

# Product data sheet



MedKoo Cat#: 329603 Name: Adelmidrol CAS#: 1675-66-7 Chemical Formula: C <sub>13</sub> H <sub>26</sub> N <sub>2</sub> O <sub>4</sub> Exact Mass: 274.1893 Molecular Weight: 274.361	
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:

Adelmidrol is the semisynthetic diethanolamide derivative of azelaic acid, and has a symmetrical chemical structure. It is classed as an ALIAmide, and is similar to palmitoylethanolamide, the parent molecule in the ALIAmide class of drugs. It is used extensively in Italy in veterinary medicine, to treat skin inflammation. In 2015 it was found the compound also exerts anti-inflammatory action given systemically in 10 mg per kg bodyweight.

## 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	77.5	282.47
Ethanol	28.0	102.06
Water	55.0	200.47

## 4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.64 mL	18.22 mL	36.45 mL
5 mM	0.73 mL	3.64 mL	7.29 mL
10 mM	0.36 mL	1.82 mL	3.64 mL
50 mM	0.07 mL	0.36 mL	0.73 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. Petrosino S, Puigdemont A, Della Valle MF, Fusco M, Verde R, Allarà M, Aveta T, Orlando P, Di Marzo V. Adelmidrol increases the endogenous concentrations of palmitoylethanolamide in canine keratinocytes and down-regulates an inflammatory reaction in an in vitro model of contact allergic dermatitis. *Vet J.* 2016 Jan;207:85-91. doi: 10.1016/j.tvjl.2015.10.060. Epub 2015 Nov 10. PMID: 26639824.

### In vivo study

1. Fusco R, Cordaro M, Genovese T, Impellizzeri D, Siracusa R, Gugliandolo E, Peritore AF, D'Amico R, Crupi R, Cuzzocrea S, Di Paola R. Adelmidrol: A New Promising Antioxidant and Anti-Inflammatory Therapeutic Tool in Pulmonary Fibrosis. *Antioxidants (Basel).* 2020 Jul 9;9(7):601. doi: 10.3390/antiox9070601. PMID: 32660140; PMCID: PMC7402091.  
2. Nageeb MM, Khatab MI, Abdel-Sameea AA, Teleb NA. Adelmidrol protects against non-alcoholic steatohepatitis in mice. *Naunyn Schmiedebergs Arch Pharmacol.* 2020 May;393(5):777-784. doi: 10.1007/s00210-019-01785-1. Epub 2019 Dec 18. PMID: 31853615.

## 7. Bioactivity

# Product data sheet



---

## Biological target:

Adelmidrol exerts anti-inflammatory effects that are partly dependent on PPAR $\gamma$ . Adelmidrol reduces NF- $\kappa$ B translocation, and COX-2 expression.

---

## In vitro activity

PEA concentrations were significantly increased in HEK-WT cells treated with adelmidrol 10  $\mu$ M, compared to vehicle, although only after 24 h (Fig. 3A). In HEK-NAAA cells, baseline PEA concentrations were significantly lower than in HEK-WT cells, in agreement with the role of active NAAA in the tonic degradation of this mediator. PEA concentrations were significantly decreased in HEK-NAAA cells treated with adelmidrol for 40 min and there was a trend ( $P = 0.07$ ) after 24 h, compared to vehicle (Fig. 3B).

Reference: Vet J. 2016 Jan;207:85-91. <https://pubmed.ncbi.nlm.nih.gov/26639824/>

---

## In vivo activity

Twenty-one days after bleomycin instillation, adelmidrol administration reduced the number of inflammatory cells in the bronchoalveolar lavage fluid compared to the vehicle-treated mice (Figure 1A). In particular, this study evaluated macrophages, neutrophils, lymphocytes, and eosinophils, observing a significant rise in cell numbers in bronchoalveolar lavage collected from vehicle-treated animals compared to the sham groups. Adelmidrol treatment was able to reduce the airway infiltration by inflammatory cells (Figure 1B). An analysis of cytokine expressions in the bronchoalveolar lavage fluid showed that pulmonary fibrosis increased IL-6, IL-1 $\beta$ , TNF- $\alpha$ , and TGF-1 $\beta$  expressions compared to the sham groups. In the bronchoalveolar lavage fluid collected from adelmidrol-treated mice, a reduced expression of IL-6, IL-1 $\beta$ , TNF- $\alpha$ , and TGF-1 $\beta$  was detected (Figure 1C-F).

Reference: Antioxidants (Basel). 2020 Jul; 9(7): 601. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7402091/>

*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.*