

Product Data Sheet

Product Name: Thymol
Cat. No.: GC38667

Chemical Properties

Cas. No. 89-83-8

SMILES OC1=CC(C)=CC=C1C(C)C

Formula $C_{10}H_{14}O$ M.Wt 150.22

Solubility DMSO: 125 mg/mL (832.11 mM) 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.

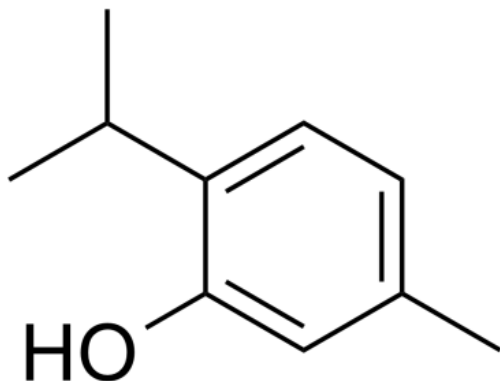
Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

Structure



Protocol

Cell experiment [1]:

Cell lines T24, SW780, J82, SV-HUC-1 cells

Preparation Method Bladder cancer cells T24, SW780, J82 and non-malignant urothelial cells SV-HUC-1 were treated with different concentrations of Thymol (0, 25, 50, 100, 150µM) for 24h or a certain dose (100µM) of Thymol for different times (0, 6, 12, 24, 36h). Changes in cell viability were measured by MTT assay.

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

Reaction Conditions 0, 25, 50, 100, 150µM; 0, 6, 12, 24, 36h

Applications Thymol inhibited bladder cancer cell proliferation in a dose and time-dependent manner.

Animal experiment [2]:

Animal models Male Wistar rats

Preparation Method The animals were orally pretreated with *Thymus vulgaris* essential oil (TEO) (250, 500, or 750mg/kg), Carvacrol (100, 200, or 400mg/kg), and Thymol (100, 200, or 400mg/kg). Indomethacin (5mg/kg) and Celecoxib (10mg/kg) were used as standard drugs. Control rats received only water. One hour later, all of the animals, with the exception of the normal group, received an intrapleural injection of carrageenan (200µg/animal). Four hours later, the animals were euthanized, and the pleural exudate was collected.

Dosage form 100, 200, 400mg/kg; p.o.

Applications Thymol significantly reduced the volume of pleural inflammatory exudates by 34.2%, at a dose of 400 mg/kg.

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

References:

- [1] Li Y, Wen J, Du C, et al. Thymol inhibits bladder cancer cell proliferation via inducing cell cycle arrest and apoptosis[J]. Biochemical and biophysical research communications, 2017, 491(2): 530-536.
- [2] Fachini-Queiroz F C, Kummer R, Estevao-Silva C F, et al. Effects of thymol and carvacrol, constituents of Thymus vulgaris L. essential oil, on the inflammatory response[J]. Evidence-Based Complementary and Alternative Medicine, 2012, 2012(1): 657026.

Background

Thymol is a phenolic compound with multiple pharmacological activities, such as antibacterial, anticancer, antidiabetic, antineurodegenerative and antirheumatic activities^[1]. Thymol is a transient receptor potential ankyrin subtype 1 channel (TRPA1) agonist^[2]. Thymol can show significant activity against bacteria, fungi and parasites by destroying microbial cell membranes, inhibiting enzyme activity and interfering with energy metabolism^[3].

In vitro, Thymol (0-150 μ M) treatment of bladder cancer cells (T24, SW780, J82 cells) and non-malignant urothelial cells (SV-HUC-1 cells) for 0-36h inhibited cell viability in a time- and dose-dependent manner and induced cell cycle arrest at the G2/M phase^[4]. Thymol (5 μ M) treatment of A549 cells for 48h inhibited the epithelial-mesenchymal transition and motility of cells^[5].

In vivo, oral administration of Thymol (400mg/kg) to treat pleurisy model rats significantly inhibited inflammatory edema and reduced the amount of pleuritic exudate by 34.2%^[6]. Thymol (5mg/kg) was treated by intraperitoneal injection in male albino mice and reduced the mitotic index (MI) of mouse bone marrow cells^[7].

References:

- [1] Aljeleahawy Q H A, Mohammadi S, Mohamadian E, et al. Antimicrobial, anticancer, antidiabetic, antineurodegenerative, and antirheumatic activities of thymol: clarification of mechanisms[J]. Micro Nano Bio Aspects, 2023, 2(1): 1-7.
- [2] De La Chapa J J, Singha P K, Lee D R, et al. Thymol inhibits oral squamous cell carcinoma growth via mitochondria-mediated apoptosis[J]. Journal of Oral Pathology & Medicine, 2018, 47(7): 674-682.

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

- [3] Nourbakhsh F, Lotfalizadeh M, Badpeyma M, et al. From plants to antimicrobials: Natural products against bacterial membranes[J]. *Phytotherapy Research*, 2022, 36(1): 33-52.
- [4] Li Y, Wen J, Du C, et al. Thymol inhibits bladder cancer cell proliferation via inducing cell cycle arrest and apoptosis[J]. *Biochemical and biophysical research communications*, 2017, 491(2): 530-536.
- [5] Li T, Shi J, Wang L, et al. Thymol targeting interleukin 4 induced 1 expression reshapes the immune microenvironment to sensitize the immunotherapy in lung adenocarcinoma[J]. *MedComm*, 2023, 4(5): e355.
- [6] Fachini-Queiroz F C, Kummer R, Estevao-Silva C F, et al. Effects of thymol and carvacrol, constituents of *Thymus vulgaris* L. essential oil, on the inflammatory response[J]. *Evidence-Based Complementary and Alternative Medicine*, 2012, 2012(1): 657026.
- [7] Abed R M. Cytotoxic, cytogenetics and immunomodulatory effects of thymol from *Thymus vulgaris* on cancer and normal cell lines in vitro and in vivo[J]. *Al-Mustansiriyah J Sci*, 2011, 22(4): 41-53.

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA