

Therapeutic treatment of cancer/arthritis by a novel targeted drug delivery system

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The Technology

Researchers at Wichita State University are developing a novel nano-composite drug delivery system to potentially treat inflammation, such as arthritis, and cancer through targeted delivery of slowly released therapeutic agents to the affected region. In-vivo results have shown that the drug delivery system is localized (or concentrated) in the targeted region, and therapeutic effects were readily observed as is seen in the Figure below. In vitro and in-vivo experiments have shown that the drug delivery carriers do not provoke much foreign body responses or inflammation, even at high concentrations. Experimental results have confirmed an extended release rate of therapeutic agent, the enhanced cytotoxic influence to target cells, and an ability to guide the drug carrier system to the desired location.

Additional Information

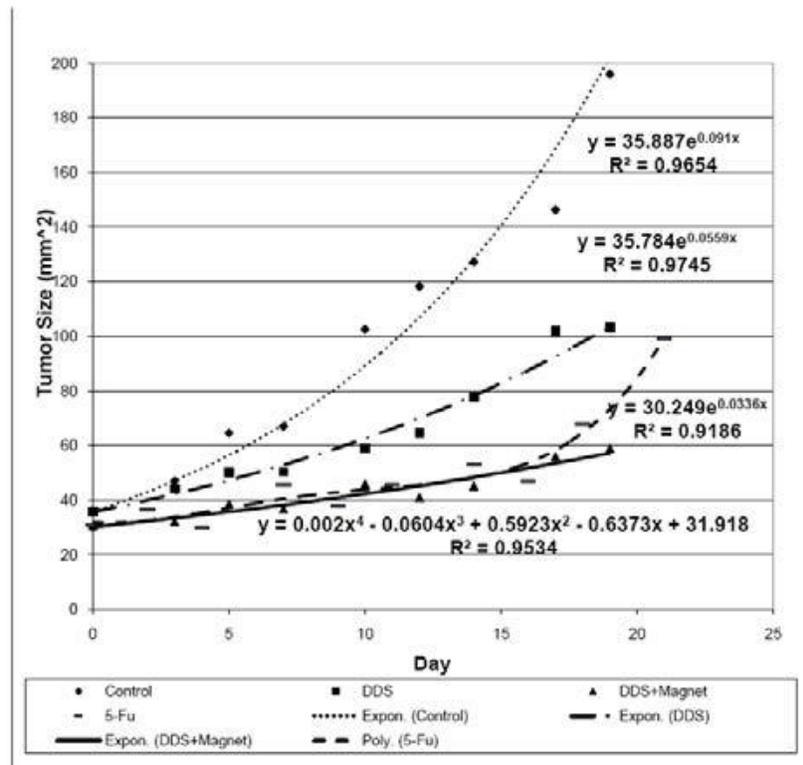


Figure: The plot shows the tumor size (mm²) on the left side of mice as a function of time (Days) after the injections of drugs. The drug delivery system (DDS) associated with a magnetic field provides the smaller growth rate on the tumor than the control and DSS samples.

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Benefits

- The novel magnetic targeted drug delivery design plus the addition of the protein composite may naturally move towards areas of inflammation. Thus, the drug delivery system (DDS) will require less magnetic material than common methods that could cause inflammation or harm to tissues.
- Proteins are well known to aid in diffusion from the lungs to the blood system, thus this DDS could be an effective method of drug delivery from the lungs to the blood.

Applications

- For patients with ailments such as arthritis or cancer.
- A new drug delivery system

Opportunity

- Available for license and pending-patent
- Potential for ongoing collaboration with inventors and WSU researchers.

Patent Status: Pending

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