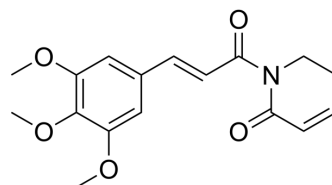


## Piperlongumine

<b>Cat. No.:</b>	HY-N2329												
<b>CAS No.:</b>	20069-09-4												
<b>Molecular Formula:</b>	C <sub>17</sub> H <sub>19</sub> NO <sub>5</sub>												
<b>Molecular Weight:</b>	317.34												
<b>Target:</b>	ERK; Reactive Oxygen Species; Autophagy; Apoptosis; Bacterial; Ferroptosis												
<b>Pathway:</b>	MAPK/ERK Pathway; Stem Cell/Wnt; Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB; Autophagy; Apoptosis; Anti-infection												
<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>6 months</td> </tr> <tr> <td></td> <td>-20°C</td> <td>1 month</td> </tr> </table>	Powder	-20°C	3 years		4°C	2 years	In solvent	-80°C	6 months		-20°C	1 month
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	4°C	2 years											
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	-20°C	1 month											



### SOLVENT & SOLUBILITY

<b>In Vitro</b>	DMSO : 100 mg/mL (315.12 mM; Need ultrasonic)				
		Solvent Concentration	Mass		
	<b>Preparing Stock Solutions</b>			1 mg	5 mg
		1 mM		3.1512 mL	15.7560 mL
		5 mM		0.6302 mL	3.1512 mL
10 mM			0.3151 mL	1.5756 mL	
Please refer to the solubility information to select the appropriate solvent.					
<b>In Vivo</b>	<ol style="list-style-type: none"> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 40% PEG300 &gt;&gt; 5% Tween-80 &gt;&gt; 45% saline Solubility: ≥ 2.5 mg/mL (7.88 mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% corn oil Solubility: ≥ 2.5 mg/mL (7.88 mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.08 mg/mL (6.55 mM); Clear solution</li> </ol>				

### BIOLOGICAL ACTIVITY

<b>Description</b>	Piperlongumine is a alkaloid <sup>[1]</sup> , possesses ant-inflammatory, antibacterial, antiangiogenic, antioxidant, antitumor, and antidiabetic activities <sup>[2]</sup> . Piperlongumine induces ROS, and induces apoptosis in cancer cell lines <sup>[1]</sup> . Piperlongumine shows anti-cardiac fibrosis activity, suppresses myofibroblast transformation via suppression of the ERK1/2 signaling pathway. Piperlongumin could be used in the study of migrasome <sup>[2][3]</sup> .	
<b>IC<sub>50</sub> &amp; Target</b>	ERK1	ERK2

<b>In Vitro</b>	<p>Piplartine (5, 10, and 15 <math>\mu\text{M}</math>) significantly decreases cell proliferation of 786-O, SKBR3, Panc1, A549, and L3.6pL cancer cells after treatment for 24 and 48 hours, induces apoptosis and ROS in these cell lines at 5 and 10 <math>\mu\text{M}</math> after 3 or 9 h of treatment<sup>[1]</sup>.</p> <p>?Piplartine (5 or 10 <math>\mu\text{M}</math>) induces cleaved PARP and downregulates Sp1, Sp3, Sp4, and Sp-regulated genes<sup>[1]</sup>.</p> <p>?Piplartine (20 <math>\mu\text{M}</math>) decreases the viability of cardiac fibroblasts (CFs). Piplartine (0-10 <math>\mu\text{M}</math>) suppresses myofibroblast transformation via suppression of the ERK1/2 signaling pathway<sup>[2]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
<b>In Vivo</b>	<p>Piperlongumine (30 mg/kg/day, i.p. for 3 weeks) exhibits potent anti-tumor effect in athymic nude mice bearing L3.6pL cells without body weight loss<sup>[1]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

## CUSTOMER VALIDATION

- Int J Mol Sci. 2022 Mar 5;23(5):2868.
- Int Immunopharmacol. 2021 Apr 19;96:107658.
- Inflammation. 2022 Jul 13;1-16.
- bioRxiv. 2023 Jul 11.
- Original Article. 2022.

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## REFERENCES

- [1]. Yan Qin , et al. Pan-cancer analysis identifies migrasome-related genes as a potential immunotherapeutic target: A bulk omics research and single cell sequencing validation. Front Immunol. 2022 Nov 3;13:994828.
- [2]. Karki K, et al. Piperlongumine Induces Reactive Oxygen Species (ROS)-Dependent Downregulation of Specificity Protein Transcription Factors.
- [3]. Wu X, e,t al. Piperlongumine inhibits angiotensin II-induced extracellular matrix expression in cardiac fibroblasts. J Cell Biochem. 2018 Dec;119(12):10358-10364

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

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