
Product Data Sheet

Product Name: 11-keto Testosterone

Cat. No.: GC18192

Chemical Properties

Cas. No. 564-35-2

Chemical Name (17 β)-17-hydroxy-androst-4-ene-3,11-dioneSMILES O=C1CC[C@@]2(C)C(CC[C@]([C@@](CC[C@@H]3O)([H])[C@]3(C)C4)([H])[C@]2([H])C4=O)=C1Formula C₁₉H₂₆O₃

M.Wt 302.4

Solubility DMSO : 100 mg/mL (330.68 mM; Need ultrasonic) 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 Hepatic explants □ ovarian explants

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

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Preparation Method	<p>Three 28-month old female sterlets were selected through endoscopic determination at the previtellogenic stage. After being anesthetized with 400ppm of MS222, the sterlets were briefly submerged in 75% ethanol prior to the removal of ovaries and liver under sterile conditions. Following adipose tissue removal, the remaining ovarian tissue and livers were washed separately by cold PBS and cut into 1cm³ fragments in culture medium (DMEM/F12, 1:1, phenol-red free). Using 6-well Costar culture plates, fragments were incubated in 2.5mL culture medium for 5 days at 25°C. Three replicate incubations were performed for each treatment and for each individual. The culture medium consisted of DMEM/F12 supplemented with 1% penicillin-streptomycin solution, 20% fetal bovine serum and 10, 100µM 11-keto Testosterone (0, 30, or 300µg/mL). At the end of incubation, explants were flash frozen in liquid nitrogen and stored at -80°C until analysis. Culture medium from each dish was also collected to determine Testosterone(T), 17β-estradiol (E2), and Vitellogenin(Vtg) concentrations.</p>
Reaction Conditions	10, 100µM; 5 days
Applications	11-keto Testosterone treatment significantly increased the concentrations of T, E2, and Vtg in hepatic explants, and the concentrations of T and E2 in the culture medium of ovarian explants also increased significantly.

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[1]Wang W, Zhu H, Tian Z, et al. Effects of 11-Ketotestosterone on development of the previtellogenic ovary in the sterlet, Acipenser Ruthenus. Front Endocrinol (lausanne) 11: 115[J]. 2020.

Background

11-keto Testosterone is an oxidized form of testosterone and a non-aromatizable active androgen^[1, 2]. 11-keto Testosterone is the major androgen in fish^[3]. 11-keto Testosterone can promote the degeneration of oocytes, the proliferation of spermatocytes, and the formation of sperm in grouper^[4].

In vitro, 11-keto Testosterone (10, 100 μ M) treatment of Sterlet liver explants and ovarian explants for 5 days significantly increased the concentrations of testosterone and 17 β -estradiol in the culture medium of liver explants and ovarian explants, and the concentration of vitellogenin in the culture medium of liver explants also increased significantly^[5].

In vivo, silicone rubber strips coated with 11-keto Testosterone (5, 25mg/kg/day) were implanted into pre-pregnant female Sterlet for 30 days and promoted ovarian development in a dose-dependent manner, but no ovarian masculinization was found^[5].

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- [1] Stárka L, Dušková M, Vítků J. 11-Keto-testosterone and other androgens of adrenal origin[J]. *Physiological Research*, 2020, 69(Suppl 2): S187.
- [2] Felício A A, Crago J, Maryoung L A, et al. Effects of alkylphenols on the biotransformation of diuron and enzymes involved in the synthesis and clearance of sex steroids in juvenile male tilapia (*Oreochromus mossambica*)[J]. *Aquatic Toxicology*, 2016, 180: 345-352.
- [3] Loggie J W. A test of the effects of androgens on immunity: no relationship between 11-keto testosterone and immune performance in bluegill sunfish (*Lepomis macrochirus*) [D]. The University of Western Ontario (Canada), 2016.
- [4] Lee C H, Hur S W, Song Y B, et al. Effect of 11-ketotestosterone (11-KT) on gonadal sex reversal and spermatogenesis of honeycomb grouper *Epinephelus merra*[J]. *Development and Reproduction*, 2010, 14(1): 1-5.
- [5] Wang W, Zhu H, Tian Z, et al. Effects of 11-Ketotestosterone on development of the previtellogenic ovary in the sterlet, *Acipenser Ruthenus*. *Front Endocrinol (lausanne)* 11: 115[J]. 2020.

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