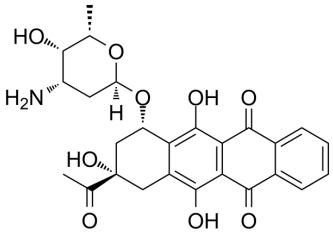
Idarubicin

Cat. No.:	HY-17381A
CAS No.:	58957-92-9
Molecular Formula:	$C_{26}H_{27}NO_9$
Molecular Weight:	497.49
Target:	Topoisomerase; Bacterial; Fungal; Autophagy; c-Myc; DNA/RNA Synthesis; Antibiotic
Pathway:	Cell Cycle/DNA Damage; Anti-infection; Autophagy; Apoptosis
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Idarubicin is an orally active and potent anthracycline antileukemic agent. Idarubicin inhibits the topoisomerase II interfering with the replication of DNA and RNA transcription. Idarubicin shows induction of DNA damage. Idarubicin inhibits DNA synthesis and of c-myc expression. Idarubicin inhibits the growth of bacteria and yeasts[1][2][3][4][5].
IC_{50} & Target	Topoisomerase II
In Vitro	The IC_{50} of idarubicin is 3.3 ± 0.4 ng/mL on MCF-7 monolayers and 7.9 ± 1.1 ng/mL in multicellular spheroids[1]. Idarubicin shows a greater cytotoxicity than daunorubicin or doxorubicin in various in vitro systems. This has been attributed to a better ability of idarubicin to induce the formation of topoisomerase II -mediated DNA breaks[2]. Idarubicin is about 57.5-fold and 25-fold more active than doxorubicin and epirubicin, respectively[3]. Idarubicin produces a concentration-dependent reduction in MCF-7 cell growth, with an IC_{50} of approximately 0.01 μM. Idarubicin produces a concentration-dependent inhibition of DNA synthesis and a time- and concentration-dependent suppression of c-myc expression[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nucleic Acids Res. 2018 Apr 20;46(7):3284-3297.
- Cancer Lett. 2019 Oct 1;461:31-43.
- Anal Chem. 2022 Oct 4;94(39):13623-13630.
- J Virol. 2019 May 15;93(11):e02230-18.
- Viruses. 2020 Jun 10;12(6):628.

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REFERENCES

[1]. Orlandi P, et al. Idarubicin and idarubicinol effects on breast cancer multicellular spheroids. J Chemother. 2005 Dec;17(6):663-7.

[2]. Robert J. Clinical pharmacokinetics of idarubicin. Clin Pharmacokinet. 1993 Apr;24(4):275-88.

[3]. Siegsmund MJ, et al. Enhanced in vitro cytotoxicity of idarubicin compared to epirubicin and doxorubicin in rat prostate carcinoma cells. Eur Urol. 1997;31(3):365-70.

[4]. Gewirtz DA, et al. Induction of DNA damage, inhibition of DNA synthesis and suppression of c-myc expression by the anthracycline analog, idarubicin (4-demethoxy-daunorubicin) in the MCF-7 breast tumor cell line. Cancer Chemother Pharmacol. 1998;41(5):361-

[5]. Kinnunen U, et al. Idarubicin inhibits the growth of bacteria and yeasts in an automated blood culture system. Eur J Clin Microbiol Infect Dis. 2009 Mar;28(3):301-3.

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