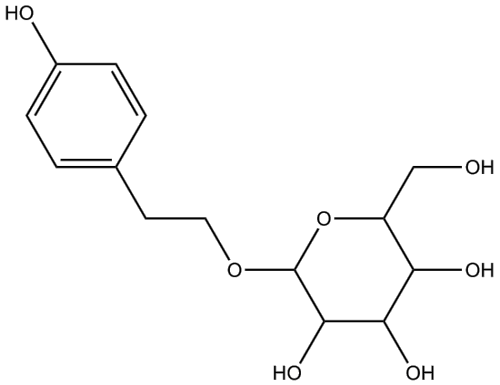
Product Data Sheet

Product Name: Salidroside
Cat. No.: GN10127

Chemical Properties

Cas. No.	10338-51-9		
Chemical Name	(2R,3S,4S,5R,6R)-2-(hydroxymethyl)-6-[2-(4-hydroxyphenyl)ethoxy]oxane-3,4,5-triol		
SMILES	C1=CC(=CC=C1CCOC2C(C(C(C(O2)CO)O)O)O)O		
Formula	$C_{14}H_{20}O_7$	M.Wt	300.3
Solubility	≥ 30mg/mL in DMSO,≥100 mg/mL in Water.Measured	Storage	4°C, protect from light
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

Structure



Protocol

Cell experiment [1]:

Cell lines MN9D cells

Product Data Sheet

Preparation Method	MN9D cells were cultured in RPMI medium with 10% FBS in a humidified atmosphere incubator of 5% CO2 at 37°C. The cells were pretreated with Salidroside(10, 25, and 50 μM) for 24 h and incubated with 200 μM of MPP+ for an additional 24 h based on a previous dose-effect study
Reaction Conditions	0, 25, 50 μM; 24 h
Applications	200 μM of MPP+ remarkably reduced the cell viability, and Salidroside (10, 25, and 50 μM) markedly prevented the cell toxicity induced by MPP+.

Animal experiment [2]:

Animal models	BABL/c and C57BL/6 mice
Preparation Method	BABL/c mice were inoculated with CT-26 cells (1.0×106/100 μL), while C57BL/6 mice with LLC cells (7×105/100 μL), both of them were injected s.c. into the right flank. Nine days after inoculation, tumours were palpable (about 5 mm in diameter) in BABL/c and C57BL/6 mice, respectively. Treatments were given i.p. with the control group, salidroside (60 mg/kg/day), and salidroside (120 mg/kg/day) for 25 days in BABL/c tumour model, while for 20 days in C57BL/6 model.
Dosage form	60 mg/kg/day、120 mg/kg/day; i.p.
Applications	salidroside had an effective anti-cachexia activity in CAC models in vivo, including increasing quality of life and prolonging survival time.

Product Data Sheet

References:

[1]Li R, et al. Salidroside Protects Dopaminergic Neurons by Enhancing PINK1/Parkin-Mediated Mitophagy. Oxid Med Cell Longev. 2019 Sep 10; 2019: 9341018.
[2] Chen X, et al. Salidroside alleviates cachexia symptoms in mouse models of cancer cachexia via activatingmTOR signalling. J Cachexia Sarcopenia Muscle. 2016 May;7(2):225-32.

Background

Salidroside is a tyrosol glycoside primarily found in the roots of Rhodiola species, exhibiting a wide range of biological and pharmacological properties, including anti-cancer, antioxidant, anti-aging, anti-diabetic, anti-hypertensive, anti-inflammatory, and immunomodulatory effects. Salidroside can improve muscle nutrition by increasing the expression of mTOR, p-mTOR, and MyHC[1]. It alleviates cachexia symptoms in a mouse model of cancer cachexia by activating the mTOR signaling pathway[1]. Furthermore, salidroside protects dopaminergic neurons by enhancing PINK1/Parkin-mediated mitophagy[2]. Its anti-cancer activity is primarily due to the inhibition of the PI3K/AKT, JAK/STAT, and MEK/ERK pathways, as well as the activation of cell apoptosis and autophagy[3].

In vitro, salidroside significantly increases the expression of mTOR, p-mTOR, and MyHC in C2C12 myotubes and can effectively rescue the downregulation of mTOR, p-mTOR, and MyHC expression induced by tumor necrosis factor-alpha[1]. Salidroside (10, 25, and 50μM) significantly prevents MPP+-induced cytotoxicity and reverses the reduction in dopamine, HVA, and DOPAC levels induced by MPTP in the striatum[2]. Additionally, salidroside (100μM) inhibits the activity of prolyl endopeptidase (PEP), an enzyme associated with learning and memory, by 10.6±1.9%[4].

In vivo, salidroside (120 mg/kg/day; i.p.) significantly maintains fat mass and increases lean body mass, especially the mass of the gastrocnemius muscle, indicating a notable improvement in the main features of cancer-associated cachexia in mice[1]. Salidroside (10/20/40 mg/kg/day) also induces a mouse model of testicular damage[5].

References:
[1] Chen X, et al. Salidroside alleviates cachexia symptoms in mouse models of cancer cachexia via activatingmTOR signalling. J Cachexia Sarcopenia Muscle. 2016 May;7(2):225-32.
[2]Li R, et al. Salidroside Protects Dopaminergic Neurons by Enhancing PINK1/Parkin-Mediated Mitophagy. Oxid Med Cell Longev. 2019 Sep 10; 2019: 9341018.

Product Data Sheet

[3] Zhifeng Z , Jing H , Jizhou Z ,et al.Pharmacological activities, mechanisms of action, and safety of salidroside in the central nervous system[J].Drug Design Development & Therapy, 2018, 12:1479-1489.
[4] Fan W, et al. Prolyl endopeptidase inhibitors from the underground part of Rhodiola sachalinensis. Chem Pharm Bull (Tokyo). 2001 Apr;49(4):396-401.
[5] 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 9.

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