

Deoxynivalenol

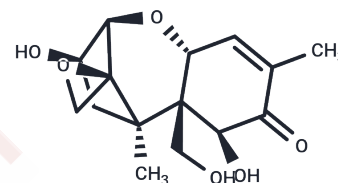
Chemical Properties

CAS No. : 51481-10-8

Formula: C₁₅H₂₀O₆

Molecular Weight: 296.32

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



Biological Description

Description	Deoxynivalenol (Vomitoxin) is an orally active mycotoxin belonging to the trichothecenes family, which traverses the intestinal mucosa via the paracellular pathway without being affected by P-gp/MRP, used for research on gastrointestinal inflammation such as diarrhea and vomiting.
Targets(IC50)	Others
In vitro	<p>Methods: IPEC-J2 cells were incubated with 0-12 μmol/L Deoxynivalenol (DON) for 24 hours. Cell viability was measured by CCK-8 assay, monolayer permeability was assessed by FITC-dextran method, cell apoptosis was observed by TUNEL staining, and the expression and distribution of ZO-1 and F-actin were detected by immunofluorescence.</p> <p>Results: DON concentration-dependently reduced cell viability, increased monolayer permeability, induced cell apoptosis, and disrupted tight junction structures associated with ZO-1 and F-actin. [1]</p> <p>Methods: IPEC-J2 cells were incubated with 100 ng/mL Deoxynivalenol (DON) for 24-72 hours. Cell viability and proliferation were detected by MTT and EdU assays, and protein expression was determined by Western blotting and immunofluorescence.</p> <p>Results: DON inhibited cell viability and proliferation, downregulated p-mTOR, p-S6K1, and p-S6 expression, and upregulated TSC2 expression, indicating that DON affects cellular function through the TSC2/mTORC1 pathway.[2]</p>
In vivo	<p>Methods: To investigate the developmental toxicity of Deoxynivalenol, pregnant rats were administered Deoxynivalenol (0-5 mg/kg) by gavage once daily for 14 consecutive days, with observation of salivation symptoms and fetal skeletal development.</p> <p>Results: Deoxynivalenol increased the number of pregnant rats with excessive salivation in a dose-related manner; at a dose of 5 mg/kg, it caused abnormal sternal development in rat fetuses. [3]</p> <p>Methods: Prepubertal (21-day-old) and adult (65-day-old) female Swiss mice were selected and fed diets containing 10 mg/kg Deoxynivalenol (DON) for 15 or 28 days, respectively; the control group was fed mycotoxin-free diets.</p> <p>Results: Deoxynivalenol (DON) induced ovarian tissue damage, altered serum follicle-stimulating hormone levels, and triggered age-dependent inflammatory responses and oxidative stress. [4]</p>

Solubility Information

Solubility	DMSO: 260 mg/mL (877.43 mM),Sonication is recommended. (< 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 (16.87 mM),Sonication is recommended. <i>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.</i>

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.3747 mL	16.8737 mL	33.7473 mL
5 mM	0.6749 mL	3.3747 mL	6.7495 mL
10 mM	0.3375 mL	1.6874 mL	3.3747 mL
50 mM	0.0675 mL	0.3375 mL	0.6749 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

Miao, Chenjiao et al. Deoxynivalenol Induces Intestinal Epithelial Barrier Damage through RhoA/ROCK Pathway-Mediated Apoptosis and F-Actin-Associated Tight Junction Disruption. Journal of agricultural and food chemistry, 10.1021/acs.jafc.4c02091. 9 Apr. 2024.

Dou, Cai-Xia et al. TSC2/mTORC1 integrates deoxynivalenol signals recognized by membrane receptors IR and EGFR to restrict intestinal stem cell function. Journal of hazardous materials vol. 494 (2025): 138769.

Collins TF, et al. Effects of deoxynivalenol (DON, vomitoxin) on in utero development in rats. Food Chem Toxicol. 2006 Jun;44(6):747-57.

Lemos, G A A et al. Deoxynivalenol induces ovarian damage and uterine changes in prepubertal and adult mice. Toxicol : official journal of the International Society on Toxinology vol. 251 (2024): 108123.

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Tel:781-999-4286 E_mail:info@targetmol.com Address:34 Washington Street,Wellesley Hills,MA 02481