



Figure 1. Cancer therapy using Birnaviruses that do not infect humans

Technology Summary

Oncolytic virotherapy is an emerging cancer treatment modality using replication competent viruses to destroy cancers. Currently, only one oncolytic virus therapy is approved by the FDA for cancer treatment, showing an unmet need and tremendous market potential. Penn State researchers have discovered that animal viruses from the Birnaviridae family show potent oncolytic effects against a range of human cancer cells in culture and a mouse model of breast cancer. These viruses are naturally nonpathogenic to humans, can not infect normal human cells, and hence, have a high degree of safety.

Application & Market Utility

The global oncolytic virus therapy market size was \$154.5 million in 2020 and is expected to reach \$866.1 million in 2028, registering a robust increase of 23.9% during the forecasted period of 2021-2028. Notably, the landscape is largely accentuated by the fact that approximately one-third of all cancer vaccines under development are these oncolytic viruses. Given these significant industry trends, this groundbreaking technology that researchers have proposed possesses extraordinary commercial, market potential, and transformative impact.

Next Steps

Researchers are fine-tuning critical aspects such as dose optimization, delivery mechanisms, and therapeutic payload selection. They are also exploring licensing opportunities to facilitate the application of their research.

TECHNOLOGY READINESS LEVEL

4

Seeking

Investment | Licensing | Research

Keywords

- Cancer
- Oncolytic Virus
- Therapy

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