Fisetin

Cat. No.: HY-N0182

CAS No.: 528-48-3

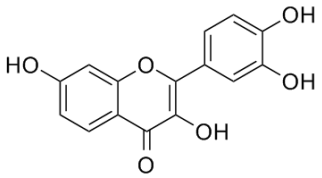
Molecular Formula: $C_{15}H_{10}O_6$

Molecular Weight: 286.24

Target: Sirtuin; PPAR; TNF Receptor

Pathway: Cell Cycle/DNA Damage; Epigenetics; Apoptosis

Storage: 4°C, protect from light
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 25 mg/mL (87.34 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.4936 mL	17.4679 mL	34.9357 mL
5 mM	0.6987 mL	3.4936 mL	6.9871 mL
10 mM	0.3494 mL	1.7468 mL	3.4936 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: ≥ 2.08 mg/mL (7.27 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (7.27 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Fisetin is a natural flavonol found in many fruits and vegetables with various benefits, such as antioxidant, anticancer, neuroprotection effects.

IC_{50} & Target

Sirtuin, PPAR, TNF-alpha[1][2]

In Vitro

Fisetin inhibits lipid accumulation and suppresses the expression of PPARγ in 3T3-L1 cells. Fisetin suppresses early stages of preadipocyte differentiation, and induces expression of Sirt1. Fisetin facilitates Sirt1-mediated deacetylation of PPARγ and FoxO1, and enhances the association of Sirt1 with the PPARγ promoter, leading to suppression of PPARγ transcriptional activity, thereby repressing adipogenesis[1]. Fisetin binds to tubulin and stabilizes microtubules with binding characteristics far superior than paclitaxel. Fisetin treatment of human prostate cancer cells results in robust up-regulation of microtubule associated proteins (MAP)-2 and -4. Fisetin significantly inhibits PCa cell proliferation, migration, and invasion. Nudc, a

	protein associated with microtubule motor dynein/dynactin complex that regulates microtubule dynamics, is inhibited with Fisetin treatment[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Fisetin treatment to UVB exposed mice results in decreased hyperplasia and reduces infiltration of inflammatory cells. Fisetin treatment also reduces inflammatory mediators such as COX-2, PGE2 as well as its receptors (EP1- EP4), and MPO activity. Furthermore, Fisetin reduces the level of inflammatory cytokines TNFα, IL-1β and IL-6 in UVB exposed skin. Fisetin treatment also reduces cell proliferation markers as well as DNA damage as evidenced by increased expression of p53 and p21 proteins[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	3T3-L1 cells are transfected with reporter vector, and expression plasmids using TransIT-LT1. After 24 h, media is replaced with viral supernatant. After 15-18 h of infection, media is replaced with DMI, 0.1 μM troglitazone and Fisetin (50 μM). Cells are lysed using cell culture lysis buffer two days after addition of differentiation stimulus. Luciferase activity is determined using an analytical luminescence luminometer[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [3]	Mice: The mice are divided into six groups of eight animals each. The mice in the first group are topically treated with 0.2 mL acetone and used as vehicle control. The mice in the second and third groups receive topical treatment of Fisetin 250 nmol/0.2 mL acetone/mouse and 500 nmol/0.2 mL acetone/mouse respectively on their dorsal skin and serves as agent controls. The mice in the fourth, fifth and sixth groups are exposed to UVB. The mice in the fourth group receive a topical application of 0.2 mL acetone after 15 min of UVB exposure designated as vehicle control. The mice in the fifth and sixth groups are treated with topical application of Fisetin 250 nmol/0.2 mL acetone/mouse and 500 nmol/0.2 mL acetone/mouse respectively on to their dorsal skin after 15 min of UVB exposure[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Biochem Biophys Res Commun. 2018 Sep 3;503(1):297-303.

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REFERENCES

[1]. Kim SC, et al. Fisetin induces Sirt1 expression while inhibiting early adipogenesis in 3T3-L1 cells. Biochem Biophys Res Commun. 2015 Nov 27;467(4):638-44.

[2]. Mukhtar E, et al. Dietary flavonoid fisetin binds to β-tubulin and disrupts microtubule dynamics in prostate cancer cells. Cancer Lett. 2015 Oct 28;367(2):173-83.

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

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