

Product Data Sheet

Product Name: Potassium tetrachloroplatinate

Cat. No.: GD19746

Chemical Properties

Cas. No. 10025-99-7

Formula $\text{Cl}_4\text{K}_2\text{Pt}$

M.Wt 415.087

Solubility

Storage Store at 2-8°C, protect from light, stored under nitrogen

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 EMT6 mammary tumor cell line

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

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Preparation Method EMT6 cells were placed into T-25 flasks. Potassium tetrachloroplatinate in a small volume of sterile 0.9% phosphate-buffered saline were added to the cells in complete medium in concentrations ranging from 1 to 500μM. For hyperthermia, flasks were horizontally submersed in a Plexiglas water tank with a continuous inflow and outflow system controlled by a water temperature controller. After exposure to the agent for 1h at 37°C, 42°C, or 43°C, the cells were washed twice with saline, suspended by trypsinization, and diluted in complete growth medium and survival was measured by colony formation. The colonies were visualized by staining with crystal violet in methanol containing 2% formaldehyde. The colonies were counted manually.

Reaction Conditions 1-500μM; 1h

Applications 50% of the EMT6 were killed by about 150μM Potassium tetrachloroplatinate. At 42°C there was about a 0.4-decade enhancement in cell killing for 500μM of Potassium tetrachloroplatinate, and at 43°C there was about a 1.5-decade enhancement in cell killing at 500μM as compared to the cell killing seen at 37°C.

Animal experiment [1]:

Animal models Lewis lung carcinoma bared male C57BL/6J mice

Preparation Method Potassium tetrachloroplatinate was administered intraperitoneally (i.p.) immediately prior to local hyperthermia treatment. Then immerse the tumor-bearing leg in a water bath maintained at 43°C for 30 or 60 minutes for hyperthermia apply.

Dosage form 10mg/kg; i.p.

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Applications Potassium tetrachloroplatinate induced a tumor growth delay of ~3.8 days in Lewis lung carcinoma bared C57BL/6J mice, and a combination treatment with hyperthermia (43°C, 30min) did not significantly enhance the antitumor effect.

References:

[1]. Herman, Terence S., et al. "Effect of hyperthermia on the action of cis-diamminedichloroplatinum (ii), rhodamine 1232 [tetrachloroplatinum (ii)], rhodamine 123, and potassium tetrachloroplatinate in vitro and in vivo." Cancer research 48.9 (1988): 2335-2341.

Background

Potassium tetrachloroplatinate (K_2PtCl_4) is used as common starting material of the classic Pt(II) anticancer complexes such as cisplatin [1]. Potassium tetrachloroplatinate is used as catalyst in deuteration of benzoic acid with D_2O [2].

In vitro, Potassium tetrachloroplatinate (150 μ M; 1h) killed about 50% EMT6 mammary tumor cell at 37°C [3].

In vivo, Potassium tetrachloroplatinate (10mg/kg; i.p.) induced a tumor growth delay of ~3.8 days in Lewis lung carcinoma-transplanted C57BL/6J mice, and a combination treatment with hyperthermia (43°C, 30min) did not significantly enhance the antitumor effect [3].

References:

- [1] Wilson, Justin J., and Stephen J. Lippard. "Synthetic methods for the preparation of platinum anticancer complexes." Chemical reviews 114.8 (2014): 4470-4495.
- [2] Kańska, Marianna, and R. Kański. "Deuteration of benzoic acid in the presence of homogeneous potassium tetrachloroplatinate (II) catalyst." Journal of radioanalytical and nuclear chemistry 162.1 (1992): 179-186.
- [3] Herman, Terence S., et al. "Effect of hyperthermia on the action of cis-diamminedichloroplatinum (ii), rhodamine 1232 [tetrachloroplatinum (ii)], rhodamine 123, and potassium tetrachloroplatinate in vitro and in vivo." Cancer research 48.9 (1988): 2335-2341.

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