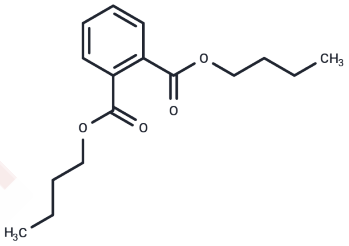
Data Sheet (Cat.No.TN1162)

TargetMol

Dibutyl phthalate

Chemical Properties



CAS No. : 84-74-2

Formula: C16H22O4

Molecular Weight: 278.34

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

Biological Description

Description	Dibutyl phthalate (1,2-Benzenedicarboxylic acid) is a plasticizer, commonly used in industrial manufacturing, that causes cardiac damage by disrupting Ca(2+) transfer from the endoplasmic reticulum to the mitochondria and triggering subsequent cellular death.Dibutyl phthalate induces oxidative damage in the brain of zebrafish.
Targets(IC50)	Others
In vitro	The compound was isolated by direct fractionation of ethyl acetate extracts of air-dried seeds and pods and subjected to microbial susceptibility testing. Antibacterial screening results show that Acacia ethyl acetate extract has the highest activity against the tested microorganisms, with an inhibition zone diameter of 27-32mm, and is effective against Salmonella typhi, Escherichia coli, Streptococcus faecalis, Staphylococcus aureus, Candida krusei and Shigella dysenteriae [1]; grass carp hepatocytes were treated with 300 μM Dibutyl phthalate for 24 h, and hepatocytes were treated with 1 μM taxolin (TAX) for 24 h to study its antagonistic effect on Dibutyl phthalate. After exposure to Dibutyl phthalate, hepatocyte oxidative stress levels and inflammation increased, and the mRNA and protein expression of apoptosis-related markers significantly increased, leading to hepatocyte apoptosis [6]; treated with 10–1000 μg/ml Dibutyl phthalate When follicles are exposed to 48 hours, Dibutyl phthalate is harmful to ovarian antral follicles when the exposure is ≥10 μg/ml. The presence of MBP does not affect the growth and vitality of Dibutyl phthalate on antral follicles [3].
In vivo	Treatment with dibutyl phthalate (DBP; 10 or 100 mg/kg/d, po) for five weeks in adult male mice induced immunotoxicity by reducing total leukocyte counts and classical monocyte and T helper cell populations, but not classical monocytogenes. Increased populations of nuclear cells and PMN-MDSCs, leading to sustained immunosuppression [2]; Dibutyl phthalate (200, 400 or 600 mg/kg/day) causes weight loss, impaired spermatogenesis, serum follicle-stimulating hormone and testosterone in mice Decreased levels, changes in testicular LDH, increased LPO and decreased enzyme antioxidant levels, accompanied by histopathological abnormalities [4]; Dibutyl phthalate (6.25, 12.5, 25, 50, 100 and 200mg/kg) may produce Some neurobehavioral adverse effects [5].

Solubility Information

Solubility	Ethanol: 30 mg/mL (107.78 mM),Sonication is recommended. DMSO: 250 mg/mL (898.18 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: 3.3 mg/mL (11.86 mM),Sonication is recommended. *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	3.5927 mL	17.9636 mL	35.9273 mL
5 mM	0.7185 mL	3.5927 mL	7.1855 mL
10 mM	0.3593 mL	1.7964 mL	3.5927 mL
50 mM	0.0719 mL	0.3593 mL	0.7185 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

TN1162 Garba, et al. Antimicrobial Activities of 1, 2-benzenedicarboxylic Acid Butyldecyl ester Isolated from the Seeds and Pods of Acacia nilotica Lnn.. Basic Research Journal of Microbiology. TN11622016 June, 3(2): 08-11.
Pierozan P,et al. Persistent immunosuppressive effects of dibutyl phthalate exposure in adult male mice. Sci Total Environ. 2023 Jun 20;878:162741.
Rasmussen LM, et al.Effects of in vitro exposure to dibutyl phthalate, mono-butyl phthalate, and acetyl tributyl citrate on ovarian antral follicle growth and viability. Biol Reprod. 2017 May 1;96(5):1105-1117.
Aly HA, et al. Dibutyl phthalate induces oxidative stress and impairs spermatogenesis in adult rats. Toxicol Ind Health. 2016 Aug;32(8):1467-1477.
Farzanehfar V, et al. Determination of dibutyl phthalate neurobehavioral toxicity in mice. Food Chem Toxicol. 2016 Aug;94:221-6.
Cui Y, et al. Dibutyl phthalate-induced oxidative stress, inflammation and apoptosis in grass carp hepatocytes and the therapeutic use of taxifolin. Sci Total Environ. 2021 Apr 10;764:142880.