Finasteride

Cat. No.: HY-13635

CAS No.: 98319-26-7

Molecular Formula: $C_{23}H_{36}N_2O_2$

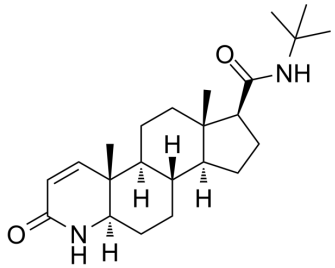
Molecular Weight: 372.54

Target: 5 alpha Reductase

Pathway: Metabolic Enzyme/Protease

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 : 150 mg/mL (402.64 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.6843 mL	13.4214 mL	26.8428 mL
	5 mM	0.5369 mL	2.6843 mL	5.3686 mL
	10 mM	0.2684 mL	1.3421 mL	2.6843 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (6.71 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.71 mM); Clear solution
3. Add each solvent one by one: 50% PEG300 >> 50% saline
   Solubility: 2 mg/mL (5.37 mM); Suspended solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Finasteride (MK-906) is a potent and competitive 5α-reductase inhibitor, with an IC_{50} of 4.2 nM for type II 5α-reductase. Finasteride has approximately a 100-fold greater affinity for type II 5α-reductase enzyme than for the type I enzyme. Finasteride can be used for the research of benign prostatic hyperplasia (BPH) and androgenic alopecia[1][2][3].

IC_{50} & Target

IC50: 4.2 nM (type II 5α-reductase)[1]

In Vitro

Finasteride (10 μM; 6-24 h) induces the expression of HO-1 and Nrf2 proteins in PC-3 cells[2].

Finasteride decreases the conversion of [^{3}H]testosterone (T) to [^{3}H]dihydrotestosterone (DHT) in P. crustosum[1].

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

Western Blot Analysis[2]

Cell Line:	PC-3, DU-145, and LNCaP cells
Concentration:	10 μM
Incubation Time:	6, 12, 24 h
Result:	Increased the expression of HO-1 protein in a time-dependent manner in PC-3 cells. Induced the expression of Nrf2 protein in DU-145 and PC-3 cells, but not in LNCaP cells.

In Vivo

Finasteride (0.1-0.5 mg/kg; p.o. once daily for 16 weeks) reduces prostatic size in dogs with BPH without adversely affecting semen quality or serum testosterone concentration[3].

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

Animal Model:	Male dogs with spontaneous BPH (2.7-11 years old; 10.3-49 kg)[3]
Dosage:	0.1-0.5 mg/kg
Administration:	P.o. once daily for 16 weeks
Result:	Decreased prostatic diameter (20%), prostatic volume (43%), and serum DHT concentration (58%). Decreased semen volume but did not adversely effect on semen quality or serum testosterone concentration. No adverse effects on dogs.

CUSTOMER VALIDATION

- Phytomedicine. 2023 Aug 25, 155048.
- J Transl Med. 2023 Feb 2;21(1):71.
- Sci Rep. 2019 Dec 23;9(1):19703.
- J Pain. 2019 May;20(5):577-591.

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REFERENCES

[1]. Flores E, et, al. Steroid 5alpha-reductase inhibitors. Mini Rev Med Chem. 2003 May;3(3):225-37.

[2]. Yun DK, et, al. Finasteride Increases the Expression of Hemoxygenase-1 (HO-1) and NF-E2-Related Factor-2 (Nrf2) Proteins in PC-3 Cells: Implication of Finasteride-Mediated High-Grade Prostate Tumor Occurrence. Biomol Ther (Seoul). 2013 Jan;21(1):49-53.

[3]. Sirinarumitr K, et, al. Effects of finasteride on size of the prostate gland and semen quality in dogs with benign prostatic hypertrophy. J Am Vet Med Assoc. 2001 Apr 15;218(8):1275-80.

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

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA