

Product Data Sheet

Product Name: Maslinic Acid

Cat. No.: GC17632

Chemical Properties

Cas. No. 4373-41-5

Chemical Name 2 α ,3 β -dihydroxy-olean-12-en-28-oic acid

SMILES CC1(C)CC[C@]2(C(O)=O)CC[C@@]3(C)[C@]4(C)CCC5C(C)(C)[C@@H](O)[C@H](O)C[C@]5(C)[C@@]4([H])CC=C3[C@@]2([H])C1

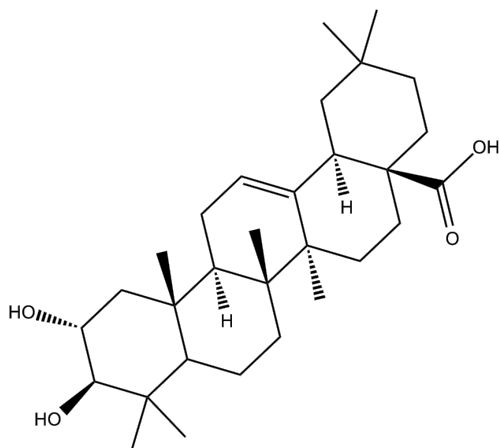
Formula C₃₀H₄₈O₄ M.Wt 472.7

Solubility ≤ 0.5 mg/ml in ethanol; 20mg/ml in DMSO; 15mg/ml in dimethyl formamide 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]:

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

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Cell lines PC12 cells

Preparation Method Before drug treatment, cells were subcultured in 6-well plates and the medium was changed to DMEM containing 2% FBS. The day after cell adhesion, different concentrations of Maslinic Acid and positive control rapamycin (Rap) (10 μ M) were added to different wells and incubated for 24 hours.

Reaction Conditions 1-10 μ M; 24h

Applications Maslinic Acid was proved to induce cell autophagy by disrupting the combination of Bcl2 and Beclin1 in rat PC12 cells.

Animal experiment [2]:

Animal models Diabetic mouse model

Preparation Method Streptozocin was used to induce diabetic mouse model. Fasting blood glucose levels > 300mg/dL was regarded as the incidence of diabetes. Diabetic mice of similar body weight were randomly divided into four groups: STZ (diabetic control group), MA5 (diabetic mice treated with 5mg/kg Maslinic Acid), MA10 (diabetic mice treated with 10mg/kg Maslinic Acid), and MA20 (diabetic mice treated with 20mg/kg Maslinic Acid). Normal mice were in the normal control group (NC). Maslinic acid was injected intraperitoneally every 3 days after diabetes induction for 8 weeks. The changes in body weight and fasting glucose levels of mice were evaluated, respectively.

Dosage form 5, 10, 20mg/kg; q3d; ip; 8 weeks

Applications Maslinic Acid treatment for 8 weeks repressed the oxidative stress and inflammation in the kidney of diabetic mice.

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References:

- [1]. Germano A, Saba L, De Francia S, et al. CYP11B1 has no role in mitotane action and metabolism in adrenocortical carcinoma cells[J]. PloS one, 2018, 13(5): e0196931.
- [2]. Gao H, Wu H. Maslinic acid activates renal AMPK/SIRT1 signaling pathway and protects against diabetic nephropathy in mice[J]. BMC Endocrine Disorders, 2022, 22(1): 25.

Background

Maslinic acid is a pentacyclic triterpene acid widely found in *olives* and other plants. Maslinic acid has multiple biological activities such as anti-inflammatory, antioxidant, anti-tumor, hypoglycemic, and neuroprotective^[1].

Maslinic Acid (1-10 μ M; 24h) was proved to induce cell autophagy by disrupting the combination of Bcl2 and Beclin1 in rat PC12 cells^[2]. Maslinic acid (6.25, 12.5, 25, 50mM; 48h) significantly decreased lipid accumulation in oleic acid-incubated HepG2 cells^[3]. Maslinic acid (0, 25, 30, 35, 40, 45 μ M; 48h) decreased total cell viability and induced DNA condensation, damage, and fragmentation in HeLa cells^[4].

Maslinic Acid (5, 10, 20mg/kg; ip; 8 weeks) treatment for 8 weeks repressed the oxidative stress and inflammation in the kidney of diabetic mice^[5]. Maslinic acid (0.3, 1, 3mg/kg; po; administered 3, 6, 9, 12h before kill) enhanced the ERK–CREB and PI3K–Akt signalling pathways in the hippocampus^[6].

References:

- [1]He Y, Wang Y, Yang K, et al. Maslinic acid: a new compound for the treatment of multiple organ diseases[J]. Molecules, 2022, 27(24): 8732.
- [2]Germano A, Saba L, De Francia S, et al. CYP11B1 has no role in mitotane action and metabolism in adrenocortical carcinoma cells[J]. PloS one, 2018, 13(5): e0196931.
- [3]Liou C J, Dai Y W, Wang C L, et al. Maslinic acid protects against obesity-induced nonalcoholic fatty liver disease in mice through regulation of the Sirt1/AMPK signaling pathway[J]. The FASEB Journal, 2019, 33(11): 11791.
- [4]Lu K W, Yang M D, Peng S F, et al. Maslinic acid induces DNA damage and impairs DNA repair in human cervical cancer HeLa cells[J]. Anticancer Research, 2020, 40(12): 6869-6877.
- [5]Gao H, Wu H. Maslinic acid activates renal AMPK/SIRT1 signaling pathway and protects against

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diabetic nephropathy in mice[J]. BMC Endocrine Disorders, 2022, 22(1): 25.

[6]Bae H J, Kim J, Kim J, et al. The effect of maslinic acid on cognitive dysfunction induced by cholinergic blockade in mice[J]. British Journal of Pharmacology, 2020, 177(14): 3197-3209.

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