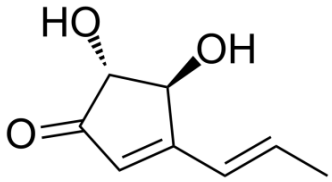
Terrein

Cat. No.:	HY-119808
CAS No.:	582-46-7
Molecular Formula:	$C_8H_{10}O_3$
Molecular Weight:	154.16
Target:	Melanocortin Receptor; Apoptosis; Antibiotic
Pathway:	GPCR/G Protein; Neuronal Signaling; Apoptosis; Anti-infection
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Terrein is a melanogenesis inhibitor[1]. Terrein induces apoptosis in breast cancer cell lines [2]. Terrein is an inhibitor of quorum sensing and c-di-GMP in Pseudomonas aeruginosa[3].

In Vitro

Treatment of Mel-Ab cells with Terrein (10-100 μM) for 4 days significantly reduces melanin levels in a dose-dependent manner. Terrein reduces melanin synthesis by reducing tyrosinase production via ERK activation[1].
Terrein (5-500 μM; 24 and 48 hours) reduces the viability of these cells in concentration- and time-dependent manners[2].
Terrein (150, 250, 500μM; 24 hours) induces programmed cell death in both invasive and non-invasive breast cancer cell lines. Thus, the optimal non-toxic concentrations of Terrein (25 and 75 μM) were used for subsequent experiments[2].
Terrein (25 and 75 μM) significantly decrease the mRNA levels of both MMP-2 and MMP-9 in MDA-MB-231 cells. Terrein (75 μM) significantly decrease the mRNA levels of both MMP-2 and MMP-9 in MCF-7 cells[2].
Terrein (75 μM) inhibits the expression of RhoA, RhoB, p-Rac1 in MCF-7 cells. Terrein (75 μM) inhibits the expression of RhoB, p-Rac1 in MDA-MB-231 cells[2].
Terrein (10, 30, and 100 μM) inhibits the production of virulence factors such as elastase, pyocyanin, and rhamnolipid, as well as biofilm formation in P. aeruginosa PAO1 and PA14 strains[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[2]

Cell Line:	MCF-7 and MDA-MB-231 cells
Concentration:	5, 25, 50, 75, 100, 150, 250, 500 μM
Incubation Time:	24 and 48 hours
Result:	The IC_{50}s for MCF-7 and MDA-MB-231 cells after 24 h of incubation were 2.34 mM and 700 μM, respectively. After 48 h of incubation, the IC_{50}s are 244.3 μM for MCF-7 and 244.5 μM for MDA-MB-231 cells.

Apoptosis Analysis[2]

Cell Line:	MCF-7 and MDA-MB-231 cells
Concentration:	25, 75, 150, 250, 500 μM
Incubation Time:	24 hours

Result:	The percentages of apoptotic cells after 25 and 75 μM treatment were 7.52 and 5.82%, respectively for MCF-7 cells (9.94% for the control), and 15.77 and 15.82%, respectively for MDA-MB-231 cells (8.79% for the control).
RT-PCR[2]	
Cell Line:	MCF-7 and MDA-MB-231 cells
Concentration:	25, 75 μM
Incubation Time:	
Result:	Decreased the mRNA levels of both MMP-2 and MMP-9 in a concentration-dependent manner.
Western Blot Analysis[2]	
Cell Line:	MCF-7 and MDA-MB-231 cells
Concentration:	75 μM
Incubation Time:	6, 12 and 24 hours
Result:	RhoA and RhoB protein levels were significantly decreased after 6 h of 75 μM treatment in MCF-7 cells. Phosphorylated (p)-Rac1 was also slightly decreased at 12 h. However, RhoC and Cdc42 levels remained unchanged. RhoB protein levels and Rac1 phosphorylation were also decreased in MDA-MB-231 cells at 12 and 24 h, respectively.

REFERENCES

[1]. S-H Park, et al. Terrein: A New Melanogenesis Inhibitor and Its Mechanism. Cell Mol Life Sci. 2004 Nov;61(22):2878-85.

[2]. Anongnard Kasorn, et al. Terrein Inhibits Migration of Human Breast Cancer Cells via Inhibition of the Rho and Rac Signaling Pathways. Oncol Rep. 2018 Mar;39(3):1378-1386.

[3]. Bomin Kim, et al. Terrein Is an Inhibitor of Quorum Sensing and c-di-GMP in Pseudomonas Aeruginosa: A Connection Between Quorum Sensing and c-di-GMP. Sci Rep. 2018 Jun 5;8(1):8617.

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