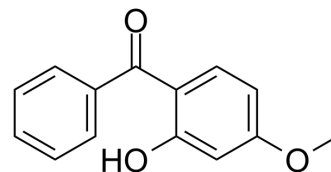


## Oxybenzone

<b>Cat. No.:</b>	HY-A0067												
<b>CAS No.:</b>	131-57-7												
<b>Molecular Formula:</b>	C <sub>14</sub> H <sub>12</sub> O <sub>3</sub>												
<b>Molecular Weight:</b>	228.24												
<b>Target:</b>	Apoptosis; Autophagy; RAR/RXR												
<b>Pathway:</b>	Apoptosis; Autophagy; Metabolic Enzyme/Protease; Vitamin D Related/Nuclear Receptor												
<b>Storage:</b>	<table border="0"> <tr> <td>Powder</td> <td>-20°C</td> <td>3 years</td> </tr> <tr> <td></td> <td>4°C</td> <td>2 years</td> </tr> <tr> <td>In solvent</td> <td>-80°C</td> <td>2 years</td> </tr> <tr> <td></td> <td>-20°C</td> <td>1 year</td> </tr> </table>	Powder	-20°C	3 years		4°C	2 years	In solvent	-80°C	2 years		-20°C	1 year
Powder	-20°C	3 years											
	4°C	2 years											
In solvent	-80°C	2 years											
	-20°C	1 year											



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : 100 mg/mL (438.14 mM; Need ultrasonic)  
 H<sub>2</sub>O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	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

Please refer to the solubility information to select the appropriate solvent.

#### In Vivo

- Add each solvent one by one: PBS  
Solubility: 5 mg/mL (21.91 mM); Clear solution; Need ultrasonic and warming and heat to 60°C
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
Solubility: ≥ 2.5 mg/mL (10.95 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
Solubility: ≥ 2.5 mg/mL (10.95 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility: ≥ 2.5 mg/mL (10.95 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

Oxybenzone (Benzophenone 3) is a commonly used UV filter in sun tans and skin protectants. Oxybenzone act as endocrine disrupting chemicals (EDCs) and can pass through the placental and blood-brain barriers. Benzophenone-3 impairs autophagy, alters epigenetic status, and disrupts retinoid X receptor signaling in apoptotic neuronal cells<sup>[1][2][3]</sup>.

## In Vitro

Oxybenzone (Benzophenone 3) (25  $\mu$ M; 24 hours) decreases the relative RXR $\beta$  and RXR $\gamma$  protein levels by 61 and 56%, respectively and increases the relative RXR $\alpha$  protein level by 49%<sup>[3]</sup>.

Oxybenzone (25-100  $\mu$ M; 24 hours) induces an increase in caspase-3 levels in primary cultures of mouse neocortical cells at 7 DIV. Oxybenzone-induced apoptosis involves the activation of RXR $\alpha$  signaling and the impairment of RXR $\beta$ /RXR $\gamma$  signaling.

Oxybenzone (25  $\mu$ M; 24 hours) inhibits global DNA methylation as well as reduced HDAC and HAT activities in mouse embryonic neuronal cells<sup>[3]</sup>.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis<sup>[3]</sup>

Cell Line:	Mouse neocortical cells at 7 DIV
Concentration:	25 $\mu$ M
Incubation Time:	24 hours
Result:	Exposure to Oxybenzone (25 $\mu$ M) for 24 h decreased the relative RXR $\beta$ and RXR $\gamma$ protein levels by 61 and 56%, respectively. Treatment with Oxybenzone (25 $\mu$ M) increased the relative RXR $\alpha$ protein level by 49%.

## CUSTOMER VALIDATION

- Chemosphere. 2021, 130670.

See more customer validations on [www.MedChemExpress.com](http://www.MedChemExpress.com)

## REFERENCES

[1]. Wnuk A, et al. Prenatal exposure to benzophenone-3 (BP-3) induces apoptosis, disrupts estrogen receptor expression and alters the epigenetic status of mouse neurons. *J Steroid Biochem Mol Biol.* 2018;182:106-118.

[2]. DiNardo JC, et al. Can oxybenzone cause Hirschsprung's disease?. *Reprod Toxicol.* 2019;86:98-100.

[3]. Wnuk A, et al. Benzophenone-3 Impairs Autophagy, Alters Epigenetic Status, and Disrupts Retinoid X Receptor Signaling in Apoptotic Neuronal Cells. *Mol Neurobiol.* 2018;55(6):5059-5074.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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