

## Agrimonolide

## Chemical Properties

CAS No. : 21499-24-1

Formula: C<sub>18</sub>H<sub>18</sub>O<sub>5</sub>

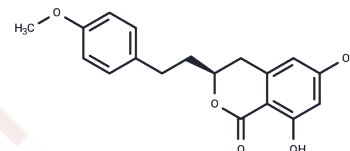
Molecular Weight: 314.33

Store at low temperature, Keep away from direct sunlight

Storage:

Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Actual storage temperature shall be subject to the COA.



## Biological Description

Description	Agrimonolide, a compound derived from isocoumarins and found mainly in the herb <i>Agrimonia pilosa</i> Ledeb, has significant biological activity. agrimonolide exerts anti-inflammatory effects by inhibiting lipopolysaccharide (LPS)-induced activation of JAK-STATs and p38 MAPKs signaling pathways. Agrimonolide and its derivative, desmethyl agrimonolide, have been shown to be effective in increasing insulin-mediated glycogen levels in hepatocytes and may play a key role in regulating insulin-resistant HepG2 cells. agrimonolide exhibits inhibitory effects on cancer progression and induction of cell death and apoptosis by targeting SCD1 in ovarian cancer cells. In particular, Agrimonolide exhibited a dose-dependent inhibition of proliferation, migration and invasion of A2780 and SKOV-3 cells, while promoting apoptosis. The compound was also found to induce iron-mediated cell death while increasing reactive oxygen species (ROS) and total iron levels. Agrimonolide readily crosses the blood-brain barrier, suggesting its potential for therapeutic applications in neurological disorders.
Targets(IC50)	Apoptosis, Dehydrogenase, JAK, p38 MAPK, ROS
In vitro	Five compounds were isolated from AP using column chromatography, including Agrimonolide (K1), desmethylAgrimonolide (K2), tormentic acid (K3), ursolic acid (K4), and quercetin (K5). Glucose metabolism was evaluated in insulin-resistant HepG2 cells. K1 consisting of K2 effectively increased the insulin-mediated glycogen level in hepatocytes. At a concentration level of 20 μM, K1 significantly elevated the hepatic glucokinase (GK) activity (3.0 U min <sup>-1</sup> mg <sup>-1</sup> protein) compared to the control. And K1 caused a significant reduction of the glucose-6-phosphatase (G6Pase) activity and a significant change in the phosphoenolpyruvate carboxykinase (PEPCK) activity. [1] Agrimonolide dose-dependently inhibited proliferation, migration, and invasion and promoted apoptosis in A2780 and SKOV-3 cells. Agrimonolide induced ferroptosis in tumour cells, evidenced by the increased levels of ROS, total iron, and Fe <sup>2+</sup> and downregulation of ferroptosis indicators (SLC7A11 and GPX4). Additionally, agrimonolide attenuated the tumour growth of ovarian cancer in the SKOV-3 xenograft model and significantly downregulated SCD1 in tumour tissues.[2]

### Preparing Stock Solutions

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	1mg	5mg	10mg
1 mM	3.1814 mL	15.9068 mL	31.8137 mL
5 mM	0.6363 mL	3.1814 mL	6.3627 mL
10 mM	0.3181 mL	1.5907 mL	3.1814 mL
50 mM	0.0636 mL	0.3181 mL	0.6363 mL

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Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

### Reference

Teng H, et al. The potential beneficial effects of phenolic compounds isolated from *A. pilosa* Ledeb on insulin-resistant hepatic HepG2 cells. *Food Funct.* 2016;7(10):4400-4409.

Liu Y, et al. Agrimonolide inhibits cancer progression and induces ferroptosis and apoptosis by targeting SCD1 in ovarian cancer cells. *Phytomedicine.* 2022;101:154102.

Chen L, et al. Agrimonolide from *Agrimonia pilosa* suppresses inflammatory responses through down-regulation of COX-2/iNOS and inactivation of NF- $\kappa$ B in lipopolysaccharide-stimulated macrophages. *Phytomedicine.* 2016;23(8):846-855.

Wang C, et al. Protective effects of agrimonolide on hypoxia-induced H9c2 cell injury by maintaining mitochondrial homeostasis. *J Cell Biochem.* 2022;123(2):306-321.

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