Mensacarcin

Cat. No.: HY-122534

CAS No.: 808750-39-2

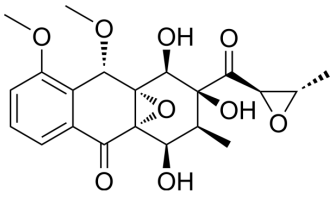
Molecular Formula: $C_{21}H_{24}O_9$

Molecular Weight: 420.41

Target: Mitochondrial Metabolism; ADC Cytotoxin; Apoptosis

Pathway: Metabolic Enzyme/Protease; Antibody-drug Conjugate/ADC Related; Apoptosis

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Mensacarcin, a highly complex polyketide, strongly inhibits cell growth universally in cancer cell lines and potently induces apoptosis in melanoma cells. Mensacarcin targets to mitochondria, affects energy metabolism in mitochondria, and activates caspase-dependent apoptotic pathways. Mensacarcin, an antibiotic, can be used as a cytotoxic component of antibody-drug conjugates (ADCs)[1][2].

IC_{50} & Target

Traditional Cytotoxic Agents

In Vitro

Mensacarcin (0-100 μM; 24 hours) exhibits general cytostatic but type-specific cytotoxic effects for melanoma cells[1].
Mensacarcin (2-50 μM; 15 hours) induces rapid apoptotic cell death in melanoma cells[1].
Mensacarcin exhibits potent cytostatic properties (mean of 50% growth inhibition=0.2 μM) in almost all cell lines of the National Cancer Institute (NCI)-60 cell line screen and relatively selective cytotoxicity against melanoma cells. Mensacarcin is a highly oxygenated polyketide that was first isolated from soil-dwelling Streptomyces bacteria. Mensacarcin impairs mitochondrial function in melanoma cells[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	SK-Mel-28 and SK-Mel-5 melanoma cells, HCT-116 colon cancer cells
Concentration:	0.01, 0.1, 1, 10, 100 μM
Incubation Time:	24 hours
Result:	Induced concentration- and time-dependent cell death in the two tested melanoma cell lines. HCT-116 colon carcinoma cells were strongly inhibited.

Western Blot Analysis[1]

Cell Line:	SK-Mel-28, SK-Mel-5 cells
Concentration:	2, 10, 50 μM
Incubation Time:	15 hours
Result:	Induced the formation of 89-kDa PARP-1 fragments as well as caspase-3 activation in SK-Mel-28 and SK-Mel-5 beginning between 6 and 15 h after exposure.

REFERENCES

[1]. Birte Plitzko, et al. The natural product mensacarcin induces mitochondrial toxicity and apoptosis in melanoma cells. J Biol Chem. 2017 Dec 22;292(51):21102-21116.

[2]. Lutz F. Tietze, et al. Intramolecular Heck Reactions for the Synthesis of the Novel Antibiotic Mensacarcin: Investigation of Catalytic, Electronic and Conjugative Effects in the Preparation of the Hexahydroanthracene Core. Chemistry Europe. Volume2005, Issue9.

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

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