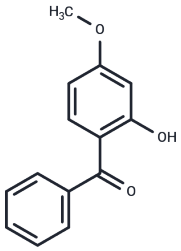
Data Sheet (Cat.No.T0499)

TargetMol

Oxybenzone

Chemical Properties



CAS No. : 131-57-7

Formula: C14H12O3

Molecular Weight: 228.24

Storage: 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	Oxybenzone is a UV filter commonly used in tanning and skin protection agents. It is a derivative of benzophenone and is used as an endocrine disrupting chemical that penetrates the placental and blood-brain barriers. It impairs autophagy, alters epigenetic status and disrupts vitamin X-like receptor signaling in apoptotic neuronal cells.
Targets(IC50)	Apoptosis,Retinoid Receptor,Autophagy
In vitro	A dose-dependent inhibition of PGE2-production is found in the HEPM cell culture following oxybenzone exposure[1]. Benzophenones, including oxybenzone(BP-3) are documented mutagens that increase the rate of damage to DNA, especially when exposed to sunlight. It either can act directly as genotoxicants or become genotoxicants by bioactivation via cytochrome P450 enzymes. Oxybenzone can generate reactive oxygen species, which are potential mutagens, when applied topically to the skin followed by UV light exposure[2].
In vivo	In mice studies, oxybenzone(BP-3) exposure significantly affects fecundity, as well as inducing unexplained mortality in lactating mothers. Studies in both mice and rats demonstrate that generational exposure to oxybenzone(BP-3) reduces body weight, increases liver ([50 %) and kidney weights, induces a 30 % increase in prostate weight, a reduction in immunocompetence, and significantly increases uterine weight in juveniles. In mammals, oxybenzone(BP-3) is renowned for having estrogenic and anti-androgenic activities, causing activation of estrogen receptor proteins and inhibition of androgen receptors[2].
Cell Research	Cells are grown at 37℃ with 100% humidity and 10% CO2. Prior to analyses, cells are subcultured onto 24-well plates and allowed to become 70-90% confluent. On day 1 of the experiment, cells are washed three times with serum-free media containing 0.5% bovine serum albumin (BSA), followed by replacement with the same media that also contained 1 ng/ml of IL-1β with or without oxybenzone. After an exposure time of 24 h, the media are removed, the pH adjusted to 3.5 with HCl, and finally assayed for PGE2-production. (Only for Reference)

Solubility Information

Solubility	DMSO: 50 mg/mL (219.07 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: 2 mg/mL (8.76 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	4.3814 mL	21.9068 mL	43.8135 mL
5 mM	0.8763 mL	4.3814 mL	8.7627 mL
10 mM	0.4381 mL	2.1907 mL	4.3814 mL
50 mM	0.0876 mL	0.4381 mL	0.8763 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

Jannesson L, et al. J Clin Periodontol. 2004, 31(2):91-4.
Downs CA, et al. Arch Environ Contam Toxicol. 2016, 70(2):265-88.