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ProductInformation

Testosterone propionate

Product Number **T 1875**
Store at Room Temperature

Product Description

Molecular Formula: $C_{22}H_{32}O_3$
Molecular Weight: 344.5
CAS Number: 57-85-2
Melting Point: 118-122 °C[1]
λ_{max}: 241 nm
Extinction coefficient: E^{mM} = 17.4[2] (ethanol)
Specific rotation: +83° to +90°
(1 g/100 ml dioxane, 25 °C)[1]

Testosterone is an androgen, which directs the development of the male phenotype during embryogenesis and at puberty.[3] It is secreted by the testes and is converted to dihydrotestosterone in target tissues where it mediates numerous biological activities.[4]

Testosterone is produced mainly in the testes and a small amount is produced by the adrenal gland. It is synthesized from cholesterol via a progesteron intermediate. The hypothalamus produces gonadotrophin releasing hormone (GnRH) which acts on the anterior pituitary to increase the production of luteinizing hormone (LH) and follicle stimulating hormone (FSH). LH then acts on the Leydig cells in the testes, causing them to produce testosterone. FSH, together with testosterone act on the Sertoli cells in the testes to regulate the production and maturation of spermatozoa. Testosterone, in turn, acts on the hypothalamus and anterior pituitary to suppress the production of GnRH, FSH, and LH, producing a negative-feedback mechanism which helps to regulate levels. The small amount produced by the adrenal gland (in both males and females) is regulated by secretion of adrenal corticotrophin hormone (ACTH), also secreted by the pituitary.[5]

Testosterone, and its metabolites such as dihydrotestosterone, act in many parts of the body, producing the secondary sexual characteristics of males including balding, facial and body hair, deep voice, greater muscle bulk, thicker skin, and genital maturity. At puberty it produces acne, the growth spurt and the enlargement of the penis and testes as well as causing the fusion of the epiphyses, bringing growth in height to an end. It plays some role in maintaining the sexual organs in the adult, but only a low concentration is required for this.[6]

The normal production of testosterone in the adult male is 4 to 9 mg per day. The normal plasma concentration is 22.5 nmol/l, of which 97% is protein bound. Most of the circulating testosterone is excreted in the urine in the form of 17-keto steroids, but a small amount is converted to estrogenic hormones.

This product is synthetically prepared from a naturally occurring plant compound. The added propionate extends the activity of the testosterone. The propionate form is faster acting than the other testosterone esters.

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in chloroform (50 mg/ml). It is also soluble in a number of oils, including ethyl oleate.[7] The oil solutions can be sterilized by maintaining at 150 °C for 1 hour. It is practically insoluble in water, soluble 1 in 6 of ethanol, 1 in 4 of acetone, 1 in 20 of ethyl oleate, and 1 in 30 of propylene glycol. The product is incompatible with alkalis and oxidizing agents; it should be protected from light.

References

1. The Merck Index, 10th ed., Entry# 9006.
2. J. AOAC **45**, 797 (1962).
3. Mainwaring, W.I., The mechanism of action of androgens. Monogr. Endocrinol. **10**, 1-178 (1977).
4. Rosenfield, R.L., Adv. Pediatrics **19**, 172 (1972).
5. Norris, D., Vertebrate Endocrinology, Lea & Febiger (Philadelphia, PA: 1980), pp. 293, 339.
6. West, E. S., et al., eds., Textbook of Biochemistry, 4th edition, The Macmillan Company (New York, NY: 1966), pp. 1491-1493.
7. Martindale The Extra Pharmacopoeia, 28th ed., Reynolds, J. E. F., ed., The Pharmaceutical Press (London, England: 1982), p. 1438.

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