



Implantable Cancer Drug Delivery Device Signals the Future of Personalized Medicine

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a new microfluidic drug delivery device for *in vivo* testing of targeted chemotherapeutics and tumor susceptibility.

Overview

Cancer treatment planning remains an ongoing challenge to oncologists and patients alike, with each cancer being genetically unique and requiring personalized approaches. Greater outcome success will depend on highly individualized therapy selection as revealed through genomic profiling.

Clinical research demonstrates that localized tumor responses predict the benefit of systemic chemotherapy, reflecting outcomes in metastatic disease. Unfortunately, testing single drugs *in vivo* often involves systemic administration of drugs to determine patient response. Chemical toxicity remains a concern and is exacerbated by repeated trials of ineffective agents, with *in vitro* drug testing lacking effectiveness as an alternative. Finding optimal combinations may take several iterations with accompanying patient decline.

The Invention

UW–Madison researchers have developed a new microfluidic device that allows efficient, minimally invasive delivery of drugs within a tumor, sparing patients from the unnecessary drug toxicity of full and indeterminate chemotherapy regimens.

With nothing more than a hypodermic needle, researchers and clinicians are able to administer small implantable devices containing concentrations of chemotherapeutic compounds to the primary tumor. Each device remains anchored and stable by deploying small barbs upon implantation. Specific drugs or drug combinations can be delivered to different areas of the tumor. Surgical removal of the tumor with the devices in place enables assessment of drug efficacy on affected cells.

Applications

- Clinical trials and new drug evaluation
- Drug efficacy determinations for more personalized treatment planning

Key Benefits

- Mitigates systemic drug toxicity
- Minimizes trial-and-error chemotherapy and use of ineffective compounds
- Enables multiplexed assays of drug therapies simultaneously
- Allows minimally invasive delivery of cancer drugs to tumors over the clinically relevant period of several weeks

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Stage of Development

OK



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The inventors have created working devices and have initiated animal model testing for device stability and delivery modeling.

Additional Information

For More Information About the Inventors

- [David Beebe](#)
- [Jay Warrick](#)
- [Lee Wilke](#)

Related Technologies

- [For more information about microfluidic devices in drug delivery, see WARF reference numbers:](#)
- [P100100US01](#)
- [P04240US](#)

Tech Fields

- [Medical Devices : Diagnostics & monitoring tools](#)
- [Medical Devices : Other medical devices](#)

For current licensing status, please contact Jeanine Burmania at jeanine@warf.org or 608-960-9846

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