

## Product Data Sheet

Product Name: 11 $\beta$ ,13-Dihydrolactucopicrin

Cat. No.: GC81818

### Chemical Properties

Cas. No. 125519-47-3

Formula C<sub>23</sub>H<sub>24</sub>O<sub>7</sub>

M.Wt 412.44

Solubility

Storage Store at -20°C

**General tips** For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

**Shipping Condition** Evaluation sample solution : ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure



### Background

11 $\beta$ ,13-Dihydrolactucopicrin is a sesquiterpene lactone and the main bitter component of chicory root. 11 $\beta$ ,13-Dihydrolactucopicrin inhibits yeast  $\alpha$ -glucosidase activity (IC<sub>50</sub> = 27.49  $\mu$ M) and inhibits Crz1 activation and nuclear accumulation. 1 $\beta$ ,13-Dihydrolactucopicrin possesses blood-brain barrier penetration capacity in an in vitro HBMEC blood-brain barrier model and can generate cysteine-conjugated metabolites within brain microvascular endothelial cells. 11 $\beta$ ,13-Dihydrolactucopicrin can regulate the lncRNA H19/miR-21-3p signaling axis; it upregulates the expression of ABCG2 and lncRNA H19, downregulates miR-21-3p, inhibits the release of IL-6, TNF- $\alpha$ , and hs-CRP pro-

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

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inflammatory mediators, and alleviates urate-induced inflammatory injury in renal epithelial cells.

11 $\beta$ ,13-Dihydrolactucopicrin can be used in research on diabetes and renal urate deposition [1] [2] [3] [4].

In Vitro, 11 $\beta$ ,13-dihydrolactucopicrin (10  $\mu$ M; 4 h) exhibited moderate permeability in Caco-2 monolayer cells, with the apical concentration decreasing by 29.9%, and no cysteine adduct was formed<sup>[1]</sup>. 11 $\beta$ ,13-dihydrolactucopicrin (12.5-100  $\mu$ M; 3 h) has a maximum non-toxic concentration of 12.5  $\mu$ M in *Saccharomyces cerevisiae*<sup>[1]</sup>. 11 $\beta$ ,13-dihydrolactucopicrin exhibited moderate inhibitory activity against the calcineurin-Crz1 pathway in *Saccharomyces cerevisiae* YAA5, with an inhibition rate of 26% at 12.5  $\mu$ M<sup>[1]</sup>. 11 $\beta$ ,13-Dihydrolactucopicrin (compound 5) inhibited yeast  $\alpha$ -glucosidase with an IC<sub>50</sub> of 27.49  $\mu$ M, showing limited inhibitory activity, possibly because its phenyl group hinders binding to the enzyme<sup>[2]</sup>. 11 $\beta$ ,13-Dihydrolactucopicrin (predicted by molecular docking) showed good binding activity with the ABCG2 protein, exhibiting the lowest binding energy among the tested compounds<sup>[3]</sup>. 11 $\beta$ ,13-dihydrolactucopicrin (5  $\mu$ M; 2 h) can be transported across the in vitro BBB model of HBMEC, with a transport percentage between 10% and 20%<sup>[4]</sup>. 11 $\beta$ ,13-Dihydrolactucopicrin (10  $\mu$ M; 24 h) attenuates inflammation and enhances ABCG2 expression in UA- and LPS-stimulated NRK-52E cells, while uniquely upregulating lncRNA H19 and downregulating miR-21-3p<sup>[3]</sup>.

### References:

- [1]. Matos MS, et al. Assessing the Intestinal Permeability and Anti-Inflammatory Potential of Sesquiterpene Lactones from Chicory. *Nutrients*. 2020 Nov 19;12(11):3547.
- [2]. Fan H, et al. Isolation and identification of terpenoids from chicory roots and their inhibitory activities against yeast  $\alpha$ -glucosidase. *European Food Research and Technology*, 2017, 243: 1009-1017.
- [3]. An X Y, et al. Investigation of Pharmacological Mechanisms and Active Ingredients of *Cichorium intybus* L. in Alleviating Renal Urate Deposition via lncRNA H19/miR-21-3p Regulation to Enhance ABCG2 Expression. *International Journal of Molecular Sciences*, 2025, 26(16):7892.
- [4]. Ávila-Gálvez MÁ, et al. Costunolide and parthenolide: Novel blood-brain barrier permeable sesquiterpene lactones to improve barrier tightness. *Biomedicine & pharmacotherapy = Biomedecine & pharmacotherapie*. 2023 Nov;167:115413.

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