

# NANOPARTICLES TO ENHANCE THE EFFECTS OF DRUGS FOR CANCER TREATMENT

Use of nanotechnology for cancer treatment, particularly pancreatic cancer, through biocompatible and biodegradable nanoparticles (NPs) that acts as highly stable drug carriers, enhancing their solubility and effectiveness

## Technology for Licensing

### Keywords:

Nanoparticles, Olaparib, ascorbic acid, cancer, pancreas, biocompatibility, drug resistance, metastase, apoptosis

### Description:

One of the main causes of cancer-related deaths is the failure of therapies due to the development of drug resistances.

In order to address this problem, researchers are studying how to inhibit relevant proteins involved in the resistance mechanism. However, some inhibitors have limitations such as low water solubility, limited bioavailability and retention in the tumor area.

In this regard, nanotechnology plays a crucial role in cancer drug administration as it can adjust the properties of nanoparticles (NPs), making the drug more effective.

Stable and biocompatible nanoformulations have been developed for the co-treatment of Olaparib (OLA) and ascorbic acid (AA) as a new therapeutic tool for pancreatic cancer, addressing the technical issue of poor solubility of the antitumor agent and the low activity of individually used agents. This therapy could potentially be extended to other types of tumors that exhibit certain drug resistance patterns.

## Advantages and Benefits

- » Stable and biocompatible formulation  
The formulation induces significant therapeutic benefits compared to free OLA.
- » Greater effectiveness compared to free OLA both in in vitro and in vivo assays, where mouse survival is increased.
- » Enhances the availability of the antitumor agent OLA as it is attached to the NPs  
The agent is released slowly, prolonging its availability and improving the effectiveness and efficiency of treatment with this drug.
- » Increases survival in in vivo assays
- » Enhances the cytotoxic effect compared with the free antitumor agent in in vitro assays.
- » The therapy can be extended to other tumors that exhibit certain types of drug resistance.

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