

Product Data Sheet

Product Name: HT-2 Toxin

Cat. No.: GC18185

Chemical Properties

Cas. No. 26934-87-2

Chemical Name 12,13-epoxy-trichothec-9-ene-3 α ,4 β ,8 α ,15-tetrol, 15-acetate 8-(3-methylbutanoate)

SMILES CC1=C[C@]2([H])[C@]([C@]([C@H](O)[C@H]3O)(C)[C@@]4(OC4)[C@]3([H])O2)(CO C(C)=O)C[C@@H]1OC(CC(C)C)=O

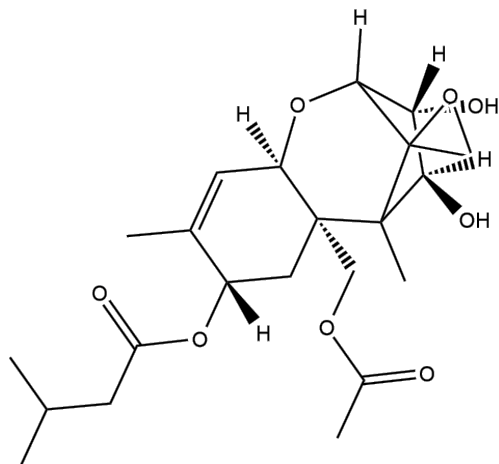
Formula C₂₂H₃₂O₈ M.Wt 424.5

Solubility Dichloromethane: 5 mg/ml, DMSO: Storage Store at -20°C
soluble, Ethanol: soluble

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]:

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

Cell lines

Porcine brain capillary endothelial cells

Preparation Method

Porcine brain capillary endothelial cells were seeded on Collagen-G-coated 96-well plates (250,000cells/cm²) and cultured according to the treatment on Transwell® filter systems (DIV 2: plating medium replaced by serum-free medium on DIV 4 for 2 days). Incubation with various T-2 and HT-2 Toxin concentrations (1nM-10μM) was carried out over 24h and 48h following the addition of the WST-8 solution [2-(2-methoxy-4-nitrophenyl)-3-(4-nitrophenyl)-5-(2,4-disulfophenyl)-2H-tetrazolium, monosodium salt] and incubation according to the manufacturer's manual.

Reaction
Conditions

1nM-10μM; 24h, 48h

Applications

The cell viability of cells incubated with HT-2 Toxin decreased in a concentration-dependent manner.

Animal experiment [2]:

Animal models

C57BL/6J mice

Preparation Method

Male C57BL/6J mice were subjected to subchronic toxin exposure. A total of 48 mice were divided into six groups, based on toxin concentrations determined in preliminary studies. The groups included a control group, a low selenium diet group, two groups exposed to different concentrations of HT-2 Toxin (1.6mg/kg and 3.2mg/kg), and two groups combining a low selenium diet with each of these HT-2 Toxin dosages. Over a 4-week period, all mice received their designated treatments via oral gavage, mimicking typical clinical and environmental exposure scenarios.

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

Dosage form 1.6mg/kg, 3.2mg/kg; ig; 4 weeks

Applications The body weight of mice exposed to HT-2 Toxin decreased in a dose-dependent manner.

References:

- [1]. Weidner M, Hüwel S, Ebert F, et al. Influence of T-2 and HT-2 toxin on the blood-brain barrier in vitro: new experimental hints for neurotoxic effects. PloS one. 2013 Mar 27; 8(3): e60484.
- [2]. Hao S, Yao C, Meng P, et al. The spinal consequences of HT-2 toxin and selenium deficiency during bone maturation in mice. Mycotoxin research. 2025 Feb; 41(1): 77-91.

Background

HT-2 Toxin, a triterpenoid fungal metabolite of T-2 toxin, inhibits protein synthesis in eukaryotic cells, resulting in apoptosis, immunosuppression, and tissue damage [1-3].

In porcine brain capillary endothelial cells, the cell viability of cells incubated with HT-2 Toxin (1nM-10µM; 24h, 48h) decreased in a concentration-dependent manner [4]. In porcine oocytes, exposure to HT-2 Toxin (10nM, 50nM, 100nM; 44h) causes oxidative stress induced apoptosis/autophagy [5]. In human chondrocytes, exposure to HT-2 Toxin (20ng/mL; 48h) significantly reduced chondrocyte viability [6]. In porcine oocytes, HT-2 Toxin (100nM; 48h) impairs porcine oocyte in vitro maturation through disruption of endomembrane system [7].

In C57BL/6J mice, the body weight of mice exposed to HT-2 Toxin (1.6mg/kg, 3.2mg/kg; ig; 4 weeks) decreased in a dose-dependent manner [8]. In rat, HT-2 Toxin (0.01mg/kg, 0.1mg/kg, 0.5mg/kg, 1mg/kg; ip; 96h) elicited anorectic effects of varying durations in a dose-dependent manner [9].

References:

- [1]. Nathanail AV, Varga E, Meng-Reiterer J, et al. Metabolism of the Fusarium mycotoxins T-2 toxin and HT-2 toxin in wheat. Journal of agricultural and food chemistry. 2015 Sep 9; 63(35): 7862-7872.
- [2]. Meneely J, Greer B, Kolawole O, et al. T-2 and HT-2 toxins: toxicity, occurrence and analysis: a review. Toxins. 2023 Jul 29; 15(8): 481.

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]. Zhu CC, Zhang Y, Duan X, et al. Toxic effects of HT-2 toxin on mouse oocytes and its possible mechanisms. Archives of toxicology. 2016 Jun; 90: 1495-1505.
- [4]. Weidner M, Hüwel S, Ebert F, et al. Influence of T-2 and HT-2 toxin on the blood-brain barrier in vitro: new experimental hints for neurotoxic effects. PloS one. 2013 Mar 27; 8(3): e60484.
- [5]. Zhang Y, Han J, Zhu CC, et al. Exposure to HT-2 toxin causes oxidative stress induced apoptosis/autophagy in porcine oocytes. Scientific reports. 2016 Sep 23; 6(1): 33904.
- [6]. Yu FF, Lin XL, Wang X, et al Comparison of apoptosis and autophagy in human chondrocytes induced by the T-2 and HT-2 toxins. Toxins. 2019 May 8; 11(5): 260.
- [7]. Li JR, Wu SL, Hu LL, et al. HT-2 toxin impairs porcine oocyte in vitro maturation through disruption of endomembrane system. Theriogenology. 2024 Sep 15; 226: 286-293.
- [8]. Hao S, Yao C, Meng P, et al. The spinal consequences of HT-2 toxin and selenium deficiency during bone maturation in mice. Mycotoxin research. 2025 Feb; 41(1): 77-91.
- [9]. Zhang J, Zhang H, Liu S, et al. Comparison of anorectic potencies of type A trichothecenes T-2 toxin, HT-2 toxin, diacetoxyscirpenol, and neosolaniol. Toxins. 2018 Apr 29; 10(5): 179.

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