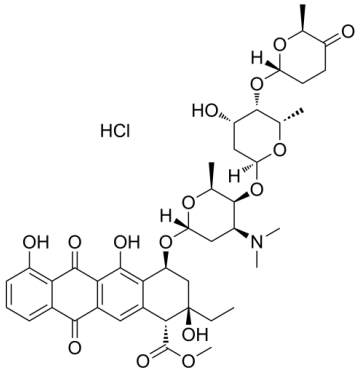
Data Sheet

Product Name:	Aclacinomycin A (hydrochloride)
Cat. No.:	CS-0079483
CAS No.:	75443-99-1
Molecular Formula:	$C_{42}H_{54}ClNO_{15}$
Molecular Weight:	848.33
Target:	Antibiotic; DNA/RNA Synthesis; Proteasome; Topoisomerase
Pathway:	Anti-infection; Cell Cycle/DNA Damage; Metabolic Enzyme/Protease
Solubility:	10 mM in H_2O;DMSO : ≥ 125 mg/mL



BIOLOGICAL ACTIVITY:

Aclacinomycin A (Aclarubicin) hydrochloride is an orally active and potent anthracycline antitumor **antibiotic**. Aclacinomycin A hydrochloride is an inhibitor of **topoisomerase I** and **II**. Aclacinomycin A hydrochloride inhibits synthesis of nucleic acid, especially **RNA**. Aclacinomycin A hydrochloride might inhibit the 26S protease complex as well as the ubiquitin-ATP-dependent proteolysis[1][2][3]. IC50 & Target:20S proteasome[1].

Topoisomerase I and II[2]. ***In Vitro:***Aclacinomycin A (0-120 μM, 30 min) inhibits the ubiquitin-ATP-dependent proteolytic activity of rabbit reticulocytes in a dose-dependent manner, with an IC_{50} of 52 μM. But it does not inhibit the ubiquitination[1].

? Aclacinomycin A inhibits ubiquitin-ATP-dependent proteolysis after the conjugation of ubiquitin to proteins[1].

? Aclacinomycin A (0-2.4 μM, 3 h) inhibits the topo II catalytic activity[2].

? Aclacinomycin A (0-1.8 μM, 3 h) has negative effect on the proliferative rate of V79 and irs-2 cells[2].

? Aclacinomycin A emits fluorescence and that human-cervical cancer HeLa cells exposed to Aclacinomycin A exhibits bright fluorescence signals in the cytoplasm when fluorescence microscopy was performed using the red filter (excitation 530-550 nm/emission 575 nm)[3]. ***In Vivo:***Aclacinomycin A (0.75-6 mg/kg, IP, daily) dose-dependently exhibits tumor growth in mice-based Leukemia P-388 model[4].

? Aclacinomycin A (0.6-20 mg/kg, Orally, daily) exhibits an antitumor effect on leukemia L-1210[4].

? Aclacinomycin A is very well absorbed in mice, rats, and dogs after its oral administration. The oral LD_{50} (76.5 mg/kg) is about twice the iv LD_{50} (35.6 mg/kg) in mice[4].

References:

[1]. Isoe T, et al. Inhibition of different steps of the ubiquitin system by CDDP and aclarubicin. Biochim Biophys Acta. 1992 Sep 15;1117(2):131-5.

[2]. Hajji N, et al. Induction of genotoxic and cytotoxic damage by aclarubicin, a dual topoisomerase inhibitor. Mutat Res. 2005 May 2;583(1):26-35.

[3]. Iihoshi H, et al. Aclarubicin, an anthracycline anti-cancer drug, fluorescently contrasts mitochondria and reduces the oxygen consumption rate in living human cells. Toxicol Lett. 2017 Aug 5;277:109-114.

[4]. Hori S, et al. Antitumor activity of new anthracycline antibiotics, aclacinomycin-A and its analogs, and their toxicity. Gan. 1977 Oct;68(5):685-90.

CAIndexNames:

1-Naphthacenecarboxylic acid, 2-ethyl-1,2,3,4,6,11-hexahydro-2,5,7-trihydroxy-6,11-dioxo-4-[[2,3,6-trideoxy-4-O-[2,6-dideoxy-4-O-[(2R,6S)-tetrahydro-6-methyl-5-oxo-2H-pyran-2-yl]-α-L-lyxo-hexopyranosyl]-3-(dimethylamino)-α-L-lyxo-hexopyranosyl]oxy]-, methyl ester, hydrochloride (1:1), (1R,2R,4S)-

SMILES:

O=C([C@@H]1C2=CC(C(C3=CC=CC(O)=C43)=O)=C(C4=O)C(O)=C2[C@@H](O[C@@](O[C@@H](C)[C@H]5O[C@@](O[C@@H](C)[C@H]6O[C@](CCC7=O)([H])O[C@H]7C)([H])C[C@@H]6O)([H])C[C@@H]5N(C)C)C[C@]1(O)CC)OC.Cl

Caution: Product has not been fully validated for medical applications. For research use only.

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