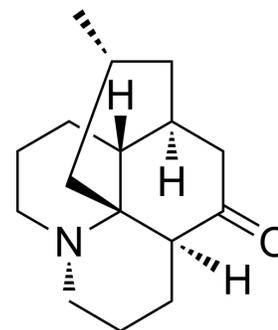


## Lycopodine

Cat. No.:	HY-114372
CAS No.:	466-61-5
Molecular Formula:	C <sub>16</sub> H <sub>25</sub> NO
Molecular Weight:	247.38
Target:	Lipoxygenase; Caspase; Apoptosis
Pathway:	Metabolic Enzyme/Protease; Apoptosis
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



### BIOLOGICAL ACTIVITY

<b>Description</b>	Lycopodine, a pharmacologically important bioactive component derived from <i>Lycopodium clavatum</i> spores, triggers apoptosis by modulating 5-lipoxygenase, and depolarizing mitochondrial membrane potential in refractory prostate cancer cells without modulating p53 activity <sup>[1]</sup> . Lycopodine inhibits proliferation of HeLa cells through induction of apoptosis via caspase-3 activation <sup>[2]</sup> .											
<b>IC<sub>50</sub> &amp; Target</b>	Caspase-3	5-Lipoxygenase										
<b>In Vitro</b>	<p>Lycopodine (5.22-78.3 µg/mL; 12 hours) has 50% viability at 57.62±0.086 µg/mL and 51.46±1.43 µg/mL for PC3 and LnCaP, respectively<sup>[1]</sup>.</p> <p>Treated with Lycopodine (74-222 mM; 12 hours), the apoptotic index is with respect to the gradual increase in doses for the PC3 and LnCaP cells<sup>[1]</sup>.</p> <p>Lycopodine (74-222 mM; 12 hours) induces cell cycle arrest at G0/G1 phase in PC3 and LnCaP cells<sup>[1]</sup>.</p> <p>Lycopodine (0-200 µg/mL; 48 hours) shows cytotoxicity to HeLa cells in a dose and time dependent manner. However, Lycopodine shows minimal cytotoxic effects in normal peripheral blood mononuclear cells (PBMC) even at the highest dose (200 µg/mL)<sup>[2]</sup>.</p> <p>Lycopodine (100, 200 µg/mL; 24 hours) increases level of Bax and decreases the mitochondrial cytochrome c. This is followed by an increase in expression of cytochrome c in cytosolic fraction. Lycopodine also cleaves the caspase-3 in the total cell lysate, while the expression of Bcl-2 is down regulated<sup>[2]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Cell Viability Assay<sup>[1]</sup></p> <table border="1"> <tr> <td>Cell Line:</td> <td>PC3 and LnCaP cells</td> </tr> <tr> <td>Concentration:</td> <td>5.22-78.3 µg/mL</td> </tr> <tr> <td>Incubation Time:</td> <td>12 hours</td> </tr> <tr> <td>Result:</td> <td>Reached 50% viability at 57.62±0.086 µg/mL and 51.46±1.43 µg/mL for PC3 and LnCaP, respectively.</td> </tr> </table> <p>Apoptosis Analysis<sup>[1]</sup></p> <table border="1"> <tr> <td>Cell Line:</td> <td>PC3 and LnCaP cells</td> </tr> </table>		Cell Line:	PC3 and LnCaP cells	Concentration:	5.22-78.3 µg/mL	Incubation Time:	12 hours	Result:	Reached 50% viability at 57.62±0.086 µg/mL and 51.46±1.43 µg/mL for PC3 and LnCaP, respectively.	Cell Line:	PC3 and LnCaP cells
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Cell Line:	PC3 and LnCaP cells											

Concentration:	74, 148, 222 mM
Incubation Time:	12 hours
Result:	The apoptotic index was with respect to the gradual increase in doses.

#### Cell Cycle Analysis<sup>[1]</sup>

Cell Line:	PC3 and LnCaP cells
Concentration:	74, 148, 222 mM
Incubation Time:	12 hours
Result:	Arrested growth of the cells at G0/G1 phase in the case of PC3 and LnCaP cells.

#### Cell Cytotoxicity Assay<sup>[2]</sup>

Cell Line:	Hela cells and PBMC
Concentration:	0-200 µg/mL
Incubation Time:	48 hours
Result:	A linear increase of the cytotoxicity was along with the increase of time of treatment and also of the dose.

#### Western Blot Analysis<sup>[2]</sup>

Cell Line:	HeLa cells
Concentration:	100, 200 µg/mL
Incubation Time:	24 hours
Result:	Increased level of Bax and decreased the mitochondrial cytochrome c.

## REFERENCES

[1]. Bishayee K, et al. Lycopodine triggers apoptosis by modulating 5-lipoxygenase, and depolarizing mitochondrial membrane potential in androgen sensitive and refractory prostate cancer cells without modulating p53 activity: signaling cascade and drug-DNA interaction. *Eur J Pharmacol.* 2013 Jan 5;698(1-3):110-21.

[2]. Mandal SK, et al. Lycopodine from *Lycopodium clavatum* extract inhibits proliferation of HeLa cells through induction of apoptosis via caspase-3 activation. *Eur J Pharmacol.* 2010 Jan 25;626(2-3):115-22.

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

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