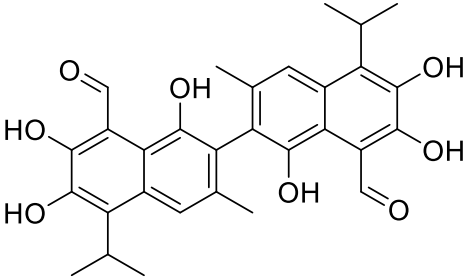


Product data sheet



MedKoo Cat#: 201430 Name: Gossypol CAS#: 303-45-7 (free) Chemical Formula: C ₃₀ H ₃₀ O ₈ Exact Mass: 518.19407 Molecular Weight: 518.5544	
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:

Gossypol is an orally-active polyphenolic aldehyde with potential antineoplastic activity. Derived primarily from unrefined cottonseed oil, gossypol induces cell cycle arrest at the G0/G1 phase, thereby inhibiting DNA replication and inducing apoptosis. This agent also inhibits cell-signaling enzymes, resulting in inhibition of cell growth, and may act as a male contraceptive.

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	100	192.85
Ethanol	8	15.43

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.93 mL	9.64 mL	19.28 mL
5 mM	0.39 mL	1.93 mL	3.86 mL
10 mM	0.19 mL	0.96 mL	1.93 mL
50 mM	0.04 mL	0.19 mL	0.39 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. Oliver CL, Bauer JA, Wolter KG, Ubell ML, Narayan A, O'Connell KM, Fisher SG, Wang S, Wu X, Ji M, Carey TE, Bradford CR. In vitro effects of the BH3 mimetic, (-)-gossypol, on head and neck squamous cell carcinoma cells. *Clin Cancer Res.* 2004 Nov 15;10(22):7757-63. doi: 10.1158/1078-0432.CCR-04-0551. Erratum in: *Clin Cancer Res.* 2005 Aug 1;11(15):5659. PMID: 15570010.

2. Lim W, Ham J, Park S, Bae H, You S, Song G. Gossypol Induces Disruption of Spermatogenesis and Steroidogenesis in Male Mice. *J Agric Food Chem.* 2019 Feb 20;67(7):2075-2085. doi: 10.1021/acs.jafc.8b06946. Epub 2019 Feb 8. PMID: 30678458.

In vivo study

1. Liang J, Chen C, Liu H, Liu X, Li Z, Hu J, Zhao H. Gossypol Promotes Bone Formation in Ovariectomy-Induced Osteoporosis through Regulating Cell Apoptosis. *Biomed Res Int.* 2018 Dec 13;2018:3635485. doi: 10.1155/2018/3635485. PMID: 30643801; PMCID: PMC6311247.

2. Lim W, Ham J, Park S, Bae H, You S, Song G. Gossypol Induces Disruption of Spermatogenesis and Steroidogenesis in Male Mice. *J Agric Food Chem.* 2019 Feb 20;67(7):2075-2085. doi: 10.1021/acs.jafc.8b06946. Epub 2019 Feb 8. PMID: 30678458.

Product data sheet



7. Bioactivity

Biological target:

Gossypol, a natural product isolated from cottonseeds and roots, binds to Bcl-xL protein and Bcl-2 protein with K_{is} of 0.5-0.6 μ M and 0.2-0.3 mM, respectively.

In vitro activity

The in vitro effects of (-)-gossypol on HNSCC cell lines as well as on fibroblast and keratinocyte cultures were investigated by using 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) cell survival assays and assessed the results with respect to Bcl-2 family protein expression. It was observed that dose-dependent growth inhibition of 10 HNSCC cell lines at biologically achievable doses (2.5-10 micromol/L). (-)-Gossypol doses required to inhibit the growth of human fibroblast cell lines by 50% were 2- to 10-fold higher than for HNSCC cell lines. To inhibit human oral keratinocyte growth by 50%, (-)-gossypol concentrations were 2-to 3-fold higher than for HNSCC cell lines.

Reference: Clin Cancer Res. 2004 Nov 15;10(22):7757-63.

<http://clincancerres.aacrjournals.org/cgi/pmidlookup?view=long&pmid=15570010>

In vivo activity

To evaluate the effects of gossypol on bone formation, histological analysis was first performed with ovariectomy-induced osteoporosis mice. As shown in Figure 1(a), gossypol-injected mice showed relieved osteoporosis as characterized by a remarkable increase in the trabeculae of epiphyseal (red arrows) and metaphyseal regions (black arrows) when compared with the control mice. The increased thickness of cortical bone was also observed in the metaphyseal region in the gossypol-treated group (data not shown). Furthermore, several serum chemicals were analyzed with Elisa methods in both groups. It was shown that the serum osteocalcin levels in gossypol-injected mice were significantly higher than the control counterpart (Figure 1(b)). Furthermore, the serum OPG levels in the experimental mice were increased to 2-fold of the control group (Figure 1(c)) and the serum RANKL levels were decreased by approximate 50% (Figure 1(d)), causing the ratio of RANKL to OPG to drop to 25% in the gossypol-injected mice in comparison with the control group (Figure 1(e)).

Reference: Biomed Res Int. 2018 Dec 13;2018:3635485. <https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/30643801/>

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.