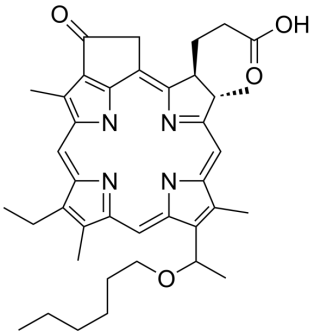
HPPH

Cat. No.:	HY-13722
CAS No.:	149402-51-7
Molecular Formula:	$C_{39}H_{48}N_4O_4$
Molecular Weight:	636.82
Target:	Reactive Oxygen Species
Pathway:	Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB
Storage:	4°C, sealed storage, away from moisture and light * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 125 mg/mL (196.29 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	1.5703 mL	7.8515 mL	15.7030 mL
	5 mM	0.3141 mL	1.5703 mL	3.1406 mL
	10 mM	0.1570 mL	0.7852 mL	1.5703 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (3.93 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (3.93 mM); Suspended solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (3.93 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

HPPH (Photochlor) is a second generation photosensitizer, which acts as a photodynamic therapy (PDT) agent.

In Vitro

Fluorescence image of 4T1 cells incubated with 0.49 μg/mL GO-PEG, 1 μM HPPH (free HPPH) or equivalent amount of GO-PEG-HPPH (1 μM HPPH and 0.49 μg/mL GO-PEG) after 24 h. The cellular uptake of GO-PEG-HPPH and HPPH is investigated with 4T1 murine mammary cancer cells. The cells are incubated with GO-PEG-HPPH and free HPPH at equivalent HPPH concentration (1 μM) for 24 h and then observed with a confocal microscope. Cells treated with GO-PEG-HHPH shows stronger fluorescence signal than those treated with free HPPH. In fact, the fluorescence of HPPH is rather weak[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo	Tumors are treated with an immune-enhancing PDT regimen followed by a tumor-controlling PDT regimen can leads to enhancement of anti-tumor immunity, while retaining effective control of primary tumor growth. To test this hypothesis, a combination treatment regimen is devised in which Colo26-HA tumor-bearing BALB/c mice are treated with a HPPH-PDT regimen known to lead to enhanced anti-tumor immunity (0.4 μmoles/kg HPPH followed 18 h later by illumination with 665 nm light for a total dose of 48 J/cm^2). Following illumination, mice are rested for 9 days; on the ninth day, mice are injected with HPPH. On day 10 following the first treatment, tumors are treated with a tumor control treatment regimen (illumination with 665 nm light for a total dose of 132 J/cm^2 given)[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	4T1 cells are cultured in 96-well cell culture plates at 1×10^4/well for 24 h and then treated with GO-PEG-HPPH, HPPH, or GO-PEG at a series of concentrations (0.078125, 0.15625, 0.3125, 0.625, 1.25, 2.5, 5, 10, and 20 μM). Then, 20 μL of MTT solution (5.0 mg/mL) is added to each well. After the 4 h incubation with the MTT, the media are removed and 100 μL of DMSO is added to solubilize the formazan crystals. The cell toxicity efficacy is measured with a microplate reader at an absorbance of 570 nm[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [2]	Mice[2] Tumor-bearing mice are injected in the tail vein with 0.4 μmol/kg HPPH or 5 mg/kg Porfimer sodium (PII), followed 18-24 h later by illumination to a total light dose of 48 J/cm^2 or 132 J/cm^2 delivered at a light dose-rate of 14 mW/cm^2. Control mice are treated with photosensitizer or light alone. Mice receiving a combination PDT regimen are treated initially with 0.4 μ mol/kg HPPH or 5 mg/kg PII followed 18-24 h later by light dose of 48 J/cm^2 given at 14 mW/cm^2; 9 days later, mice are again injected with photosensitizer and tumors are illuminated with light at a dose of 132 J/cm^2 given at 14 mW/cm^2[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- J Nanobiotechnology. 2021 May 19;19(1):147.
- ACS Appl Mater Interfaces. 2021 Apr 28.

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REFERENCES

[1]. Rong P, et al. Photosensitizer loaded nano-graphene for multimodality imaging guided tumor photodynamic therapy. Theranostics. 2014 Jan 15;4(3):229-39.

[2]. Shams M, et al. Development of photodynamic therapy regimens that control primary tumor growth and inhibit secondary disease. Cancer Immunol Immunother. 2015 Mar;64(3):287-97.

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