"TARGETED THERAPY FOR SOLID TUMORS"

VCU #09-67

Applications

- Selective treatment for solid tumors: prostate cancer, other cancers
- Systemic delivery of therapeutic virus
- Chemotherapeutic agents, small molecules or therapeutic proteins

Advantages

- Targeted, site-specific delivery system
- Permits multiple delivery over a patient's lifetime
- Reduced side-effects

Inventors

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Market Need

Oncolytic virotherapy uses cancer specific viral vectors to destroy tumors while leaving normal cells unharmed. A number of oncolytic vaccines are currently in clinical trials and have had very promising results. One of the major challenges with oncolytic vaccines is getting them past the immune system, which prevents systemic delivery. Immunocompotent vaccines will increase the efficacy and reduce the number of side effects.

Technology Summary

This is a novel ultrasound targeted microbubble delivery approach for the targeted-systemic delivery of a therapeutic virus. This technology allows for targeted site specific delivery of treatment, while at the same time reducing the clearance of the virus before it delivers the protein by encapsulating the virus in an immunocompetent microbubble. It has been demonstrated that mda7 encoding adenovirus (Ad.mda7) delivered through this technology eradicates both primary and bystander tumors in preclinical models. The microbubbles can be designed to target certain tissues releasing mda-7 only in the location of the tumor. Although this technology has initially been tested against prostate cancer, it is conceivable that the same technology could be applied to a variety of cancers, including breast, lung, colon, and ovarian.

Technology Status

U.S. patent pending: 13/386,165This technology is available for licensing to industry for further development and commercialization.