# Oxybenzone

Cat. No.:	HY-A0067				
CAS No.:	131-57-7				
Molecular Formula:	$C_{14}H_{12}O_{3}$				
Molecular Weight:	228.24			(	
Target:	Apoptosis; Autophagy; RAR/RXR				
Pathway:	Apoptosis; Autophagy; Metabolic Enzyme/Protease; Vitamin D Related/Nuclear Receptor				
Storage:	Powder	-20°C	3 years		
		4°C	2 years		
	In solvent	-80°C	2 years		
		-20°C	1 year		

# Product Data Sheet

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#### SOLVENT & SOLUBILITY

naring	Solvent Mass	1					
naring	Concentration	1 mg	5 mg	10 mg			
Preparing Stock Solutions	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.							
1. 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							
2. 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							
3. 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							
4. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.5 mg/mL (10.95 mM); Clear solution							
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## **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	<ul> <li>Oxybenzone (Benzophenone 3) (25 μM; 24 hours) decreases the relative RXRβ and RXRγ protein levels by 61 and 56%, respectively and increases the relative RXRα protein level by 49%<sup>[3]</sup>.</li> <li>Oxybenzone (25-100 μM; 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 RXRα signaling and the impairment of RXRβ/RXRγ signaling.</li> <li>Oxybenzone (25 μM; 24 hours) inhibits global DNA methylation as well as reduced HDAC and HAT activities in mouse embryonic neuronal cells<sup>[3]</sup>.</li> <li>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</li> <li>Western Blot Analysis<sup>[3]</sup></li> </ul>			
	Cell Line:	Mouse neocortical cells at 7 DIV		
	Concentration:	25 μΜ		
	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.

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#### 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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