

Product Data Sheet

Product Name: Silymarin

Cat. No.: GC19946

Chemical Properties

Cas. No. 65666-07-1

Formula $C_{25}H_{22}O_{10}$ M.Wt 482.44

Solubility DMSO: 120 mg/mL (Need ultrasonic) 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



Protocol

Cell experiment [1]:

Cell lines MDA-MB-231 and MCF-7 cells

MDA-MB-231 and MCF-7 cells were treated with Silymarin 0, 25, 50, 75, 100, 150 and 200 µg/ml for 24h. Silymarin-induced changes in breast cancer cell viability were assessed using a MTT assay.

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

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Reaction Conditions 0, 25, 50, 75, 100, 150 and 200µg/ml; 24h

Applications Silymarin inhibits the viability of MDA-MB-231 and MCF-7 human breast cancer cells, and MCF-7 cells are more sensitive to Silymarin than MDA-MB-231 cells.

Animal experiment [1]:

Animal models Xenograft Tumor Model

Preparation Method Silymarin was dissolved in alcohol and diluted with distilled water and then orally administered 5 times per week at a dose of 25 or 50mg/kg body weight, while the control group mice were administered the vehicle (distilled water) and the same amount of alcohol that used to dissolve the Silymarin. Tumor weight and size were measured twice a week for a total of 21 days.

Dosage form 25, 50mg/kg; 5 times per week; 21d

Applications Silymarin has an inhibitory effect on MCF-7 tumor growth and induced apoptosis in the MCF-7 tumors.

References:

[1]. Kim SH, Choo GS, Yoo ES, Woo JS, Lee JH, Han SH, Jung SH, Kim HJ, Jung JY. Silymarin inhibits proliferation of human breast cancer cells via regulation of the MAPK signaling pathway and induction of apoptosis. *Oncol Lett.* 2021 Jun;21(6):492.

Background

Silymarin is an effective SARS-CoV-2 main protease (Mpro) inhibitor. Silymarin displays antioxidant and membrane stabilizing activity. It protects various tissues and organs against chemical injury. Silymarin can reduce tumor cell proliferation, angiogenesis as well as insulin resistance^[1].

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Silymarin (0, 40, 80µg/ml; 24h) was confirmed to inhibit migration of AGS cells in a concentration-dependent manner (59.4% at 40µg/ml and 21.7% at 80µg/ml) [2]. Silymarin(0, 25, 50, 75, 100, 150 and 200µg/ml; 24h) inhibits the viability of MDA-MB-231 and MCF-7 human breast cancer cells, and MCF-7 cells are more sensitive to Silymarin than MDA-MB-231 cells[3].

Silymarin (25, 50mg/kg; po; 5 times per week; 21d) inhibits the growth of MCF-7 tumors and induces apoptosis of MCF-7 tumor cells[3]. Silymarin (10, 20, 50 and 100mg/kg; po; administered 60 minutes before behavioral testing) reduces the immobility time in the forced swim test and the tail suspension test in a dose-dependent manner[4].

References:

[1].Féher J, Lengyel G. Silymarin in the prevention and treatment of liver diseases and primary liver cancer. Curr Pharm Biotechnol. 2012 Jan;13(1):210-7.

[2].Kim SH, Choo GS, Yoo ES, Woo JS, Han SH, Lee JH, Jung JY. Silymarin induces inhibition of growth and apoptosis through modulation of the MAPK signaling pathway in AGS human gastric cancer cells. Oncol Rep. 2019 Nov;42(5):1904-1914.

[3]. Kim S H, Choo G S, Yoo E S, et al. Silymarin inhibits proliferation of human breast cancer cells via regulation of the MAPK signaling pathway and induction of apoptosis[J]. Oncology Letters, 2021, 21(6): 1-10.

[4]. Khoshnoodi M, Fakhræi N, Dehpour AR. Possible involvement of nitric oxide in antidepressant-like effect of silymarin in male mice. Pharm Biol. 2015 May;53(5):739-45.

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