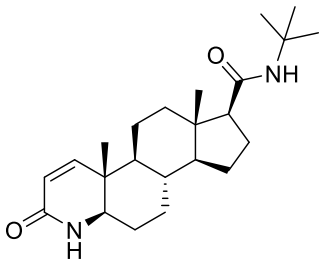
Product data sheet

MedKoo Cat#: 317872 Name: Finasteride CAS#: 98319-26-7 Chemical Formula: $C_{23}H_{36}N_2O_2$ Exact Mass: 372.2777 Molecular Weight: 372.5441	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
Finasteride is a medication used for the treatment of benign prostatic hyperplasia (BPH) and male pattern baldness (MPB). It is a type II and type III 5α-reductase inhibitor; 5α-reductase, an enzyme, converts testosterone to dihydrotestosterone (DHT).

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	150	402.64
Ethanol	75	201.32

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.91 mL	9.53 mL	19.06 mL
5 mM	0.38 mL	1.91 mL	3.81 mL
10 mM	0.19 mL	0.95 mL	1.91 mL
50 mM	0.04 mL	0.19 mL	0.38 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. Yun DK, Lee J, Keum YS. 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. doi: 10.4062/biomolther.2012.080. PMID: 24009858; PMCID: PMC3762299.

In vivo study

1. Sirinarumitr K, Johnston SD, Kustritz MV, Johnston GR, Sarkar DK, Memon MA. 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. doi: 10.2460/javma.2001.218.1275. PMID: 11330612.

7. Bioactivity
Biological target:

Finasteride (MK-906) is a potent, reversible inhibitor of the rat type 1 5 alpha-reductase with Ki of 10.2 nM, used in the treatment of benign prostatic hyperplasia (BPH) and male pattern baldness (MPB).

In vitro activity

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It was observed that treatment of finasteride did not affect the growth of androgen-refractory PC-3 prostate cancer cells. Finasteride also failed to induce apoptosis or affect the expression of proto-oncogenes in PC-3 cells. Interestingly, it was found that treatment of finasteride induced the expression of Nrf2 and HO-1 proteins in PC-3 cells. In particular, basal level of Nrf2 protein was higher in androgen-refractory prostate cancer cells, e.g. DU-145 and PC-3 cells, compared with androgen-responsive prostate cancer cells, e.g. LNCaP cells. Also, treatment of finasteride resulted in a selective induction of Nrf2 protein in DU-145 and PC-3 cells, but not in LNCaP cells. In view of the fact that upregulation of Nrf2-mediated phase II cytoprotective enzymes contribute to attenuating tumor promotion in normal cells, but, on the other hand, confers a selective advantage for cancer cells to proliferate and survive against chemical carcinogenesis and other forms of toxicity, it's proposed that finasteride-mediated induction of Nrf2 protein might be responsible, at least in part, for an increased risk of high-grade prostate tumor formation in men.

Reference: Biomol Ther (Seoul). 2013 Jan;21(1):49-53. https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/24009858/

In vivo activity

Five dogs were treated with finasteride for 16 weeks (0.1 to 0.5 mg/kg [0.05 to 0.23 mg/lb] of body weight, PO, q 24 h); the other 4 received a placebo. Prostatic diameter, measured radiographically, prostatic volume, measured ultrasonographically, semen quality, and serum DHT and testosterone concentrations were evaluated before and during treatment. After receiving the placebo for 16 weeks, the 4 control dogs were treated with finasteride for 16 weeks, and evaluations were repeated. Finasteride significantly decreased prostatic diameter (mean percentage decrease, 20%), prostatic volume (mean percentage decrease, 43%), and serum DHT concentration (mean percentage decrease, 58%). Finasteride decreased semen volume but did not adversely effect semen quality or serum testosterone concentration. No adverse effects were reported by owners of dogs in the study.

Reference: J Am Vet Med Assoc. 2001 Apr 15;218(8):1275-80.
https://avmajournals.avma.org/doi/10.2460/javma.2001.218.1275?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%200pubmed