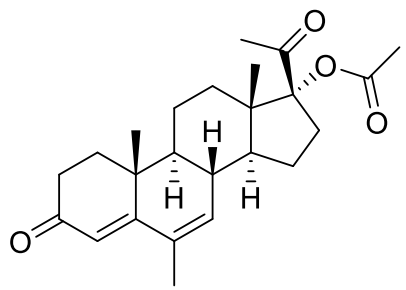
Product data sheet

MedKoo Cat#: 100570 Name: Megestrol Acetate CAS#: 595-33-5 Chemical Formula: $C_{24}H_{32}O_4$ Exact Mass: 384.23006 Molecular Weight: 384.51	
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:

Megestrol acetate is the acetate ester of megestrol, a synthetic derivative of the naturally occurring female sex hormone progesterone, with progestogenic, antiestrogenic, and antineoplastic activities. Mimicking the action of progesterone, megestrol binds to and activates nuclear progesterone receptors (PRs) in the reproductive system and pituitary; ligand-receptor complexes are translocated to the nucleus where they bind to progesterone response elements (PREs) located on target genes.

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	48.0	124.83

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.60 mL	13.00 mL	26.01 mL
5 mM	0.52 mL	2.60 mL	5.20 mL
10 mM	0.26 mL	1.30 mL	2.60 mL
50 mM	0.05 mL	0.26 mL	0.52 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. Zhang K, Chow PK. The effect of megestrol acetate on growth of HepG2 cells in vitro and in vivo. Clin Cancer Res. 2004 Aug 1;10(15):5226-32. doi: 10.1158/1078-0432.CCR-04-0061. PMID: 15297426.
2. Sung JH, An HS, Jeong JH, Shin S, Song SY. Megestrol Acetate Increases the Proliferation, Migration, and Adipogenic Differentiation of Adipose-Derived Stem Cells via Glucocorticoid Receptor. Stem Cells Transl Med. 2015 Jul;4(7):789-99. doi: 10.5966/sctm.2015-0009. Epub 2015 May 13. PMID: 25972147; PMCID: PMC4479629.

In vivo study

1. Zhang K, Chow PK. The effect of megestrol acetate on growth of HepG2 cells in vitro and in vivo. Clin Cancer Res. 2004 Aug 1;10(15):5226-32. doi: 10.1158/1078-0432.CCR-04-0061. PMID: 15297426.
2. Beck SA, Tisdale MJ. Effect of megestrol acetate on weight loss induced by tumour necrosis factor alpha and a cachexia-inducing tumour (MAC16) in NMRI mice. Br J Cancer. 1990 Sep;62(3):420-4. doi: 10.1038/bjc.1990.310. PMID: 2206950; PMCID: PMC1971439.

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7. Bioactivity

Biological target:

Megestrol acetate is a synthetic progesteronal agent that downregulates autophagic catabolic pathway.

In vitro activity

The present study primarily investigated the involvement of megestrol acetate (MA), a progesterone analog, in the stimulation of ASCs, and identifies the target receptors underlying stimulation. Mitogenic and adipogenic effects of MA were investigated in vitro. Because MA acts as an agonist of diverse nuclear receptors (NRs), the mRNA expression of NRs was measured in ASCs with or without MA (10 μM) and progesterone (10 μM) treatment. Unexpectedly, PR was not expressed in ASCs (Fig. 2A). The mineralocorticoid receptor and AR were expressed at low levels, but GR was expressed at high levels (Fig. 2A; supplemental online Table 2). However, MA or progesterone treatment did not alter the expression of these receptors (supplemental online Table 2). In addition, MA (10 μM) and dexamethasone (1 μM, a positive control for GR phosphorylation) significantly increased the phosphorylation of GR in ASCs (Fig. 2B). Phosphorylated GR translocated to the nucleus after MA and dexamethasone treatment (Fig. 2C, green, phosphorylated GR; blue, 4′ ,6-diamidino-2-phenylindole). Collectively, these results suggest that MA might act as a GR agonist and stimulate ASCs via the GR. Magestrol acetate (MA) increases the proliferation, migration, and adipogenic differentiation of adipose-derived stem cells (ASCs) via glucocorticoid receptor phosphorylation. Therefore, MA can be applied to increase the production yield during expansion and can be used to facilitate adipogenic differentiation of ASCs.

Reference: Stem Cells Transl Med. 2015 Jul; 4(7): 789–799. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4479629/

In vivo activity

The aim of the study is to investigate the effect of megestrol acetate, a synthetic progesteronal agent, on growth of HepG2 cells in vivo. As shown in Fig. 2⇓ , tumor volumes in nude mice were not affected by treatment of megestrol acetate in the first 5 weeks. However, from week 6 of megestrol treatment, a significant suppression of tumor growth was observed. The tumor volumes of the megestrol acetate-treated group regressed to 59% of controls at week 6 and to 41% of controls at week 13 ($P < 0.05$ compared with controls). The megestrol acetate-induced reductions of tumors are progressive during the period of treatment. Megestrol acetate was also demonstrated to have a beneficial effect on the weight gain of tumor-bearing nude mice, and the mean weight of the megestrol acetate-treated animals was higher than that of controls from week 4 of the treatment period, and the differences were statistically significant in week 5 and 6 ($P < 0.05$, compared with controls). No significant survival advantage was, however, demonstrated in the treatment group. This study showed that megestrol acetate inhibited the growth of HepG2 cells grown in vivo. These data provide useful information for clinical study of megestrol acetate for the treatment of HCC.

Reference: Clin Cancer Res. 2004 Aug 1;10(15):5226-32. https://pubmed.ncbi.nlm.nih.gov/15297426/

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.