

Product Data Sheet

Product Name: Chlorin e6

Cat. No.: GC43244

Chemical Properties

Cas. No. 19660-77-6

Chemical Name (7S,8S)-3-carboxy-5-(carboxymethyl)-13-ethenyl-18-ethyl-7,8-dihydro-2,8,12,17-tetramethyl-21H,23H-porphine-7-propanoic acid

SMILES CC1=C2[NH]C(/C(CC(O)=O)=C([C@@H](CCC(O)=O)[C@@H]3C)\[N]=C3/C=C4[NH]/C(C(C=C)=C4C)=C\5=[N]/C(C(CC)=C5C)=C\2)=C1C(O)=O

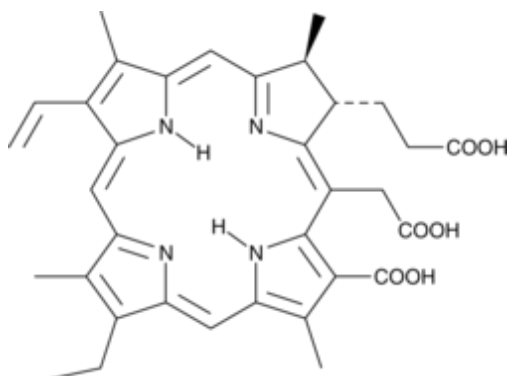
Formula $C_{34}H_{36}N_4O_6$ M.Wt 596.7

Solubility DMF: 30 mg/ml, DMSO: 30 mg/ml, DMSO:PBS (pH 7.2) (1:6): 0.14 mg/ml, Ethanol: slightly soluble
Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Protocol

Cell experiment [1]:

Cell lines

B16-F10 cells

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

Preparation Method	B16-F10 cells were cultured in RPMI-1640 medium, supplemented with 10% fetal bovine serum (FBS), and 1% penicillin/streptomycin, at 37°C in an incubator with 5% CO ₂ . Cells were seeded into 96-well plates at a density of 5×10 ³ cells/ml and incubated for 24h at 37°C. Cells were exposed to gradient concentrations of Chlorin e6 (0, 0.1, 1, 10, and 100µM) for 48h, cell viability was measured.
Reaction Conditions	0, 0.1, 1, 10, and 100µM; 48h
Applications	Chlorin e6 treatment reduced cell viability in B16-F10 cells in a dose-dependent manner.
Animal experiment [2]:	
Animal models	Male C57BL6 mice
Preparation Method	Male C57BL6 mice (4 weeks old) were housed and maintained in a standard environment (room temperature 20±2°C; humidity 50±5%; light/dark cycle: 12:12h) in the standard lab facility for a week. The mice were randomly divided into 3 groups with similar weights: normal group (Nor), vehicle-treated high-fat diet group (HFD), high-fat diet with Chlorin e6 (5mg/kg) and light of a high fluence rate (4.96mW/cm ²). The normal group of mice was fed a normal diet (10% fat), while the remaining groups were fed a high-fat diet (60% fat) for 70 days to increase the body weight by about 70%. Chlorin e6 (5mg/kg/day) was dissolved in normal saline, filtered through a 0.2µm syringe filter, and administered orally to the treated mice every two days with 4.96mW/cm ² light for 4 weeks. The weight changes in mice, along with food and water intake, were measured every week.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

Dosage form	5mg/kg; every two days; 4 weeks; p.o.
Applications	Chlorin e6 treatment combined with 4.96mW/cm ² light decreased body weight in mice with a high-fat diet.
References: [1] Huang F, Li Y, Zhang X J, et al. Novel chlorin e6-based conjugates of tyrosine kinase inhibitors: Synthesis and photobiological evaluation as potent photosensitizers for photodynamic therapy[J]. European Journal of Medicinal Chemistry, 2023, 261: 115787. [2] Shrestha R, Gurung P, Lim J, et al. Anti-obesity effect of Chlorin e6-mediated photodynamic therapy on mice with high-fat-diet-induced obesity[J]. Pharmaceuticals, 2023, 16(7): 1053.	

Background

Chlorin e6, a photosensitizer with a simple porphyrin nucleus, has strong absorption peaks at wavelengths of 403nm and 664nm^[1]. Chlorin e6 exhibits low dark toxicity, high phototoxicity, and rapid accumulation in target tissues, enabling the generation of singlet oxygen and the formation of intracellular reactive oxygen species (ROS)^[2]. Chlorin e6 has been widely used in photodynamic therapy and dynamic acoustic therapy to inhibit tumor growth and regulate bacterial activity^[3].

In vitro, Chlorin e6 treatment for 48 hours significantly inhibited the viability of HepG2 and B16-F10 cells, with IC₅₀ values of 1.66μM and 1.67μM, respectively, under 10J/cm² irradiation (24h)^[4].

Chlorin e6 (0.2mg/ml) treatment for 45 minutes combined with 1.0MHz/cm² ultrasound (60s) induced G2/M phase arrest and apoptosis in SPCA-1 cells^[5]. Pretreatment with 170μM Chlorin e6 for 90 minutes, followed by irradiation at 2J/cm², induced vascular smooth muscle cell death, accompanied by DNA fragmentation, reduced cell membrane polarization, and caspase-3 activation^[6].

In vivo, oral administration of Chlorin e6 at a dose of 5mg/kg every 2 days, combined with

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

4.96mW/cm² light irradiation for 4 weeks, significantly attenuated high-fat diet-induced obesity, reduced hepatic lipid accumulation, and decreased epididymal adipocyte size in mice^[7].

References:

- [1] Paul S, Heng P W S, Chan L W. Optimization in solvent selection for chlorin e6 in photodynamic therapy[J]. Journal of fluorescence, 2013, 23(2): 283-291.
- [2] Pandit R P, Thapa Magar T B, Shrestha R, et al. Isolation, identification, and biological activities of a new chlorin e6 derivative[J]. International Journal of Molecular Sciences, 2024, 25(13): 7114.
- [3] Liao S, Cai M, Zhu R, et al. Antitumor effect of photodynamic therapy/sonodynamic therapy/sonophotodynamic therapy of chlorin e6 and other applications[J]. Molecular pharmaceutics, 2023, 20(2): 875-885.
- [4] Huang F, Li Y, Zhang X J, et al. Novel chlorin e6-based conjugates of tyrosine kinase inhibitors: Synthesis and photobiological evaluation as potent photosensitizers for photodynamic therapy[J]. European Journal of Medicinal Chemistry, 2023, 261: 115787.
- [5] Chen B, Zheng R, Liu D, et al. The tumor affinity of chlorin e6 and its sonodynamic effects on non-small cell lung cancer[J]. Ultrasonics sonochemistry, 2013, 20(2): 667-673.
- [6] Wawrzyńska M, Kałas W, Biały D, et al. In vitro photodynamic therapy with chlorin e6 leads to apoptosis of human vascular smooth muscle cells[J]. Archivum Immunologiae et Therapiae Experimentalis, 2010, 58(1): 67-75.
- [7] Shrestha R, Gurung P, Lim J, et al. Anti-obesity effect of Chlorin e6-mediated photodynamic therapy on mice with high-fat-diet-induced obesity[J]. Pharmaceuticals, 2023, 16(7): 1053.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA