Ginkgolic Acid

Cat. No.: HY-N0077

CAS No.: 22910-60-7

Molecular Formula: $C_{22}H_{34}O_3$

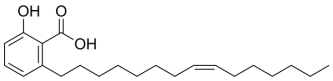
Molecular Weight: 346.5

Target: E1/E2/E3 Enzyme

Pathway: Metabolic Enzyme/Protease

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (288.60 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.8860 mL	14.4300 mL	28.8600 mL
5 mM	0.5772 mL	2.8860 mL	5.7720 mL
10 mM	0.2886 mL	1.4430 mL	2.8860 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.75 mg/mL (7.94 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.75 mg/mL (7.94 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Ginkgolic Acid is a natural compound that inhibits SUMOylation with an IC_{50} of 3.0 μM in in vitro assay.

IC_{50} & Target

IC50: 3.0 μM (SUMOylation)[1]

In Vitro

Ginkgolic acid inhibits the in vitro SUMOylation of RanGAP1-C2 with the IC_{50} values of 3.0 μM. The level of SUMOylated p53 is markedly reduced by the ginkgolic acid treatment. Importantly, ginkgolic acid does not affect protein ubiquitination in cells. Ginkgolic acid inhibits the binding between E1 and GA-BODIPY in a dose-dependent manner[1]. Ginkgolic acid (31.2 μg/mL) inhibits HIV protease activity by 60%, compared with the negative control, and the effect is concentration-dependent. Ginkgolic acid treatment (50 and 100 μg/mL) effectively inhibits HIV infection in human PBMC cells. Ginkgolic acid at the concentrations up to 150 μg/mL does not cause any significant cytotoxicity in Jurkat cells[2]. GA only inhibits the growth of

tumorogenic cell lines in a both dose- and time-dependent manner. Tumor cells are treated with GA for 72 h, 70.53±4.54% Hep-2 and 63.5±7.2% Tca8113 cells are retarded at GO/G1 phase, and the percentage of apoptosis is 40.4±1.58 and 38.4±1.7%, respectively. GA-treated activated caspase-3 downregulates the expression of anti-apoptotic Bcl-2 protein and upregulates the expression of pro-apoptotic Bax protein, eventually leading to a decrease in the Bcl-2/Bax ratio in tumor cellsin human PBMC cells. Ginkgolic acid at the concentrations up to 150 μg/mL does not cause any significant cytotoxicity in Jurkat cells[3].

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

PROTOCOL

Cell Assay [2]

Jurkat cells (106 cells/mL) are cultured in the RPMI medium with or without different concentrations of ginkgolic acid for 48 hours to test the cytotoxicity of ginkgolic acid. The cytotoxicity of ginkgolic acid is determined using a tetrazolium compound (MTS) and an electron coupling reagent (PMS). MTS is chemically reduced by cells into formazan, which is soluble in the tissue culture medium. The measurement of the absorbance of the formazan can be carried out using 96 well microplates at 492 nm. Since the production of formazan is proportional to the number of living cells, the intensity of the produced color is a good indication of the viability of the cells.

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

CUSTOMER VALIDATION

- Nat Commun. 2022 Sep 3;13(1):5204.
- Mol Ther Oncolytics. 2019 Dec 14;16:86-99.
- J Transl Med. 2023 Oct 13;21(1):719.
- Placenta. 2022.
- Toxicol Appl Pharmacol. 2018 Apr 15;345:1-9.

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REFERENCES

[1]. Fukuda I, et al. Ginkgolic acid inhibits protein SUMOylation by blocking formation of the E1-SUMO intermediate. Chem Biol. 2009 Feb 27;16(2):133-40.

[2]. Lü JM, et al. Ginkgolic acid inhibits HIV protease activity and HIV infection in vitro. Med Sci Monit. 2012 Aug;18(8):BR293-298.

[3]. Zhou C, et al. Antitumor effects of ginkgolic acid in human cancer cell occur via cell cycle arrest and decrease the Bcl-2/Bax ratio to induce apoptosis. Chemotherapy. 2010;56(5):393-402.

[4]. Qiu F, et al. Pharmacological inhibition of SUMO-1 with ginkgolic acid alleviates cardiac fibrosis induced by myocardial infarction in mice. Toxicol Appl Pharmacol. 2018 Apr 15;345:1-9.

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