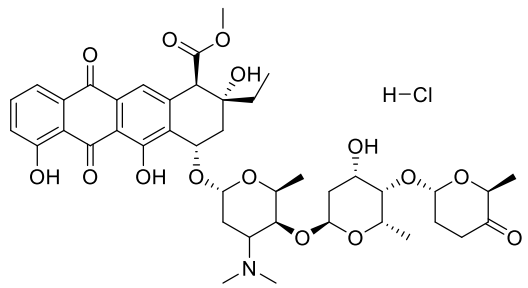
Product data sheet

MedKoo Cat#: 100012 Name: Aclarubicin hydrochloride CAS#: 75443-99-1 (HCl) Chemical Formula: $C_{42}H_{54}ClNO_{15}$ Exact Mass: 847.32 Molecular Weight: 848.34	
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:

Aclarubicin is an oligosaccharide anthracycline antineoplastic antibiotic isolated from the bacterium Streptomyces galilaeus. Aclarubicin intercalates into DNA and interacts with topoisomerases I and II, thereby inhibiting DNA replication and repair and RNA and protein synthesis. Aclarubicin is antagonistic to other agents that inhibit topoisomerase II, such as etoposide, teniposide and amsacrine. This agent is less cardiotoxic than doxorubicin and daunorubicin.

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	125.0	147.35

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.18 mL	5.89 mL	11.79 mL
5 mM	0.24 mL	1.18 mL	2.36 mL
10 mM	0.12 mL	0.59 mL	1.18 mL
50 mM	0.02 mL	0.12 mL	0.24 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. Mizutani H, Hayashi Y, Hashimoto M, Imai M, Ichimaru Y, Kitamura Y, Ikemura K, Miyazawa D, Ohta K, Ikeda Y, Maeda T, Yoshikawa M, Hiraku Y, Kawanishi S. Oxidative DNA Damage and Apoptosis Induced by Aclarubicin, an Anthracycline: Role of Hydrogen Peroxide and Copper. Anticancer Res. 2019 Jul;39(7):3443-3451. doi: 10.21873/anticanres.13490. PMID: 31262868.
2. Gajek A, Rogalska A, Koceva-Chyła A. Aclarubicin in subtoxic doses reduces doxorubicin cytotoxicity in human non-small cell lung adenocarcinoma (A549) and human hepatocellular carcinoma (HepG2) cells by decreasing DNA damage. Toxicol In Vitro. 2019 Mar;55:140-150. doi: 10.1016/j.tiv.2018.12.015. Epub 2018 Dec 20. PMID: 30579959.

In vivo study

TBD

7. Bioactivity

Biological target:

Aclacinomycin A hydrochloride (Aclarubicin hydrochloride) shows discrete specificity for the CTRL (chymotrypsin-like) activity of the 20S proteasome. Aclacinomycin A hydrochloride is also a dual inhibitor of topoisomerase I and II.

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In vitro activity

ACR-induced apoptosis was assessed by caspase-3/7 activity. The caspase-3/7 activity after 6-h ACR treatment was remarkably increased at 0.2 and 0.5 μM in HL-60 cells (0.2 μM, $p<0.01$; 0.5 μM, $p<0.001$), and at 0.5 μM in HP100 cells ($p<0.001$). Caspase-3/7 in HL-60 cells had significant higher activity than that in HP100 cells at 0.2 and 0.5 μM (Figure 2B) (0.2 μM, $p<0.001$; 0.5 μM, $p<0.05$). These events were in good agreement with DNA ladder formation induced by ACR.

Reference: Anticancer Res. 2019 Jul;39(7):3443-3451. https://pubmed.ncbi.nlm.nih.gov/31262868/

In vivo activity

TBD

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.