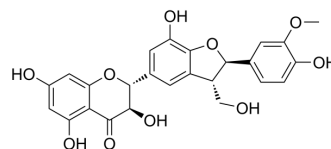


## Silychristin

|                           |  |
|---------------------------|--|
| <b>Cat. No.:</b>          | HY-N0647   |
| <b>CAS No.:</b>           | 33889-69-9   |
| <b>Molecular Formula:</b> | C <sub>25</sub> H <sub>22</sub> O <sub>10</sub>  |
| <b>Molecular Weight:</b>  | 482.44   |
| <b>Target:</b>            | Monocarboxylate Transporter  |
| <b>Pathway:</b>           | Membrane Transporter/Ion Channel   |
| <b>Storage:</b>           | Powder    -20°C    3 years<br>4°C        2 years<br>In solvent   -80°C    2 years<br>-20°C    1 year |



### SOLVENT & SOLUBILITY

| <b>In Vitro</b>   | DMSO : 100 mg/mL (207.28 mM; Need ultrasonic)  |           |            |               |               |  |      |      |       |                           |      |           |            |            |      |           |           |           |       |           |           |           |
|---|--|-----------|------------|---------------|---------------|--|------|------|-------|---------------------------|------|-----------|------------|------------|------|-----------|-----------|-----------|-------|-----------|-----------|-----------|
|   | <table border="1"> <thead> <tr> <th rowspan="2">Solvent</th> <th rowspan="2">Mass</th> <th colspan="3">Concentration</th> </tr> <tr> <th>1 mg</th> <th>5 mg</th> <th>10 mg</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Preparing Stock Solutions</td> <td>1 mM</td> <td>2.0728 mL</td> <td>10.3640 mL</td> <td>20.7280 mL</td> </tr> <tr> <td>5 mM</td> <td>0.4146 mL</td> <td>2.0728 mL</td> <td>4.1456 mL</td> </tr> <tr> <td>10 mM</td> <td>0.2073 mL</td> <td>1.0364 mL</td> <td>2.0728 mL</td> </tr> </tbody> </table> | Solvent   | Mass       | Concentration |               |  | 1 mg | 5 mg | 10 mg | Preparing Stock Solutions | 1 mM | 2.0728 mL | 10.3640 mL | 20.7280 mL | 5 mM | 0.4146 mL | 2.0728 mL | 4.1456 mL | 10 mM | 0.2073 mL | 1.0364 mL | 2.0728 mL |
|   | Solvent  |           |            | Mass          | Concentration |  |      |      |       |                           |      |           |            |            |      |           |           |           |       |           |           |           |
|   |  | 1 mg      | 5 mg       |               | 10 mg         |  |      |      |       |                           |      |           |            |            |      |           |           |           |       |           |           |           |
| Preparing Stock Solutions   | 1 mM   | 2.0728 mL | 10.3640 mL | 20.7280 mL    |               |  |      |      |       |                           |      |           |            |            |      |           |           |           |       |           |           |           |
|   | 5 mM   | 0.4146 mL | 2.0728 mL  | 4.1456 mL     |               |  |      |      |       |                           |      |           |            |            |      |           |           |           |       |           |           |           |
|   | 10 mM  | 0.2073 mL | 1.0364 mL  | 2.0728 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% DMSO &gt;&gt; 90% (20% SBE-β-CD in saline)<br/>Solubility: ≥ 2.5 mg/mL (5.18 mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% corn oil<br/>Solubility: ≥ 2.5 mg/mL (5.18 mM); Clear solution</li> </ol>   |           |            |               |               |  |      |      |       |                           |      |           |            |            |      |           |           |           |       |           |           |           |

### BIOLOGICAL ACTIVITY

|                                     |   |
|-------------------------------------|---|
| <b>Description</b>                  | Silychristin is an abundant flavonolignan present in the fruits of <i>Silybum marianum</i> , with antioxidant properties. Silychristin is a potent inhibitor of the thyroid hormone transporter MCT8, and elicits a strong inhibition of T3 uptake with an IC <sub>50</sub> of 110 nM <sup>[1][2]</sup> .   |
| <b>IC<sub>50</sub> &amp; Target</b> | MCT8 <sup>[2]</sup>   |
| <b>In Vitro</b>                     | <p>Silychristin exhibits a strong inhibition of MCT8-mediated T3 uptake with an IC<sub>50</sub> of 110 nM in MCT8 overexpressing MDCK1-cells<sup>[2]</sup>.</p> <p>Silychristin causes no cytotoxic for fibroblasts<sup>[3]</sup>.</p> <p>Silychristin (6.5-75 μM; 24 hours) diminishes UVA toxicity and reduces ROS generation, and the protective effect is dose-</p> |

dependent<sup>[3]</sup>.

Silychristin (12.5 $\mu$ M, 25 $\mu$ M) reduces the metalloproteinase-1 (MMP-1) level in cells<sup>[3]</sup>.

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

#### Cell Viability Assay<sup>[3]</sup>

|                  |   |
|------------------|---|
| Cell Line:       | NHDF  |
| Concentration:   | 6.5 $\mu$ M, 12.5 $\mu$ M, 25 $\mu$ M, 50 $\mu$ M, 75 $\mu$ M         |
| Incubation Time: | 24 hours  |
| Result:          | Diminished UVA toxicity and reduced ROS generation in dose-dependent. |

#### Cell Viability Assay<sup>[3]</sup>

|                  |   |
|------------------|---|
| Cell Line:       | NHDF  |
| Concentration:   | 12.5 $\mu$ M, 25 $\mu$ M                                |
| Incubation Time: |   |
| Result:          | Reduced the metalloproteinase-1 (MMP-1) level in cells. |

## REFERENCES

[1]. Biedermann D, et al. Silychristin: Skeletal Alterations and Biological Activities. J Nat Prod. 2016 Dec 23;79(12):3086-3092.

[2]. Johannes J, et al. Silychristin, a Flavonolignan Derived From the Milk Thistle, Is a Potent Inhibitor of the Thyroid Hormone Transporter MCT8. Endocrinology. 2016 Apr;157(4):1694-701.

[3]. Rajnochová Svobodová A, et al. A pilot study of the UVA-photoprotective potential of dehydrosilybin, isosilybin, silychristin, and silydianin on human dermal fibroblasts. Arch Dermatol Res. 2019 Aug;311(6):477-490.

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

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