# Flurbiprofen

**Cat. No.:** HY-10582

**CAS No.:** 5104-49-4

**Molecular Formula:** $C_{15}H_{13}FO_2$

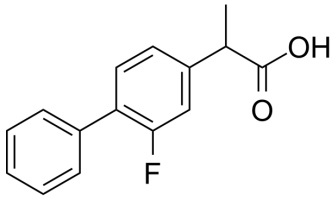
**Molecular Weight:** 244.26

**Target:** Apoptosis; COX

**Pathway:** Apoptosis; Immunology/Inflammation

**Storage:**

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




## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : ≥ 100 mg/mL (409.40 mM)

* "≥" means soluble, but saturation unknown.

**Preparing Stock Solutions**

| Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|
| 1 mM | 4.0940 mL | 20.4700 mL | 40.9400 mL |
| 5 mM | 0.8188 mL | 4.0940 mL | 8.1880 mL |
| 10 mM | 0.4094 mL | 2.0470 mL | 4.0940 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 (10.23 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (10.23 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (10.23 mM); Clear solution

## BIOLOGICAL ACTIVITY

**Description**

Flurbiprofen (dl-Flurbiprofen) is a potent, orally active nonsteroidal anti-inflammatory agent (NSAIA/NSAID), with antipyretic and analgesic activities. Flurbiprofen is commonly used for the research of inflammatory diseases, including osteoarthritis and rheumatoid arthritis. Flurbiprofen is a non-selective cyclooxygenase (COX) inhibitor that can be used for the research of colorectal cancer[1][2][3].

| $IC_{50}$ & Target | COX | COX-1 | COX-2 |
|---|---|---|---|

**In Vitro**

Flurbiprofen (2-20 nM; 12-48 hours) significantly decreases SW620 cells proliferation in a concentration- and time-dependent manner[1].
Flurbiprofen (10 nM; 24 hours) decreases COX-2 expression[1].
Flurbiprofen (10 nM; 24 hours) inhibits the expression of inflammatory factors by inhibiting COX-2[1].
Flurbiprofen (10 nM; 24 hours) promotes the apoptosis of colorectal cancer cells by inhibiting COX-2[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Proliferation Assay[1]

| | |
|---|---|
| Cell Line: | SW620 cells |
| Concentration: | 2 nM, 4 nM, 10 nM, 20 nM |
| Incubation Time: | 12 hours, 24 hours, 48 hours |
| Result: | Inhibited colorectal cancer cell proliferation. |

Western Blot Analysis[1]

| | |
|---|---|
| Cell Line: | SW620 cells |
| Concentration: | 10 nM |
| Incubation Time: | 24 hours |
| Result: | Significantly decreased the protein and mRNA levels of COX-2. |

RT-PCR[1]

| | |
|---|---|
| Cell Line: | SW620 cells |
| Concentration: | 10 nM |
| Incubation Time: | 24 hours |
| Result: | Decreased COX-2 mRNA expression levels |

Apoptosis Analysis[1]

| | |
|---|---|
| Cell Line: | SW620 cells |
| Concentration: | 10 nM |
| Incubation Time: | 24 hours |
| Result: | Significantly decreased the expression of Bcl2 and significantly increased the expression of Bax and cleaved-caspase3, with no effect on total caspase-3. |

**In Vivo**

Flurbiprofen (0.3-4.8 mg/kg; p.o.; 4-5 dosages) has acute anti-inflammatory in adrenalectomized rats[2].
Flurbiprofen (10 mg/kg; i.p.; daily; for 6 days) attenuates high-fat diet-induced obesity in mice[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

| | |
|---|---|
| Animal Model: | Rat[2] |
| Dosage: | 0.3 mg/kg, 0.6 mg/kg, 1.2 mg/kg, 2.4 mg/kg, 4.8 mg/kg |
| Administration: | Oral administration, 4-5 dosages |
| Result: | Inhibited the acute inflammation. |

## REFERENCES

[1]. Hosoi, T., et al., Flurbiprofen ameliorated obesity by attenuating leptin resistance induced by endoplasmic reticulum stress. EMBO Mol Med, 2014.

[2]. Xiaobo Wang, et al. Flurbiprofen suppresses the inflammation, proliferation, invasion and migration of colorectal cancer cells via COX2. Oncol Lett. 2020 Nov; 20(5): 132.

[3]. E M Glenn, et al. The pharmacology of 2-(2-fluoro-4-biphenylyl)propionic acid (flurbiprofen). A potent non-steroidal anti-inflammatory drug. Agents Actions. 1973 Nov;3(4):210-6.



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