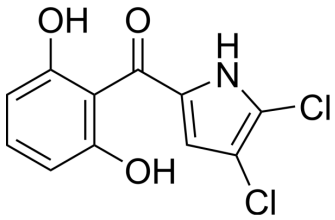
Pyoluteorin

Cat. No.:	HY-114979
CAS No.:	25683-07-2
Molecular Formula:	$C_{11}H_7Cl_2NO_3$
Molecular Weight:	272.08
Target:	Antibiotic; Fungal; Apoptosis
Pathway:	Anti-infection; Apoptosis
Storage:	4°C, stored under nitrogen * In solvent : -80°C, 6 months; -20°C, 1 month (stored under nitrogen)



BIOLOGICAL ACTIVITY

Description

Pyoluteorin is an antibiotic that inhibits Oomycete fungi, including the plant pathogen Pythium ultimum, and suppresses plant diseases caused by this fungus[1]. Pyoluteorin induces human triple-negative breast cancer MDA-MB-231 cells apoptosis in vitro. Pyoluteorin can be used for the research of human triple-negative breast cancer[2].

In Vitro

Pyoluteorin is an antifungal compound composed of a bichlorinated pyrrole linked to a resorcinol moiety, were identified within a 24-kb genomic region of Pseudomonas fluorescens Pf-5[1].

Pyoluteorin has significant cytotoxicity towards MCF-7 (IC_{50}=1.84 μM). Pyoluteorin also displays significantly selective cytotoxicity against BT474, HCC1954, MAD-MB-468, MDA-MB-231, and MCF-10A cells with IC_{50}s of 9.75±0.16, 0.94±0.01, 3.89±0.08, 0.97±0.01, and 57.01±0.76 μM, respectively[2].

Pyoluteorin (0.1-10 μM; for 24 hours) induces change of apoptosis-related protein expressions. Pyoluteorin-induced cell apoptosis in MDA-MB-231 is related to Bcl-2 family proteins and caspase cascade[2].

Pyoluteorin (0.1-10 μM; for 24 h) induces cell cycle arrest and apoptosis in human triple-negative breast cancer cells MDA-MB-231[2].

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

Cell Proliferation Assay[2]

Cell Line:	Human triple-negative breast cancer cell MDA-MB-231
Concentration:	0, 0.032, 0.16, 0.8, 4, 20, 100 μM
Incubation Time:	24, 48, 72 hours
Result:	Inhibited cells proliferation in a dose- and time-dependent manner.

Western Blot Analysis[2]

Cell Line:	MDA-MB-231 cells
Concentration:	0.1, 0.3, 1, 3, 10 μM
Incubation Time:	24 hours
Result:	The levels of the anti-apoptotic proteins Bcl-2, Bcl-XL and PARP were obviously decreased while the pro-apoptotic proteins BAX and caspase 3 were increased in a dose-dependent manner.

REFERENCES

[1]. B Nowak-Thompson, et al. Characterization of the pyoluteorin biosynthetic gene cluster of Pseudomonas fluorescens Pf-5. J Bacteriol. 1999 Apr;181(7):2166-74.

[2]. Ting Ding, et al. Pyoluteorin induces cell cycle arrest and apoptosis in human triple-negative breast cancer cells MDA-MB-231. J Pharm Pharmacol. 2020 Jul;72(7):969-978.

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