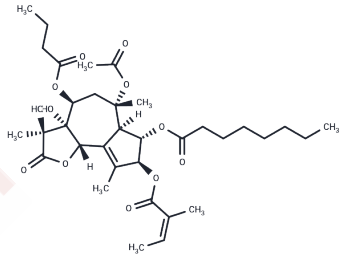
# Data Sheet (Cat.No.TQ0302)

TargetMol

## Thapsigargin

### Chemical Properties



CAS No. : 67526-95-8

Formula: C34H50O12

Molecular Weight: 650.75

Storage: Store at low temperature,Keep away from moisture
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

### Biological Description

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| Description | Thapsigargin is a natural product, an inhibitor of sarcoplasmic/endoplasmic reticulum Ca2+ ATPase (SERCA) and an endoplasmic reticulum stress inducer. Thapsigargin increases cytoplasmic calcium concentration by blocking the ability of cells to pump calcium into the sarcoplasmic and endoplasmic reticulum. |
| Targets(IC50) | Apoptosis,Calcium Channel,SARS-CoV |
| In vitro | **METHODS**: Human rheumatoid arthritis synoviocytes MH7A were treated with Thapsigargin (0.001-1 μM) for 2-4 days, and cell proliferation was detected using the SRB.<br>**RESULTS**: Thapsigargin inhibited the proliferation of MH7A cells in a time- and dose-dependent manner. [1]<br>**METHODS**: Human hepatocellular carcinoma cells HepG2 were treated with Thapsigargin (25-100 nM) for 24 h. Endoplasmic reticulum stress/UPR gene expression was detected by RT-qPCR.<br>**RESULTS**: Thapsigargin treatment consistently induced ER stress gene expression only at elevated concentrations of 50 and 100 nM. [2] |
| In vivo | **METHODS**: To assay in vivo ER stress-inducing activity, Thapsigargin (0.25-1 μg/g in 150 mM dextrose containing 1% DMSO) was administered as a single intraperitoneal injection to Balb/c mice in order.<br>**RESULTS**: Thapsigargin treatment resulted in significant expression of the ER stress markers ATF6 and eIF2α in adipose tissue. thapsigargin treatment failed to induce the expression of most of the ER stress and UPR proteins in the liver. [2]<br>**METHODS**: To investigate the antiviral function in vivo, Thapsigargin (30 ng/mouse) was administered by gavage to PR8 virus-infected BALB/c mice once daily for seven days.<br>**RESULTS**: Oral administration of Thapsigargin to mice significantly reduced severity and viral shedding and improved survival during infection with the deadly influenza virus. [3] |
| Cell Research | Cell Line: MH7A human rheumatoid arthritis synovial cells. Concentration: 0.001, 0.1, and 1?μM. Incubation Time: For 2 and 4 days [2] |
| Animal Research | Animal Model: Male Balb/c mice (20-25g). Dosage: 0.25ug/g, 0.5ug/g and 1ug/g. Administration: Injection; 24 hours [4] |

## Solubility Information

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|---|---|
| Solubility | DMSO: 252.5 mg/mL (388.01 mM),Sonication is recommended.<br>(< 1 mg/ml refers to the product slightly soluble or insoluble) |
| In vivo Formulation | 10% DMSO+40% PEG300+5% Tween 80+45% Saline: 5 mg/mL (7.68 mM),Sonication is recommended.<br>*Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.* |

Preparing Stock Solutions

| | 1mg | 5mg | 10mg |
|---|---|---|---|
| 1 mM | 1.5367 mL | 7.6834 mL | 15.3669 mL |
| 5 mM | 0.3073 mL | 1.5367 mL | 3.0734 mL |
| 10 mM | 0.1537 mL | 0.7683 mL | 1.5367 mL |
| 50 mM | 0.0307 mL | 0.1537 mL | 0.3073 mL |

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Wang H, et al. Effects of thapsigargin on the proliferation and survival of human rheumatoid arthritis synovial cells. ScientificWorldJournal. 2014 Feb 9;2014:605416.

Shang Z, Zhang S, Wang J, et al.TRIM25 predominately associates with anti-viral stress granules.Nature Communications.2024, 15(1): 4127.

Xu W, Wang Z, Liu T, et al.Eurycomanone inhibits osteosarcoma growth and metastasis by suppressing GRP78 expression.Journal of Ethnopharmacology.2024: 118709.

Abdullahi A, et al. Modeling Acute ER Stress in Vivo and in Vitro. Shock. 2017 Apr;47(4):506-513.

Goulding LV, et al. Thapsigargin at Non-Cytotoxic Levels Induces a Potent Host Antiviral Response that Blocks Influenza A Virus Replication. Viruses. 2020 Sep 27;12(10):1093.

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Zhou J, Shi Y, Zhao L, et al.γ-Glutamylcysteine restores glucolipotoxicity-induced islet β-cell apoptosis and dysfunction via inhibiting endoplasmic reticulum stress.Toxicology and Applied Pharmacology.2025, 495: 117206.