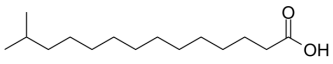
13-Methyltetradecanoic acid

Cat. No.:	HY-131503
CAS No.:	2485-71-4
Molecular Formula:	$C_{15}H_{30}O_2$
Molecular Weight:	242.4
Target:	Apoptosis
Pathway:	Apoptosis
Storage:	Powder -20°C 3 years In solvent -80°C 6 months -20°C 1 month



BIOLOGICAL ACTIVITY

Description

13-Methyltetradecanoic acid (13-MTD), a saturated branched-chain fatty acid with potent anticancer effects. 13-Methyltetradecanoic acid induces apoptosis in many types of human cancer cells[1][2].

In Vitro

13-Methyltetradecanoic acid (13-MTD; 0-140 μg/mL; 12-24 hours) inhibits cell viability and proliferation in human bladder cancer cells by inducing apoptosis[1].

13-Methyltetradecanoic acid (13-MTD; 70 μg/mL; 2-48 hours) treatments results in significant accumulation of cells with sub-G1 DNA content in a time-dependent manner, with the proportion of sub-G1 phase DNA content ranging from 9.25% to 85.3% over 2-48 hours[1].

13-Methyltetradecanoic acid (13-MTD; 70 μg/mL; 2-24 hours) down-regulates Bcl-2 and up-regulates Bax. This promotes mitochondrial dysfunction, leading to the release of cytochrome c from the mitochondria to the cytoplasm, as well as the proteolytic activation of caspases. 13-Methyltetradecanoic acid down-regulates AKT phosphorylation and activates phosphorylation of p38 and c-Jun N-terminal kinase (JNK)[1].

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

Cell Viability Assay[1]

Cell Line:	Bladder cancer cell lines T24, 5637, and UM-UC-3
Concentration:	0 μg/mL, 35 μg/mL, 70 μg/mL, 105 μg/mL, and 140 μg/mL
Incubation Time:	12 hours, 24 hours
Result:	Inhibition of cell viability in a dose- and time-dependent manner.

Cell Cycle Analysis[1]

Cell Line:	Bladder cancer cell lines T24, 5637, and UM-UC-3
Concentration:	70 μg/mL
Incubation Time:	2 hours, 8 hours, 24 hours, or 48 hours
Result:	Resulted in significant accumulation of cells with sub-G1 DNA content in a time-dependent manner.

Western Blot Analysis[1]

Cell Line:	T24, 5637, and UM-UC-3 cells
Concentration:	70 μg/mL
Incubation Time:	2 hours, 8 hours, 24 hours
Result:	Down-regulated Bcl-2 and up-regulated Bax, and down-regulated AKT phosphorylation and activated phosphorylation of p38 and c-Jun N-terminal kinase (JNK).

In Vivo

13-Methyltetradecanoic acid (13-MTD; 70 mg/kg/day; oral gavage; daily; for 30 days) significantly suppresses tumor growth in a xenograft model[2].

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Animal Model:	BALB/C nude mice injected with Jurkat lymphoma cells[2]
Dosage:	70 mg/kg/day
Administration:	Oral gavage; daily; for 30 days
Result:	Effectively inhibited the growth in vivo in a xenograft model.

REFERENCES

[1]. Tianxin Lin, et al. 13-Methyltetradecanoic acid induces mitochondrial-mediated apoptosis in human bladder cancer cells. Urol Oncol. May-Jun 2012;30(3):339-45.

[2]. Qingqing Cai, et al. 13-methyltetradecanoic acid exhibits anti-tumor activity on T-cell lymphomas in vitro and in vivo by down-regulating p-AKT and activating caspase-3. PLoS One. 2013 Jun 7;8(6):e65308.

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

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