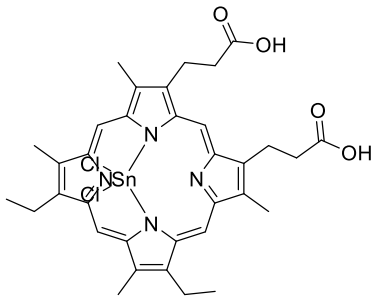
Product data sheet

MedKoo Cat#: 202708 Name: Stannsoporfin CAS: 106344-20-1 Chemical Formula: $C_{34}H_{36}Cl_2N_4O_4Sn$ Molecular Weight: 754.29	
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:

Stannsoporfin (SnMP), also known as Tin mesoporphyrin, is a porphyrin-Sn(IV) complex, is also a potent heme oxygenase inhibitor, that inhibits HO-1–mediated heme catabolism with potential medicinal application for the treatment of both neonatal jaundice and inherited hyperbilirubinemia syndromes. It was developed to possess unique structural and photophysical properties that make it a particularly potent and bioavailable in vivo inhibitor suitable for clinical use in newborns and studies to date have revealed a very favorable therapeutic profile with no significant adverse side effects.

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
DMSO	2	2.65

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.33 mL	6.63 mL	13.26 mL
5 mM	0.27 mL	1.33 mL	2.65 mL
10 mM	0.13 mL	0.66 mL	1.33 mL
50 mM	0.03 mL	0.13 mL	0.27 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. Sorrenti V, D'Amico AG, Barbagallo I, Consoli V, Grosso S, Vanella L. Tin Mesoporphyrin Selectively Reduces Non-Small-Cell Lung Cancer Cell Line A549 Proliferation by Interfering with Heme Oxygenase and Glutathione Systems. Biomolecules. 2021 Jun 21;11(6):917. doi: 10.3390/biom11060917. PMID: 34205698; PMCID: PMC8235249.
2. Yong SB, Kim J, Chung JY, Ra S, Kim SS, Kim YH. Heme Oxygenase 1-Targeted Hybrid Nanoparticle for Chemo- and Immuno-Combination Therapy in Acute Myelogenous Leukemia. Adv Sci (Weinh). 2020 Jun 3;7(13):2000487. doi: 10.1002/advs.202000487. PMID: 32670766; PMCID: PMC7341080.

In vivo study

1. Rosenfeld WN, Hudak ML, Ruiz N, Gautam S; Jasmine Study Group. Stannsoporfin with phototherapy to treat hyperbilirubinemia in newborn hemolytic disease. J Perinatol. 2022 Jan;42(1):110-115. doi: 10.1038/s41372-021-01223-2. Epub 2021 Oct 11. PMID: 34635771.
2. Muliaditan T, Opzoomer JW, Caron J, Okesola M, Kosti P, Lall S, Van Hemelrijck M, Dazzi F, Tutt A, Grigoriadis A, Gillett CE, Madden SF, Burchell JM, Kordasti S, Diebold SS, Spicer JF, Arnold JN. Repurposing Tin Mesoporphyrin as an Immune Checkpoint Inhibitor Shows Therapeutic Efficacy in Preclinical Models of Cancer. Clin Cancer Res. 2018 Apr 1;24(7):1617-1628. doi: 10.1158/1078-0432.CCR-17-2587. Epub 2018 Jan 16. PMID: 29339440; PMCID: PMC5889101.

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7. Bioactivity

Biological target:

Stannsoporfin is a potent inhibitor of heme oxygenase 1 (HO-1) and heme oxygenase 2 (HO-2).

In vitro activity

HO activity inhibition has potential as a selective chemotherapy target in lung cancer subtypes. In A549 NSCLC cell lines, stannsoporfin inhibited HO activity, reducing A549 cell proliferation and migration. Stannsoporfin treatment increased oxidative stress. Stannsoporfin had impact on key regulators of the pentose phosphate pathway and glutathione synthesis. However, NCI-H292, a NSCLC subtype, had a minimal response, possibly due to low basal HO-1 levels, suggesting cell-dependent antitumorigenic effects.

Reference: Biomolecules. 2021 Jun 21;11(6):917. https://pubmed.ncbi.nlm.nih.gov/34205698/

In vivo activity

Stannsoporfin could represent a novel immune checkpoint therapy, which may improve the immunological response to chemotherapy. In an aggressive spontaneous murine model of breast cancer, stannsoporfin inhibited immune suppression of chemotherapy-elicited CD8+ T cells by targeting myeloid HO-1 activity in the tumor microenvironment.

Reference: Clin Cancer Res. 2018 Apr 1;24(7):1617-1628. https://pubmed.ncbi.nlm.nih.gov/29339440/

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.