

## Nanoparticle Chemotherapeutic Delivery System that Aids in Development of Antitumor Immunity

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**Categories:**

- Pharmaceuticals

**Keywords:**

- Cancer
- Cancer Drug
- Cancer Immunotherapy
- Chemotherapy
- Drug Delivery
- Drug Development
- Drug Formulation
- immunotherapy
- Nanoparticle
- Oncology
- Pharmaceuticals

Researchers at Purdue University have developed a nanoparticle-based system for sustained release of chemotherapeutic drugs at low doses that leaves antitumor immune cells with full functionality. Chemotherapy has been a mainstay in cancer treatment because of the anti-proliferative effects it imposes on tumor cells. Several chemotherapeutic treatment options result in generation of cancer antigens that aid in the activation of the host's antitumor immune response. Paradoxically, these treatment options also damage immune cells, diminishing their antitumor effect. In response to this shortcoming of traditional chemotherapies, Purdue's researchers developed a system to deliver chemotherapeutics and keep immune cells healthy. Their nanoparticle delivery system also elicits an enhanced immunogenic response compared to other chemotherapeutic delivery options along with increasing the metabolic stability and tumor retention of chemotherapeutic drugs. The chemotherapeutic, carfilzomib, formulated with this delivery system showed consistently greater antitumor effects against two tumor types in a mouse model compared to the cyclodextrin-solubilized drug.

**Advantages**

- Sustained Release of Chemotherapeutic Drug
- Enhanced Immune Response
- Increased Drug Metabolic Stability

**Potential Applications**

-Chemotherapy  
-Cancer Treatment

**Related Publication:**

Sustained Delivery of Carfilzomib by Tannic Acid-Based Nanocapsules Helps Develop Antitumor Immunity

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Domain: Pharmaceuticals

**People:**

- Yeo, Yoon (Project leader)
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**Intellectual Property:**

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