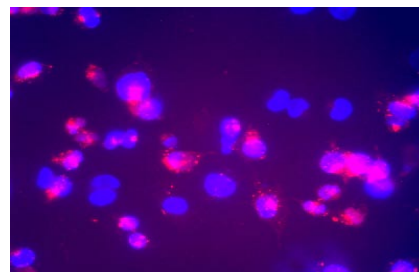


PHOSPHAPLATINS AS ANTI-CANCER DRUGS

TECHNOLOGY OVERVIEW

The invention is the creation of a group of new platinum based anti-cancer agents that are active toward both sensitive and resistant cancers, and exhibit properties for reduced side effects. Available drugs for cancer treatment such as cisplatin and carboplatin exhibit undesirable side effects including nephro, neuro, and ototoxicities. These toxicities are mainly due to the interactions with a number of cytoplasmic and nuclear proteins/enzymes since these drugs are transported to the nucleus through cytoplasm and function by binding nuclear DNA. Furthermore, these drugs decompose quickly in the bloodstream and the decomposed products react with many enzymes creating additional complications. Instead of binding nuclear DNA, phosphaplatins trigger fas-activated pathways for the destruction of cancerous cells. Fas is a gene that encodes one of the several proteins that is crucial to apoptosis. The adjoining image illustrates clustering of fas by a phosphaplatin.



POTENTIAL FIELDS OF USE

Overall the annual worldwide market for the platinum compounds cisplatin and oxaliplatin is approximately \$3 billion. Ovarian cancer is the leading cause of gynecologic cancer deaths and has a critically high mortality rate. The ovarian cancer drug market was estimated at \$0.5 million in 2006 and is expected to surpass \$1.6 billion by 2016.

Phosphaplatin compounds could provide a breakthrough in the treatment for ovarian, testicular, head and neck cancers, in addition to other cancers currently being treated by cisplatin. Nearly 20% of cancer patients suffer from relapses and become resistant to available cancer drugs. Phosphaplatins have the potential to help these patients who fail to receive proper treatment.

BENEFIT ANALYSIS

Phosphaplatins may provide an excellent alternative to facilitate treatment for patients with cancers resistant to existing approved drugs:

- Potential to replace existing platinum-based anticancer drugs due to the ability to respond to both sensitive and resistant cancers.
- Improved side-effect profile.
- Feasibility in a variety of administration routes, including oral, nasal, implants and parenteral.
- Flexibility in the duration of doses over the treatment period.
- Increased solubility and stability in aqueous solutions.
- Feasibility of being used in conjunction with other cancer chemotherapeutics.

STAGE OF DEVELOPMENT

Phosphaplatins have been administered and tested for efficacy in several cisplatin sensitive and resistant cancer cells. Various dose ranges were used with acceptable pharmaceutical carriers to achieve accelerated cancer cell killing effects. Preclinical trials are underway.

FUTURE DEVELOPMENT

Combinatorial therapies to exhibit synergistic effects are underway along with the several modifications of the current invention. Clinical trials are planned to establish human safety and efficacy.

LICENSING OPPORTUNITIES

The patent application for this technology has been filed. Licensing opportunities are available.

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