Formononetin

Cat. No.: HY-N0183

CAS No.: 485-72-3

Molecular Formula: $C_{16}H_{12}O_4$

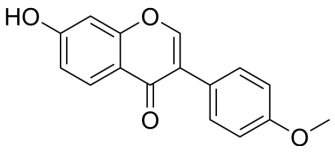
Molecular Weight: 268.26

Target: FGFR; Apoptosis

Pathway: Protein Tyrosine Kinase/RTK; Apoptosis

Storage:

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



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 35 mg/mL (130.47 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.7277 mL	18.6386 mL	37.2773 mL
5 mM	0.7455 mL	3.7277 mL	7.4555 mL
10 mM	0.3728 mL	1.8639 mL	3.7277 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: 2.5 mg/mL (9.32 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.5 mg/mL (9.32 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (9.32 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Formononetin is a potent FGFR2 inhibitor with an IC_{50} of ~4.31 μM. Formononetin potently inhibits angiogenesis and tumor growth[1].

IC_{50} & Target

FGFR2

4.31 μM (IC_{50})

In Vitro

Formononetin is one of the major isoflavonoid constituents isolated from Astragalus membranaceus and has been demonstrated diverse pharmacological benefits. Formononetin possesses anti-angiogenic activity in human colon cancer cells. Formononetin also promotes cell cycle arrest via downregulation of Akt/Cyclin D1/CDK4 in human prostate cancer cells[1].

Formononetin (25 to 150 μM) markedly decreases the proliferation of endothelial cells stimulated by FGF2[1].

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

Cell Viability Assay[1]

Cell Line:	HUVECs
Concentration:	0, 10, 25, 50, 75, 100, and 150 μM
Incubation Time:	
Result:	Significantly decreased the proliferation of HUVECs stimulated by FGF2 in a dose-dependent manner, while had little inhibitory effects on HUVECs that were not stimulated by FGF2.

In Vivo

Formononetin dramatically suppresses tumor volumes and the Formononetin-treated group tumor weight are significantly inhibited compared with the vehicle group . Formononetin treatment is well tolerated, and there is no significant difference in weight between vehicle group and formononetin treated groups[1].

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

Animal Model:	BALB/c nude mice bearing MDA-MB-231 xenografts[1]
Dosage:	100 mg/kg
Administration:	Treated daily by intragastric administration for 25 days
Result:	Inhibited breast cancer growth and angiogenesis in vivo.

CUSTOMER VALIDATION

- Acta Pharm Sin B. 2021 Jan;11(1):143-155.
- Phytother Res. 2023 Apr 1.
- Mol Med. 2019 Dec;20(6):4984-4992.
- Genomics. 2021 Jun 7;S0888-7543(21)00220-2.
- Biosci Rep. 2020 Oct 30;40(10):BSR20201349.

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REFERENCES

[1]. Xiao Yu Wu,et al. Formononetin, a novel FGFR2 inhibitor, potently inhibits angiogenesis and tumor growth in preclinical models. Oncotarget. 2015 Dec 29;6(42):44563-78.

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

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