

Product Data Sheet

Product Name: Myricetin

Cat. No.: GN10634

Chemical Properties

Cas. No. 529-44-2

Chemical Name 3,5,7-trihydroxy-2-(3,4,5-trihydroxyphenyl)chromen-4-one

SMILES O=C1C(=C(C(=C(C=C1O)O)O)C2=C(C(=O)C3=C(C=C(C=C3O2)O)O)O

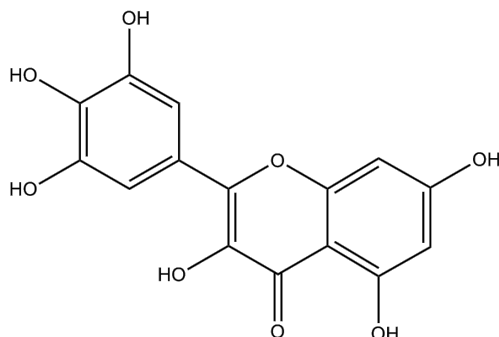
Formula $C_{15}H_{10}O_8$ M.Wt 318.24

Solubility DMSO : 63 mg/mL (197.96 mM) Storage Store at -20°C

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 Human colon carcinoma cell line Hct116

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

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Hct116 cells were seeded into 6-well plates with a density of 5×10^5 cells/well and allowed to attach for 24h. Subsequently, Hct116 cells were treated with 50 μ M myricetin for 4h. Then, cells were washed with medium, incubated with 10 μ M H₂DCF-DA for 15min, washed again and treated with H₂O₂ (500 μ M; 1h) to induce the generation of ROS. Afterwards, cells were washed with phosphate buffered saline (PBS) and the DCF (fluorescent probe) fluorescence was determined by flow cytometry.

Reaction
Conditions 50 μ M; 4h

Applications A pre-incubation with myricetin (50 μ M) strongly reduced intracellular ROS accumulation in Hct116 cells after application of oxidative stress (500 μ M H₂O₂ for 1h) to 46.1% $\pm$ 9.1% of the corresponding control value.

Animal experiment [2]:

Animal models Insulin-resistant Wistar rats induced by a high-fructose diet

Preparation Method Myricetin was injected into the lateral tail vein of the fructose chow-fed rats every 8h, 3 times daily (at 06:00, 14:00 and 22:00h) at the dose of 1mg/kg. The effect of myricetin was determined for 14 consecutive days in subsequent experiments.

Dosage form 1mg/kg; 3 times daily; 14 days; i.v.

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Applications The injection of myricetin (1mg/kg per i.v. injection; 3 injections per day) for 14 consecutive days, plasma glucose and triglyceride levels in fructose chow-fed rats fell to a value significantly lower than the vehicle-treated counterparts.

References:

- [1] BÜCHTER C, ACKERMANN D, HAVERMANN S, et al. Myricetin-mediated lifespan extension in *Caenorhabditis elegans* is modulated by DAF-16[J]. International journal of molecular sciences, 2013, 14(6): 11895-11914.
- [2] LIU I M, TZENG T F, LIOU S S, et al. Myricetin, a naturally occurring flavonol, ameliorates insulin resistance induced by a high-fructose diet in rats[J]. Life sciences, 2007, 81(21-22): 1479-1488.

Background

Myricetin is a natural flavonoid commonly found in plants, possessing antioxidant, anti-inflammatory, and anti-tumor activities, and acts as a novel inhibitor of mitogen-activated protein kinase kinase (MEK1) and neoplastic transformation in JB6 P+ mouse epidermal cells^[1,2]. Myricetin is commonly used in the treatment and research of various types of tumors, diabetes, Alzheimer's disease, and inflammatory diseases^[3].

In vitro, pre-incubation of human colon cancer Hct116 cells with myricetin (50μM) for 4h, followed by induction of oxidative stress with 500μM H₂O₂ for 1h, significantly reduced intracellular reactive oxygen species (ROS) accumulation to 46.1% ± 9.1% of the control group^[4]. Pre-treatment of JB6 P+ cells with myricetin (2.5-20μM) for 1h, followed by UVB irradiation (0.05 J/cm²), inhibited UVB-induced cyclooxygenase-2 (COX-2) protein expression and promoter activity in a dose-dependent manner^[5].

In vivo, oral administration of myricetin (50mg/kg/day) to ICR mice for 3 consecutive weeks significantly enhanced their aerobic capacity and improved motor coordination^[6]. Intravenous administration of myricetin (1mg/kg/time; 3 times daily) to high-fructose diet-induced insulin-resistant Wistar rats for 14 days significantly reduced elevated plasma blood glucose and triglyceride levels^[7]. Oral gavage of myricetin (150mg/kg/day) to high-fat diet (HFD)-induced obese C57BL/6 mice for 10

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weeks significantly reduced body weight and decreased serum glucose and triglyceride levels^[8].

References:

- [1] IMRAN M, SAEED F, HUSSAIN G, et al. Myricetin: A comprehensive review on its biological potentials[J]. Food science & nutrition, 2021, 9(10): 5854-5868.
- [2] LEE K W, KANG N J, ROGOZIN E A, et al. Myricetin is a novel natural inhibitor of neoplastic cell transformation and MEK1[J]. Carcinogenesis, 2007, 28(9): 1918-1927.
- [3] SONG X, TAN L, WANG M, et al. Myricetin: A review of the most recent research[J]. Biomedicine & Pharmacotherapy, 2021, 134: 111017.
- [4] BÜCHTER C, ACKERMANN D, HAVERMANN S, et al. Myricetin-mediated lifespan extension in *Caenorhabditis elegans* is modulated by DAF-16[J]. International journal of molecular sciences, 2013, 14(6): 11895-11914.
- [5] JUNG S K, LEE K W, BYUN S, et al. Myricetin suppresses UVB-induced skin cancer by targeting Fyn[J]. Cancer research, 2008, 68(14): 6021-6029.
- [6] JUNG H Y, LEE D, RYU H G, et al. Myricetin improves endurance capacity and mitochondrial density by activating SIRT1 and PGC-1 α [J]. Scientific reports, 2017, 7: 6237.
- [7] LIU I M, TZENG T F, LIOU S S, et al. Myricetin, a naturally occurring flavonol, ameliorates insulin resistance induced by a high-fructose diet in rats[J]. Life sciences, 2007, 81(21-22): 1479-1488.
- [8] SU H, FENG L, ZHENG X, et al. Myricetin protects against diet-induced obesity and ameliorates oxidative stress in C57BL/6 mice[J]. Journal of Zhejiang University-Science B, 2016, 17(6): 437-446.

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