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Provera

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PROVERA

Trade Names₁:

Depo-Provera, Depo-subQ, Provera 104, Provera

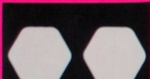
Chemical Names₂:

17-*a*-Acetoxy-6 α -methylprogesterone;
6 α -methyl-17 α -acetoxyprogesterone

Chemical Formula₂:

C₂₄H₃₄O₄

Images₄:



Water Solubility₂:

Insoluble in water

Classification₁:

Progestin

Route and Dosage₁:

Smallest dosage: 20 mg

Half-life of Provera₁:

30 days PO (taken orally)
50 days IM (administered intramuscularly)

Body's Processing of Provera₁:

Medroxyprogesterone acetate is taken orally or administered intramuscularly.

Provera can be used to treat adults with Sleep apnea₁

Route and Dosage: PO 20 mg t.i.d.
(An adult should take 20 milligrams by mouth, three times daily)

(Medroxyprogesterone acetate)₁

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Uses₁:

Labeled uses of medroxyprogesterone acetate include treating dysfunctional uterine bleeding, secondary amenorrhea, and pain associated with endometriosis. This parental form (Depo-Provera) is used in adjunctive, palliative treatment of inoperable, recurrent, and metastatic endometrial or renal carcinoma. Medroxyprogesterone acetate is also used for contraception.

Unlabeled Uses₁:

The unlabeled use of medroxyprogesterone acetate is for the treatment of obstructive sleep apnea.

What happens in your body when Provera has been absorbed₁?

Medroxyprogesterone acetate induces and maintains the lining of the uterus (endometrium) and prevents the uterus from bleeding. This medication also inhibits the pituitary gland in the brain from producing a hormone called gonadotropin (which is a hormone that is important for ovulation to occur). A thick cervical mucus is produced from the use of medroxyprogesterone acetate, that prevents sperm from passing through the cervix (opening of the uterus from the vagina). Luteinizing hormone, which is another very important hormone for ovulation to occur, is slowed in its production which prevents the follicle from maturing, which then prevents ovulation from occurring.

Breakdown of Provera in your body₁:

Medroxyprogesterone acetate is metabolized (broken down) in the liver.

How your body disposes of Provera₁:

Once medroxyprogesterone acetate has made its way through the blood stream and has been broken down in the liver, the remains are excreted through feces.

Availability of Provera₁:

2.5 mg, 5 mg, 10 mg tablets; 104 mg/0.65 mL, 150 mg/mL, 400 mg/mL injection

Molar Mass of Medroxyprogesterone Acetate₂:

24 mol C (12.0 g/1 mol C) = 290 g
34 mol H (1.0 g/1 mol H) = 34 g
4 mol O (16.0 g/1 mol O) = 60 g
290 g + 34 g + 60 g = 384 g

Molar mass rounded to 0 decimal places:
384 g

Literature value for molar mass:
386.52 g

*My molar mass calculation is different from the literature value because I included one decimal place for each element's mass while The Merck used more than one decimal place for each element.

Dosing & Molar Mass₁:

10 mg tablet
If a patient takes two 10 mg tablets three times daily, they will consume 6 whole tablets.

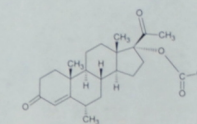
Dose to Molecules₂:

20 mg C₂₄H₃₄O₄ (1 g/1000 mg) (1 mol/386.52 g) (6.02 x 10²³ molecules/1 mol) = 3.1 x 10¹⁹ molecules of C₂₄H₃₄O₄

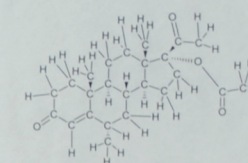
Dose to Tablets:

(20 mg dose/10 mg tablet) = 2 tablets for one dose
(2 tablets x 3 times daily = 6 tablets per day)

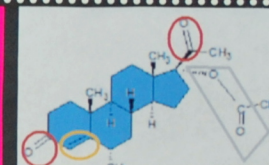
Condensed structural formula of Provera



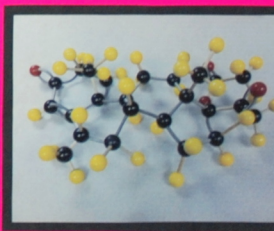
Expanded structural formula of Provera



Functional Groups₃



Functional Group	*Phobic vs 'Phobic'?	Acid or Base?
Cyclic	Hydrophobic	Neither acid or base
Alkene	Hydrophobic	Neither acid or base
Ester	Hydrophobic	Neither acid or base
Ketone	Hydrophilic	Neither acid or base



1. Wilson, B. A., Shannon, M. T., Shields, K. M. Medroxyprogesterone acetate. *Parenteral*. *Merck's Drug Guide 2012*. Parenteral Edition, Inc., Upper Merion, PA, 2012, pp 929-931.
2. Medroxyprogesterone acetate. In *The Merck Index*. An Encyclopedia of Chemical, Drugs and Biologicals, 15th ed., 07/04, M. J. Hunkeler, P. E. Krusk, C. B. Roark, K. J. Eddy, Merck Research Laboratories. Whitehouse Station, NJ, 2006, p 1001.
3. Lehman, V. Functional Groups. In *Chemistry 106 Course Supplement* Spring 2012. Addison, Dallas, TX, USA, Parkland College Registrarship, Chemistry, 2011, pp 164-167.
4. <http://www.ck12.org/chemistry/medroxyprogesterone-acetate>
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