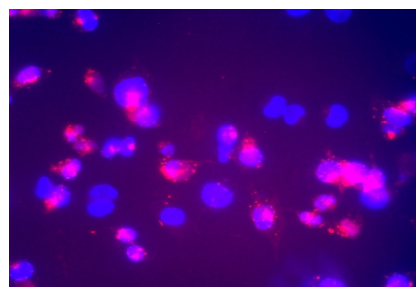


PHOSPHAPLATINS AS ANTI-CANCER DRUGS

TECHNOLOGY OVERVIEW

The invention is the creation of a group of new platinum based anti-cancer agents that are active towards both normal and resistant cancers, and exhibit properties for reduced side effects. Available drugs for cancer treatment such as cisplatin and carboplatin have exhibited undesirable effects including nephro-,neuro, and oto-toxicities. These toxicities are mainly due to the interactions with a number of cytoplasmic and nuclear proteins/enzymes since cisplatin is transported to nucleus through cytoplasm and functions by binding nuclear DNA. Furthermore, cisplatin decomposes 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 (process by which the cells die). The adjoining image shows the image of clustering of fas by a phosphaplatin.



POTENTIAL FIELDS OF USE

The technology could provide a breakthrough in the treatment for ovarian, testicular, head and neck cancers, on addition to other cancers currently being treated by cisplatin. Potentially it could help thousands of people who are unable to respond to other platinum chemotherapeutics and fail to receive proper treatment. It could also minimize the side-effects and risks in the treatment process. Ovarian cancer therapy is a potential use of the technology. 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 billion in 2006 and is expected to surpass \$1.6 billion by 2016. Nearly 20% of such patients suffer from relapses and become resistant to available cancer drugs. Overall the annual worldwide market for the platinum compounds cisplatin and oxaliplatin was approximately \$3 billion.

BENEFIT ANALYSIS

The drug provides an excellent alternative to facilitate treatment for people resistant to existing market drugs:

- Potential to replace existing platinum-based anticancer drugs due to the ability to respond to both sensitive and resistant cancers.
- Potential to eliminate several side-effects due to their lack of decomposition over time..
- Feasibility in drug administration routes, such as oral, nasal, implants and injections.
- Flexibility in the duration of dosages over the treatment period.
- Increased solubility and stability in aqueous solutions when compared to cisplatin.
- Feasibility of being used in conjunction with other cancer chemotherapeutics.

STAGE OF DEVELOPMENT

The drug has been administered and tested for its effectiveness in several cisplatin sensitive and resistant cancer cells. Pharmaceutically relevant dosages were used with acceptable pharmaceutical carriers to achieve accelerated cancer cell killing effects. Preclinical trials are underway to establish toxicity and tolerable dosages.

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 the commercial success of the drug.

LICENSING OPPORTUNITIES

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

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