

SH-SY5Y cells are seeded in 96-well plates at  $1 \times 10^4$  cells per well. After the treatment with Salidroside (25-100 $\mu$ M) and MPP+, cell viability is measured by MTT assay. Briefly, cells are incubated with 500 $\mu$ g/mL MTT at 37°C for 4h. After that, the medium is removed and 150 $\mu$ L DMSO is added and shaking is conducted for 10min. Absorbance is measured at 570nm in a microplate reader and the results are expressed as folds of control<sup>[3]</sup>.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

#### Animal Administration <sup>[4]</sup>

Mice<sup>[4]</sup>

The 4-week-old male C57BL/6 mice are fed a high-fat diet (HFD) (n=16) or normal chow diet (n=8). After 10 weeks of the HFD, salidroside intervention (100 mg/kg/day) is initiated by gavage once a day for 5 weeks. The control groups are given vehicle (saline). The 4-week-old male C57BL/KsJ (BKS) mice (wild type, n=8) and BKS.Cg-Dock7m +/- Leprdb/J (db/db) mice (n=16) are used. Salidroside (100 mg/kg/day) is administered orally by gavage once a day for 5 weeks. The control groups are given vehicle (saline). Fasting blood glucose and body weight of mice are monitored every 5 days. Glucose measurements are performed on blood drawn from the tail vein using a Glucometer.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

## CUSTOMER VALIDATION

- Chem Eng J. 1 May 2022, 135115.
- Phytomedicine. 2024 Nov 9;135:156208.
- Phytomedicine. 2022 Jan 29;99:153964.
- Free Radic Biol Med. 2024 Feb 2;214:54-68.
- Phytother Res. 2024 Mar 15.

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## REFERENCES

[1]. Wang Z, et al. Salidroside Ameliorates Furan-Induced Testicular Inflammation in Relation to the Gut-Testis Axis and Intestinal Apoptosis. J Agric Food Chem. 2023 Nov

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[2]. Fan W, et al. Prolyl endopeptidase inhibitors from the underground part of *Rhodiola sachalinensis*. *Chem Pharm Bull (Tokyo)*. 2001 Apr;49(4):396-401.

[3]. Chen X, et al. Salidroside alleviates cachexia symptoms in mouse models of cancer cachexia via activating mTOR signalling. *J Cachexia Sarcopenia Muscle*. 2016 May;7(2):225-32.

[4]. Wu L, et al. Salidroside Protects against MPP<sup>+</sup>-Induced Neuronal Injury through DJ-1-Nrf2 Antioxidant Pathway. *Evid Based Complement Alternat Med*. 2017;2017:5398542.

[5]. Ju L, et al. Salidroside, A Natural Antioxidant, Improves  $\beta$ -Cell Survival and Function via Activating AMPK Pathway. *Front Pharmacol*. 2017 Oct 18;8:749.

[6]. Li R, et al. Salidroside Protects Dopaminergic Neurons by Enhancing PINK1/Parkin-Mediated Mitophagy. *Oxid Med Cell Longev*. 2019 Sep 10;2019:9341018.

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

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