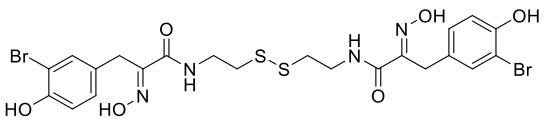
Product data sheet

MedKoo Cat#: 574850 Name: Psammaplin A CAS: 110659-91-1 Chemical Formula: $C_{22}H_{24}Br_2N_4O_6S_2$ Exact Mass: 661.9504 Molecular Weight: 664.38	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
Psammaplin A is a marine metabolite that is a potent inhibitor of HDAC and DNA methyltransferases.

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
To be determined	To be determined	To be determined

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.51 mL	7.53 mL	15.05 mL
5 mM	0.30 mL	1.51 mL	3.01 mL
10 mM	0.15 mL	0.75 mL	1.51 mL
50 mM	0.03 mL	0.15 mL	0.30 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. Ma X, Zhan C, Ma P, Jing G, Liyan S, Zhang Y, Jing Z, Liu H, Wang J, Lu W. PsA inhibits the development of bovine embryos through epigenetic and oxidative stress. Am J Vet Res. 2023 Feb 21;84(4):ajvr.22.09.0159. doi: 10.2460/ajvr.22.09.0159. PMID: 36795551.
2. Oluwabusola ET, Katermeran NP, Poh WH, Goh TMB, Tan LT, Diyaolu O, Tabudravu J, Ebel R, Rice SA, Jaspars M. Inhibition of the Quorum Sensing System, Elastase Production and Biofilm Formation in Pseudomonas aeruginosa by Psammaplin A and Bisaprasin. Molecules. 2022 Mar 6;27(5):1721. doi: 10.3390/molecules27051721. PMID: 35268822; PMCID: PMC8911947.

In vivo study

1. Byun WS, Kim WK, Han HJ, Chung HJ, Jang K, Kim HS, Kim S, Kim D, Bae ES, Park S, Lee J, Park HG, Lee SK. Targeting Histone Methyltransferase DOT1L by a Novel Psammaplin A Analog Inhibits Growth and Metastasis of Triple-Negative Breast Cancer. Mol Ther Oncolytics. 2019 Oct 1;15:140-152. doi: 10.1016/j.omto.2019.09.005. PMID: 31720371; PMCID: PMC6838941.
2. Kim HJ, Kim TH, Seo WS, Yoo SD, Kim IH, Joo SH, Shin S, Park ES, Ma ES, Shin BS. Pharmacokinetics and tissue distribution of psammaplin A, a novel anticancer agent, in mice. Arch Pharm Res. 2012 Oct;35(10):1849-54. doi: 10.1007/s12272-012-1019-5. Epub 2012 Nov 9. PMID: 23139138.

7. Bioactivity
Biological target:

Product data sheet

Psammaplin A ia a highly potent and selective DAC1 inhibitor with an IC50 of 0.9 nM. Psammaplin A possess antimicrobial effects on Gram-positive bacteria and inhibits DNA synthesis and DNA gyrase activity. Psammaplin A also has antitumor activity.

In vitro activity

On bovine parthenogenetic (PA) embryos, psammaplin A demonstrated potent HDAC inhibition. In the embryos, psammaplin A reduced the blastocyst formation rate. Psammaplin A had inhibitory effects on HDAC1 and DNMT1. Psammaplin A treatment enhanced the acetylation level of H3K9 but left DNA methylation relatively unchanged. Psammaplin A induced oxidative stress by increasing ROS generation.

Reference: Am J Vet Res. 2023 Feb 21;84(4):ajvr.22.09.0159. https://pubmed.ncbi.nlm.nih.gov/36795551/

In vivo activity

Following intravenous administration in mice, psammaplin A exhibited rapid elimination, with a short average half-life and significant systemic clearance. Psammaplin A was found to be highly distributed to lung tissues, with the lung-to-serum partition coefficients (K(p)) ranging from 49.9 to 60.2. Psammaplin A concentrations in other tissues were either comparable with or less than serum concentrations.

Reference: Arch Pharm Res. 2012 Oct;35(10):1849-54. https://pubmed.ncbi.nlm.nih.gov/23139138/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.