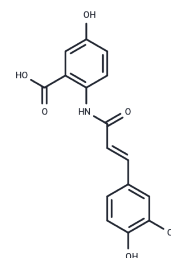


## Avenanthramide C

## Chemical Properties

CAS No. :	116764-15-9
Formula:	C <sub>16</sub> H <sub>13</sub> N <sub>1</sub> O <sub>6</sub>
Molecular Weight:	315.28
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	Avenanthramide C is an orally available natural alkaloid with antioxidant/inflammatory properties that reduces the expression of TNF- $\alpha$ , BAK, IL-1 $\beta$ , and Bcl-2; reverses memory and behavioral deficits in Alzheimer's disease, with a reduction in caspase-3 cleavage and an increase in levels of pS9GSK-3 $\beta$ and IL-10, is able to bind $\alpha$ 1A adrenergic and stimulate AMPK; can attenuate noise and drug-induced hearing loss.
Targets(IC50)	Bcl-2 Family,Caspase,Adrenergic Receptor,AMPK,IL Receptor,Interleukin,TNF
In vitro	In RAW264.7 macrophages, Avenanthramide C (0-50 $\mu$ M, 24 h) significantly inhibits LPS/ATP-induced ROS production, mitochondrial membrane potential loss, membrane permeability increase, and IL-1 $\beta$ secretion. Avenanthramide C also downregulates the expression of NLRP3, Caspase-1, GSDMD, and IL-1 $\beta$ proteins, indicating suppression of ROS-mediated mitochondrial damage and pyroptosis via the PI3K/Akt pathway[1].
In vivo	In an LPS-induced acute inflammation mouse model, a single intraperitoneal injection of Avenanthramide C (20 mg/kg) significantly reduces IL-1 $\beta$ levels in peritoneal fluid and downregulates NLRP3 and GSDMD expression, demonstrating its anti-inflammatory and anti-pyroptotic effects in vivo[1].

## Solubility Information

Solubility	DMSO: 40 mg/mL (126.87 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 (6.34 mM),Sonication is recommended. <i>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.</i>

### Preparing Stock Solutions

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	1mg	5mg	10mg
1 mM	3.1718 mL	15.8589 mL	31.7178 mL
5 mM	0.6344 mL	3.1718 mL	6.3436 mL
10 mM	0.3172 mL	1.5859 mL	3.1718 mL
50 mM	0.0634 mL	0.3172 mL	0.6344 mL

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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

Pu Z, Shen C, Zhang W, Xie H, Wang W. Avenanthramide C from Oats Protects Pyroptosis through Dependent ROS-Induced Mitochondrial Damage by PI3K Ubiquitination and Phosphorylation in Pediatric Pneumonia. *J Agric Food Chem.* 2022 Feb 23;70(7):2339-2353. doi: 10.1021/acs.jafc.1c06223. Epub 2022 Feb 4. Erratum in: *J Agric Food Chem.* 2025 May 24.

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