



## THERAPEUTIC, TOOL

# Implantable hydrogels to prevent relapse in post-resection tumors

## Brief Technology Description

Methods and tools to prevent relapse after tumor resection through implantation of biocompatible hydrogels containing a combination of therapeutic agents.

### BUSINESS OPPORTUNITY

Exclusive licence  
Non-exclusive license  
Sponsored research  
Start-Up

### TECHNOLOGY TYPE

Therapeutic  
Tool

### STAGE OF DEVELOPMENT

Preclinical *in vivo*

### PATENT INFORMATION

[Patent Pending](#)

### INVESTIGATOR OVERVIEW

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### LEARN MORE

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## Technology Overview

Small clusters of remaining cancerous cells after solid tumor resection are a major cause of relapse, particularly in brain cancer, where over 80% of malignant recurrences are found at the surgical margins of a prior resection. Phagocytic clearance of these remaining malignant cells by the immune system can be blunted or inhibited completely due to expression of checkpoint proteins, such as CD47/SIRPa and PD-L1/PD-L2/PD-12, on the tumor cell surface. Hutch and University of Washington researchers have developed a novel, time-released, biocompatible hydrogel formulation which brings together remaining tumor cells and resident immune cells while simultaneously removing “don’t eat me” phagocytic blockades, resulting in clearance of the tumor cells. This is achieved by impregnating the hydrogel with gradients of released chemokines and immunomodulatory molecules. The chemokines serve as chemical attractants to recruit resident immune cells to the resection margins while the immunomodulatory molecules block checkpoint inhibitors which can blunt phagocytic responses. This implantable, slow release hydrogel approach can be adapted to attach a variety of pharmaceutical agents such as proteins and monoclonal antibodies for therapeutic applications.

## Applications

- Hydrogel mediated *in vivo* release of any chemotherapeutic, therapeutic, biologic, immune cell or engineered cell product applied after tumor resection.
- Combination hydrogel *in vivo* release with a host of targeted products that are co-administered systemically or co-injected locally.

## Potential Advantages

- Localized, slow release, delivery of therapeutic agents reduces the risk of off-target effects and can be used in combination with other treatments.

**Market Overview:** The global immuno-oncology market is valued at US\$ 56,677.6 million in 2018, and is projected to have a CAGR of 14.9% from 2018 – 2026.