

# Product data sheet



MedKoo Cat#: 406813 Name: AlPcS4 CAS#: 144082-45-1 (free acid) Chemical Formula: C <sub>32</sub> H <sub>16</sub> AlClN <sub>8</sub> O <sub>12</sub> S <sub>4</sub> Exact Mass: 893.9274 Molecular Weight: 895.20	
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:

AlPcS<sub>4</sub>, also known as aluminum phthalocyanine tetrasulfonate Chloroaluminum tetrasulfophthalocyanine; or AIS4Pc, AlPcS<sub>4</sub>(a), is a potent photosensitizer, and is potentially useful in cancer sonodynamic therapy and cancer photodynamic therapy. Aluminum phthalocyanine disulfonate is a mixture of regional isomers, in which sulfonate group can be in 3- or 4- position in phenyl ring. Aluminum phthalocyanine disulfonate is also a Coloring Agent; Dermatologic Agent; Fluorescent Dye; Indicators and Reagent; Luminescent Agent; Photosensitizing Agent; Radiation-Sensitizing Agent.

## 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

## 4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.12 mL	5.59 mL	11.17 mL
5 mM	0.22 mL	1.12 mL	2.23 mL
10 mM	0.11 mL	0.56 mL	1.12 mL
50 mM	0.02 mL	0.11 mL	0.22 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. Xin J, Wang S, Zhang L, Xin B, He Y, Wang J, Wang S, Shen L, Zhang Z, Yao C. Comparison of the synergistic anticancer activity of AlPcS<sub>4</sub> photodynamic therapy in combination with different low-dose chemotherapeutic agents on gastric cancer cells. *Oncol Rep.* 2018 Jul;40(1):165-178. doi: 10.3892/or.2018.6438. Epub 2018 May 16. PMID: 29767247; PMCID: PMC6059740.

### In vivo study

1. Haddad R, Blumenfeld A, Siegal A, Kaplan O, Cohen M, Skornick Y, Kashtan H. In vitro and in vivo effects of photodynamic therapy on murine malignant melanoma. *Ann Surg Oncol.* 1998 Apr-May;5(3):241-7. doi: 10.1007/BF02303780. PMID: 9607626.

## 7. Bioactivity

Biological target: AlPcS<sub>4</sub> is a photosensitizer.

### In vitro activity

The synergistic antitumor growth effect of AlPcS<sub>4</sub>/PDT (photodynamic therapy) and low-dose chemotherapeutic agents on gastric cancer cells was investigated and compared by combining AlPcS<sub>4</sub>/PDT treatment with different low-dose chemotherapeutic agents,

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namely, 5-fluorouracil (5-FU), doxorubicin (DOX), cisplatin (CDDP), mitomycin C (MMC), and vincristine (VCR). The inhibitory effect was increased in treatments that combined AlPcS4/PDT with all the low-dose chemotherapeutic agents. An evident synergistic effect was obtained in the combination treatment of AlPcS4/PDT with low-dose 5-FU, DOX, and MMC by increasing AlPcS4 intracellular uptake ability, improving apoptosis-inducing abilities, and prolonging apoptosis-inducing time. The low-dose chemotherapeutic agents prolonged the apoptosis-inducing period of AlPcS4/PDT, and AlPcS4/PDT quickly improved apoptosis-inducing abilities of chemotherapy even at low doses. Generally, the combination treatment of AlPcS4/PDT with low-dose chemotherapeutic agents had significant antitumor growth effects in addition to a low dark-cytotoxicity effect on gastric cancer in vitro.

Reference: Oncol Rep. 2018 Jul;40(1):165-178. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6059740/>

## In vivo activity

C57/B1 mice received  $2 \times 10^5$  B16 melanoma cells subcutaneously and were randomized into study (PDT) and three control groups. AlpcS4 2.5 mg/kg was injected intraperitoneally and the mice were exposed to light (100 J/cm<sup>2</sup>). PDT caused massive tumor necrosis. PDT prolonged the survival of mice (41 +/- 13.4 days) compared to controls (15.8 +/- 3.8 days,  $P < .001$ ). 31 days after injection with B16 cells, the tumor size was 2.6 +/- 0.3 cm in the control group and 1.6 +/- 0.2, 0.9 +/- 0.3, and 1.0 +/- 0.4 cm in the PDT groups (days 3, 6 and 12, respectively;  $P < .01$ ). PDT increased skin temperature to 42.8 degrees C +/- 1.3 degrees C, 45.3 degrees C +/- 3.5 degrees C, and 51.7 degrees C +/- 2.7 degrees C at 40, 60, and 100 J/cm<sup>2</sup>, respectively ( $P < .01$ ). Overall, photodynamic therapy was found to have significant effects in experimental melanoma in mice.

Reference: Ann Surg Oncol. 1998 Apr-May;5(3):241-7. <https://pubmed.ncbi.nlm.nih.gov/9607626/>

*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.*