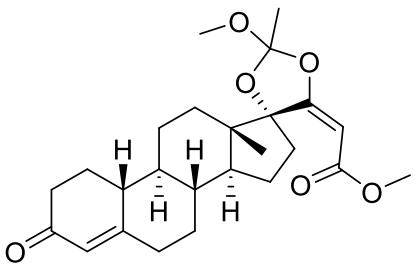
Product data sheet

MedKoo Cat#: 530400 Name: YK11 CAS#: 1370003-76-1 Chemical Formula: $C_{25}H_{34}O_6$ Exact Mass: 430.2355 Molecular Weight: 430.541	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

YK-11 is a synthetic, steroidal selective androgen receptor modulator (SARM). It is a gene-selective partial agonist of the androgen receptor (AR) and does not induce the physical interaction between the NTD/AF1 and LBD/AF2 (known as the N/C interaction), which is required for full transactivation of the AR. The drug has anabolic activity in vitro in C2C12 myoblasts and shows greater potency than dihydrotestosterone (DHT) in this regard.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	64.0	148.65

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.32 mL	11.61 mL	23.23 mL
5 mM	0.46 mL	2.32 mL	4.65 mL
10 mM	0.23 mL	1.16 mL	2.32 mL
50 mM	0.05 mL	0.23 mL	0.46 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Yatsu T, Kusakabe T, Kato K, Inouye Y, Nemoto K, Kanno Y. Selective Androgen Receptor Modulator, YK11, Up-Regulates Osteoblastic Proliferation and Differentiation in MC3T3-E1 Cells. Biol Pharm Bull. 2018;41(3):394-398. doi: 10.1248/bpb.b17-00748. PMID: 29491216.

2. Kanno Y, Hikosaka R, Zhang SY, Inoue Y, Nakahama T, Kato K, Yamaguchi A, Tominaga N, Kohra S, Arizono K, Inouye Y. (17α,20E)-17,20-[(1-methoxyethylidene)bis(oxy)]-3-oxo-19-norpregna-4,20-diene-21-carboxylic acid methyl ester (YK11) is a partial agonist of the androgen receptor. Biol Pharm Bull. 2011;34(3):318-23. doi: 10.1248/bpb.34.318. PMID: 21372378.

In vivo study

1. Lee SJ, Gharbi A, Shin JE, Jung ID, Park YM. Myostatin inhibitor YK11 as a preventative health supplement for bacterial sepsis. Biochem Biophys Res Commun. 2021 Mar 5;543:1-7. doi: 10.1016/j.bbrc.2021.01.030. Epub 2021 Feb 12. PMID: 33588136.

2. Piper T, Dib J, Putz M, Fusshöller G, Pop V, Lagojda A, Kuehne D, Geyer H, Schänzer W, Thevis M. Studies on the in vivo metabolism of the SARM YK11: Identification and characterization of metabolites potentially useful for doping controls. Drug Test Anal. 2018 Nov;10(11-12):1646-1656. doi: 10.1002/dta.2527. Epub 2018 Nov 18. PMID: 30379415.

Product data sheet

7. Bioactivity

Biological target:

YK11 is a partial agonist of androgen receptor with osteogenic activity.

In vitro activity

A novel steroid compound, (17α,20E)-17,20-[(1-methoxyethylidene)bis(oxy)]-3-oxo-19-norpregna-4,20-diene-21-carboxylic acid methyl ester (YK11), was found to be a partial agonist of the androgen receptor (AR) in an androgen responsive element (ARE)-luciferase reporter assay. YK11 accelerates nuclear translocation of AR. Furthermore, YK11 does not induce amino/carboxyl-terminal (N/C) interaction and prevents 5-α-dihydrotestosterone (DHT)-mediated N/C interaction. Thus, YK11 activates AR without causing N/C interaction, which may in turn be responsible for the partially agonistic nature of YK11 observed in the ARE-luciferase reporter system. YK11 acts as a gene-selective agonist of AR in MDA-MB 453 cells. The effect of YK11 on gene expression relative to that of androgen agonist varies depending on the gene context. YK11 activated the reporter gene by inducing the translocation of the AR into the nuclear compartment, where its amino-terminal domain (NTD) functions as a constitutive activator of AR target genes. These results suggest that YK11 might act as selective androgen receptor modulator (SARM).

Reference: Biol Pharm Bull. 2011;34(3):318-23. https://pubmed.ncbi.nlm.nih.gov/21372378/

In vivo activity

The effect of YK11 on the pathophysiology of sepsis was tested. Sepsis was induced by i.p. injection of E. coli K1 at 1 × 108 CFU/mouse into mice that had a daily uptake of YK11 (6 h/3 times/day). YK11 injection at 350 and 700 mg/kg increased the survival rate of septic mice by 20% and 40%, respectively, within 72 h (Fig. 2A). YK11 also significantly reduced endotoxin levels in the serum (Fig. 2B), and the levels of inflammatory cytokines TNF-α, IL-1β, IL-6, IL-12p70, and IL-10 in the lungs of mice (Fig. 2C). Additionally, the levels of organ damage biomarkers—aspartate aminotransferase (AST), alanine aminotransferase (ALT) in the liver and blood urea nitrogen (BUN) in the kidneys—were alleviated by YK11 (Fig. 2D). Furthermore, YK11 promoted bacterial clearance from the organs of septic mice (Fig. 2E). It is YK11 effect was also shown against CRAB (Fig. S2). These data suggest that YK11 prevent septic mice caused by gram-negative bacteria by regulating inflammatory cytokine levels.

Reference: Biochem Biophys Res Commun. 2021 Mar 5;543:1-7. https://pubmed.ncbi.nlm.nih.gov/33588136/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.