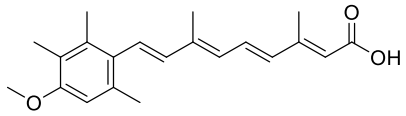
Product data sheet

MedKoo Cat#: 317157 Name: Acitretin CAS#: 55079-83-9 Chemical Formula: $C_{21}H_{26}O_3$ Exact Mass: 326.18819 Molecular Weight: 326.44	
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:

Acitretin is an oral synthetic retinoid effective in the treatment of psoriasis. It is the major metabolite of etretinate (sc-205689). It has demonstrated an ability to suppress the development of chemically-induced epithelial tumors, as well as squamous cell carcinoma. Acitretin has potential antineoplastic, chemopreventive, anti-psoratic, and embryotoxic properties. Acitretin activates nuclear retinoic acid receptors (RAR), resulting in induction of cell differentiation, inhibition of cell proliferation, and inhibition of tissue infiltration by inflammatory cells. This agent may also inhibit tumor angiogenesis.

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	10.5	32.17
DMF	5.0	15.32
DMF:PBS (pH 7.2) (1:4)	0.2	0.61

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.06 mL	15.32 mL	30.63 mL
5 mM	0.61 mL	3.06 mL	6.13 mL
10 mM	0.31 mL	1.53 mL	3.06 mL
50 mM	0.06 mL	0.31 mL	0.61 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. Qin X, Chen C, Zhang Y, Zhang L, Mei Y, Long X, Tan R, Liang W, Sun L. Acitretin modulates HaCaT cells proliferation through STAT1- and STAT3-dependent signaling. Saudi Pharm J. 2017 May;25(4):620-624. doi: 10.1016/j.jsps.2017.04.034. Epub 2017 May 8. PMID: 28579901; PMCID: PMC5447439.
2. Lin XY, He CD, Xiao T, Jin X, Chen J, Wang YK, Liu M, Wang KB, Jiang Y, Wei HC, Chen HD. Acitretin induces apoptosis through CD95 signalling pathway in human cutaneous squamous cell carcinoma cell line SCL-1. J Cell Mol Med. 2009 Sep;13(9A):2888-98. doi: 10.1111/j.1582-4934.2008.00397.x. Epub 2009 Jun 20. PMID: 18624760; PMCID: PMC4498944.

In vivo study

1. Bragazzi Cunha J, Elenbaas JS, Maitra D, Kuo N, Azuero-Dajud R, Ferguson AC, Griffin MS, Lentz SI, Shavit JA, Omary MB. Acitretin mitigates uroporphyrin-induced bone defects in congenital erythropoietic porphyria models. Sci Rep. 2021 May 5;11(1):9601. doi: 10.1038/s41598-021-88668-9. PMID: 33953217; PMCID: PMC8100164.

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2. Liu P, Peng C, Chen X, Wu L, Yin M, Li J, Qin Q, Kuang Y, Zhu W. Acitretin Promotes the Differentiation of Myeloid-Derived Suppressor Cells in the Treatment of Psoriasis. Front Med (Lausanne). 2021 Mar 23;8:625130. doi: 10.3389/fmed.2021.625130. PMID: 33834031; PMCID: PMC8021725.

7. Bioactivity

Biological target:

Acitretin(Ro 10-1670) targets RAR/RXR.

In vitro activity

This study investigated the effects of acitretin on cell proliferation in SCL-1 and HaCaT at five different concentrations of acitretin for 3 days and 10−5 M of acitretin for 1, 3, 5 days using a MTT assay (Fig. 1A and B). The results showed that acitretin inhibited cell growth of SCL-1 in a dose- and time-dependent manner. In contrast, acitretin exhibited a few inhibitory effects on the proliferation of HaCaT cells, indicating that acitretin showed less toxicity to non-malignant keratinocytes.

Reference: J Cell Mol Med. 2009 Sep; 13(9a): 2888–2898. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4498944/

In vivo activity

After the IMQ-induced model mice were treated with acitretin for 6 days, the scaling and thickness of the skin on the back of the mice were significantly alleviated, which was confirmed by the histological evaluation showing a significant decrease in epidermal thickness; the PASI score was also significantly decreased (Figures 2B,C, Supplementary Figures 2A–D). Besides, the expression of PCNA and K17 (the makers of cell proliferation) significantly decreased in the skin lesion of the acitretin treatment group. In contrast, the expression of K10 (the markers of keratinization) increased in the skin lesion of the acitretin treatment group compared with the IMQ groups (Supplementary Figures 2E–G). The number of MDSCs and M-MDSCs in the spleen and skin lesions was decreased significantly in the acitretin treatment group compared with the IMQ groups (Figures 2D,E). However, there was no significant difference in the number of G-MDSCs after acitretin treatment (Figures 2D,E). Therefore, these results indicated that acitretin reduced the number of MDSCs and M-MDSCs in the psoriasis patients and psoriasis-like model mice.

Reference: Front Med (Lausanne). 2021; 8: 625130. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8021725/

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.