# 11-Ketodihydrotestosterone

**Cat. No.:** HY-135794

**CAS No.:** 32694-37-4

**Molecular Formula:** $C_{19}H_{28}O_3$

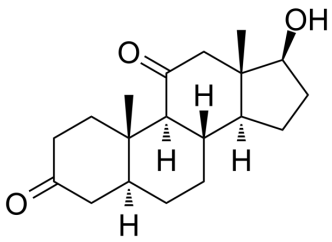
**Molecular Weight:** 304.42

**Target:** Androgen Receptor

**Pathway:** Vitamin D Related/Nuclear Receptor

**Storage:**

| | | |
|---|---|---|
| Powder | -20°C | 3 years |
| In solvent | -80°C | 6 months |
| | -20°C | 1 month |




## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : 100 mg/mL (328.49 mM; Need ultrasonic)

| Preparing Stock Solutions | Mass / Solvent / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|---|
| | 1 mM | 3.2849 mL | 16.4247 mL | 32.8493 mL |
| | 5 mM | 0.6570 mL | 3.2849 mL | 6.5699 mL |
| | 10 mM | 0.3285 mL | 1.6425 mL | 3.2849 mL |

Please refer to the solubility information to select the appropriate solvent.

**In Vivo**

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (8.21 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.5 mg/mL (8.21 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (8.21 mM); Clear solution

## BIOLOGICAL ACTIVITY

**Description**

11-Ketodihydrotestosterone (11-KDHT; 5α-Dihydro-11-keto testosterone) is an endogenous steroid and a metabolite of 11β-Hydroxyandrostenedione. 11-Ketodihydrotestosterone is an active androgen and is also a potent androgen receptor (AR) agonist with a $K_i$ of 20.4 nM and an $EC_{50}$ of 1.35 nM for human AR. 11-Ketodihydrotestosterone drives gene regulation, protein expression and cell growth in androgen-dependent prostate cancer cells[1][2].

**$IC_{50}$ & Target**

Ki: 20.4 nM (Human androgen receptor)[1]
EC50: 1.35 nM (Human androgen receptor)[1]

**In Vitro**

11-Ketodihydrotestosterone (11-KDHT; 1-10 nM; 24 hours; LNCaP and VCaP cells) treatment induces significant cell proliferation[1].

11-Ketodihydrotestosterone (11-KDHT; 0.1-10 nM; 7-10 days; LNCaP and VCaP cells) treatment results in the significant upregulation of KLK3, TMPRSS2 and FKBP5 in both LNCaP and VCaP cells, with the exception of KLK3 at 1 nM in LNCaP cells [1].

In PNT2 cells, only 20% of 11β-hydroxyandrostenedione (11OHA4) and 11β-hydroxytestosterone (11OHT) are metabolised with the former yielding 11keto-androstenedione (11KA4), 11-Ketodihydrotestosterone (11-KDHT) and 11β-hydroxy-5α-androstanedione (11OH-5αDIONE) and the latter yielding 11OHA4, 11KT and 11-Ketodihydrotestosterone with downstream products <0.03 μM[2].

In prostate cancer tissue, C11-oxy C19 metabolites at significantly higher levels than the C19 steroids are detected, with unconjugated 11-Ketodihydrotestosterone, 11KT and 11OHA4 levels ranging between 13 and 37.5 ng/g. Analyses of total steroid levels in plasma show significant levels of 11OHA4 (≈230-440 nM), 11KT (≈250-390 nM) and 11-Ketodihydrotestosterone (≈19 nM)[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Proliferation Assay[1]

| | |
|---|---|
| Cell Line: | LNCaP and VCaP cells |
| Concentration: | 0.1 nM, 1 nM or 10 nM |
| Incubation Time: | 7 days (LNCaP cells) or 10 days (VCaP cells) |
| Result: | Induced significant cell proliferation. |

RT-PCR[1]

| | |
|---|---|
| Cell Line: | LNCaP and VCaP cells |
| Concentration: | 1 nM, 10 nM |
| Incubation Time: | 24 hours |
| Result: | Resulted in the significant upregulation of KLK3, TMPRSS2 and FKBP5 in both LNCaP (Fig 3) and VCaP (Fig 4) cells. |

## REFERENCES


[1]. Pretorius E, et al. 1-Ketotestosterone and 11-Ketodihydrotestosterone in Castration Resistant Prostate Cancer: Potent Androgens Which Can No Longer Be Ignored. PLoS One. 2016 Jul 21;11(7):e0159867.

[2]. du Toit T, et al. Profiling adrenal 11β-hydroxyandrostenedione metabolites in prostate cancer cells, tissue and plasma: UPC2-MS/MS quantification of 11β-hydroxytestosterone, 11keto-testosterone and 11keto-dihydrotestosterone. J Steroid Biochem Mol Biol. 2





Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA