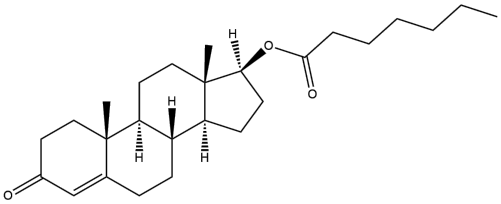
Product Data Sheet

Product Name: Testosterone enanthate
Cat. No.: GC20125

Chemical Properties

Cas. No.	315-37-7		
Formula	$C_{26}H_{40}O_3$	M.Wt	400.59
Solubility		Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

Structure



Protocol

Cell experiment [1]:	
Cell lines	MG-63 cells

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Preparation Method	MG-63 cells were maintained in DMEM medium, supplemented with 10% fetal bovine serum, 1% L-Glutamine, 100U/ml penicillin, and 100μg/ml streptomycin at 37°C in a humidified atmosphere of 5% CO_2 and 95% air. Cells were seeded in 24-well plates at a concentration of 5×10^4 cells/well overnight and treated with different concentrations of Testosterone enanthate (1, 10, 100, and 1000μM). After 24h, cell viability was measured.
Reaction Conditions	1, 10, 100, and 1000μM; 24h
Applications	Testosterone enanthate treatment decreased cell viability of MG-63 cells in a dose-dependent manner.
Animal experiment [2]:	
Animal models	Male Wistar rats
Preparation Method	Male Wistar rats (three-month-old; 250-270g) were raised in controlled environmental conditions (22±2°C; 12h light/dark cycle) with food and water ad libitum. To mimic the most likely route of human exposure to androgens, rats were androgenized via intramuscular injection of Testosterone enanthate (25mg/kg/week). Since rats in the experimental group were treated with intramuscular injections of Testosterone enanthate dissolved in olive oil, all rats in the control groups received only 50μl of olive oil per 100g of body weight. At the end of the administration period, all rats were quickly decapitated, and pituitary and trunk blood were collected for analysis.
Dosage form	25mg/kg/week; 10 weeks; i.m.

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Applications	Testosterone enanthate treatment significantly increased prolactin and decreased Prlr2 and Gnrhr expression in the pituitary of adult rats.
References:[1] Ghezzi B, Parisi L, Calciolari E, et al. Testosterone Enanthate: An In Vitro Study of the Effects Triggered in MG-63 Cells[J]. Biomolecules, 2022, 12(8): 1159. [2] Bjelic M M, Stojkov N J, Radovic S M, et al. Prolonged in vivo administration of testosterone-enanthate, the widely used and abused anabolic androgenic steroid, disturbs prolactin and cAMP signaling in Leydig cells of adult rats[J]. The Journal of Steroid Biochemistry and Molecular Biology, 2015, 149: 58-69.	

Background

Testosterone enanthate is an androgen that enhances male muscle mass and strength within a short period of time[1]. Testosterone enanthate increases the level of gonadotropin, reduces the volume of the testicles, and inhibits spermatogenesis[2]. Testosterone enanthate has been widely used to alter the structure and function of the prostate in adult male rhesus monkeys[3].

In vitro, Testosterone enanthate treatment (10μM) for 14 days promoted the differentiation of MG-63 cells and increased the expression of osteogenic differentiation markers (such as COL1A1, ALPL, BGLAP and IBSP)[4]. Incubation of human colon cells with 1mg/ml Testosterone enanthate for 48 hours resulted in decreased cell viability and induction of apoptosis, as well as increased levels of caspase-3 and caspase-3 protein[5].

In vivo, Testosterone enanthate treatment via subcutaneous injection at a dose of 1.2mg/kg three times per week for 12 weeks reduced the weight of the testicles and epididymis in rats and caused abnormalities in the seminiferous tubules[6]. Intramuscular injection of Testosterone enanthate at a dose of 80mg/kg once weekly for 6 weeks slowed body weight gain, decreased the liver weight/body weight ratio, increased hepatic heat shock protein 70/72 content, and elevated the levels of liver stress enzyme markers in the blood of male rats[7]. Intramuscular injection of Testosterone enanthate at a dose of 25mg/kg/week for 10 consecutive weeks elevated prolactin levels in the pituitary and impaired Leydig cell function in adult rats[8].

References:
[1] Rogerson S, Weatherby R P, Deakin G B, et al. The effect of short-term use of testosterone

enanthate on muscular strength and power in healthy young men[J]. Journal of strength and conditioning research, 2007, 21(2): 354-361.
[2] Giorgi A, Weatherby R P, Murphy P W. Muscular strength, body composition and health responses to the use of testosterone enanthate: a double blind study[J]. Journal of Science and Medicine in Sport, 1999, 2(4): 341-355.
[3] Udayakumar T S, Tyagi A, Rajalakshmi M, et al. Changes in structure and functions of prostate by long-term administration of an androgen, testosterone enanthate, in rhesus monkey (Macaca mulatta)[J]. The Anatomical Record: An Official Publication of the American Association of Anatomists, 1998, 252(4): 637-645.
[4] Ghezzi B, Parisi L, Calciolari E, et al. Testosterone Enanthate: An In Vitro Study of the Effects Triggered in MG-63 Cells[J]. Biomolecules, 2022, 12(8): 1159.
[5] Amani N, Shariati M, Ahmadi R, et al. Testosterone enanthate induces cell death in human colon (HCT) and gastric (AGS) cancer cells[J]. Pakistan J. Zool, 2021, 54: 1153-1161.
[6] Flickinger C J. Effects of testosterone enanthate on the structure of the male reproductive tract of the rat[J]. The Anatomical Record, 1978, 192(4): 555-583.
[7] Sadowska-Krępa E, Kłapcińska B, Jagsz S, et al. High-dose testosterone enanthate supplementation boosts oxidative stress, but exerts little effect on the antioxidant barrier in sedentary adolescent male rat liver[J]. Pharmacological Reports, 2017, 69(4): 673-678.
[8] Bjelic M M, Stojkov N J, Radovic S M, et al. Prolonged in vivo administration of testosterone-enanthate, the widely used and abused anabolic androgenic steroid, disturbs prolactin and cAMP signaling in Leydig cells of adult rats[J]. The Journal of Steroid Biochemistry and Molecular Biology, 2015, 149: 58-69.