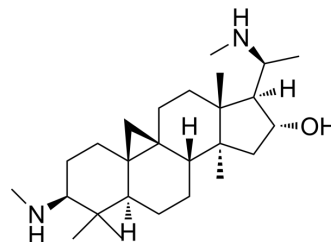


## Cyclovirobuxine D

|                           |  |       |         |
|---------------------------|--|-------|---------|
| <b>Cat. No.:</b>          | HY-N0107   |       |         |
| <b>CAS No.:</b>           | 860-79-7   |       |         |
| <b>Molecular Formula:</b> | C <sub>26</sub> H <sub>46</sub> N <sub>2</sub> O |       |         |
| <b>Molecular Weight:</b>  | 402.66   |       |         |
| <b>Target:</b>            | Apoptosis; Autophagy; mTOR; Akt                  |       |         |
| <b>Pathway:</b>           | Apoptosis; Autophagy; PI3K/Akt/mTOR              |       |         |
| <b>Storage:</b>           | Powder   | -20°C | 3 years |
|                           |  | 4°C   | 2 years |
|                           | In solvent                                       | -80°C | 2 years |
|                           |  | -20°C | 1 year  |



### SOLVENT & SOLUBILITY

|   |   |                          |              |            |            |
|---|---|--------------------------|--------------|------------|------------|
| <b>In Vitro</b>   | Ethanol : 13 mg/mL (32.29 mM; Need ultrasonic)  |                          |              |            |            |
|   |   | Solvent<br>Concentration | Mass<br>1 mg | 5 mg       | 10 mg      |
|   | <b>Preparing Stock Solutions</b>  | 1 mM                     | 2.4835 mL    | 12.4174 mL | 24.8348 mL |
|   |   | 5 mM                     | 0.4967 mL    | 2.4835 mL  | 4.9670 mL  |
| 10 mM   |   | 0.2483 mL                | 1.2417 mL    | 2.4835 mL  |            |
| Please refer to the solubility information to select the appropriate solvent. |   |                          |              |            |            |
| <b>In Vivo</b>  | <ol style="list-style-type: none"> <li>Add each solvent one by one: 10% EtOH &gt;&gt; 40% PEG300 &gt;&gt; 5% Tween-80 &gt;&gt; 45% saline<br/>Solubility: ≥ 1.08 mg/mL (2.68 mM); Clear solution</li> <li>Add each solvent one by one: 10% EtOH &gt;&gt; 90% (20% SBE-β-CD in saline)<br/>Solubility: ≥ 1.08 mg/mL (2.68 mM); Clear solution</li> <li>Add each solvent one by one: 10% EtOH &gt;&gt; 90% corn oil<br/>Solubility: ≥ 1.08 mg/mL (2.68 mM); Clear solution</li> </ol> |                          |              |            |            |

### BIOLOGICAL ACTIVITY

|                    |  |
|--------------------|--|
| <b>Description</b> | Cyclovirobuxine D (CVB-D) is the main active component of the traditional Chinese medicine Buxus microphylla. Cyclovirobuxine D induces autophagy and attenuates the phosphorylation of Akt and mTOR <sup>[1]</sup> . Cyclovirobuxine D inhibits cell proliferation of gastric cancer cells through suppression of cell cycle progression and inducement of mitochondria-mediated apoptosis <sup>[2]</sup> . Cyclovirobuxine D is beneficial for heart failure induced by myocardial infarction <sup>[3]</sup> . |
| <b>In Vitro</b>    | Cyclovirobuxine D (0-240 μM ;24-72 hours) shows a concentration- and time-dependent reduced cell viability after CVB-D treatment, only 10% MGC-803 cells and 20% MKN28 cells are alive at 72 h after treatment with 240 μM <sup>[2]</sup> .  |

Cycloviobuxine D (0-120  $\mu$ M; 48 hours) arrests the cell cycle of gastric cancer cells at S phase in a concentration-dependent manner<sup>[2]</sup>.

Cycloviobuxine D (0-120  $\mu$ M; 48 hours) leads to apoptosis in gastric cancer cells in a concentration-dependent manner, especially early stage apoptosis. Cycloviobuxine D (0-120  $\mu$ M; 48 hours) causes apoptosis via up-regulation of the apoptosis-related proteins, cleaved Caspase-3 and ratio of Bax/Bcl-2, in gastric cancer cells<sup>[2]</sup>.

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

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

|                  |   |
|------------------|---|
| Cell Line:       | MGC-803 and MKN28 cells   |
| Concentration:   | 0, 30, 60, 120 and 240 $\mu$ M  |
| Incubation Time: | 24, 48, 72 hours  |
| Result:          | Reduced Cell Viability and Colony Formation Ability of Gastric Cancer Cells |

#### Cell Cycle Analysis<sup>[2]</sup>

|                  |  |
|------------------|--|
| Cell Line:       | MGC-803 and MKN28 cells                                      |
| Concentration:   | 0, 30, 60, and 120 $\mu$ M                                   |
| Incubation Time: | 48 hours   |
| Result:          | Arrested cell cycle progressions of MGC-803 and MKN28 cells. |

#### Apoptosis Analysis<sup>[2]</sup>

|                  |   |
|------------------|---|
| Cell Line:       | MGC-803 and MKN28 cells                       |
| Concentration:   | 0, 30, 60, and 120 $\mu$ M                    |
| Incubation Time: | 48 hours                                      |
| Result:          | Induced apoptosis of MGC-803 and MKN28 cells. |

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

|                  |  |
|------------------|--|
| Cell Line:       | MGC-803 and MKN28 cells  |
| Concentration:   | 0, 30, 60, and 120 $\mu$ M   |
| Incubation Time: | 48 hours   |
| Result:          | Up-regulated cleaved Caspase-3 and Bax and decreased the expression of Bcl-2 expression. |

## REFERENCES

- [1]. Lu J, et al. Cycloviobuxine D induces autophagy-associated cell death via the Akt/mTOR pathway in MCF-7 human breast cancer cells. *J Pharmacol Sci.* 2014;125(1):74-82. Epub 2014 Apr 24.
- [2]. Wu J, et al. Cycloviobuxine D Inhibits Cell Proliferation and Induces Mitochondria-Mediated Apoptosis in Human Gastric Cancer Cells. *Molecules.* 2015 Nov 19;20(11):20659-68.
- [3]. Yu B, et al. Beneficial effect of Cycloviobuxine D on heart failure rats following myocardial infarction. *Fitoterapia.* 2011 Sep;82(6):868-77.

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

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