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Life Science Licensing

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Primary Inventors:

Sergei V. Kotenko, PhD

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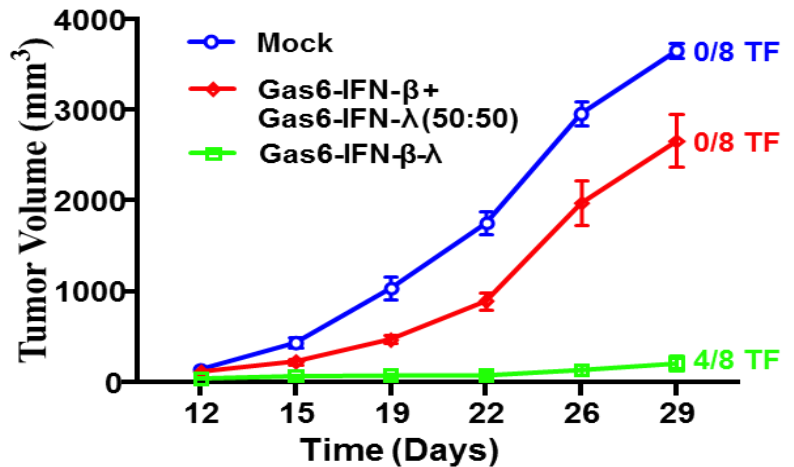
Viralkumar Davra

Rutgers New Jersey Medical School

RU Tech ID #: 2017-109

PS-Targeting Biological inhibits tumor growth.

E0771 breast cancer model



Novel Phosphatidylserine-Targeting Immuno-Biologicals for Cancer and Viral Treatment

Invention Summary:

Phosphatidylserine (PS) is a phospholipid that is restricted to the inner plasma membrane in healthy cells but is externalized in apoptotic or stressed cells abundantly present in tumor microenvironment or in sites of virus infection. PS is also present on the surface of enveloped viruses, and externalized PS acts as an immunosuppressive signal.

Rutgers scientists have developed unique multifunctional PS-targeting immunobiologicals that block PS-mediated immunosuppression and also deliver an immune-stimulating payload of the interferon (IFN)-fusion protein (RU Tech ID #: S207-066). Although type I and type III IFNs are mainly appreciated for their antiviral activities, they are pleiotropic cytokines that suppress tumor growth. PS-binding domain of Gas6 was used to generate Gas6-IFN-β-IFN-λ fusion proteins. The purified proteins have been tested *in vitro* for its antiviral activities and *in vivo* models of breast cancer growth.

Market Applications:

- Cancer Therapeutics
- Antiviral Therapeutics
- Research Tools

Advantages:

- The PS-binding domain allows targeted site-specific IFN delivery
- Multifunctional mechanism of action
- Higher efficacy due to synergistic effects of PS blockage and actions of IFNs
- Tuning the strength of IFN activities to PS concentration
- Ability to target multiple cell types that respond to either type I or type III IFNs
- Combination of the fast action of type I IFNs with long lasting effects of type III IFNs
- Simplified production and delivery as a single molecule

Intellectual Property & Development Status:

Patent pending. Available for licensing and/or research collaboration.