Pacific Oncovirus

Lassa-VSV targets and eliminates brain cancer

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Overview

-Glioblastoma patients survive a little over one year

-We seek to advance a novel oncolytic virus to clinic. Virus targets and destroys glioblastoma in rodent models.

-Also kills melanoma and ovarian cancer.

-Based on mechanism of targeting, Lassa-VSV may also prove useful in treating other cancers.

-Lassa-VSV: replicating recombinant RNA virus.

-Of 50 or so viruses we compared in last 20 years, Lassa-VSV top candidate for safety and anti-cancer efficacy.
Lassa-VSV is safe in brain.

-Lassa-VSV is safer in brain than VSV-IFN currently in clinical trials.
Lassa-VSV destroys brain glioma and prolongs life indefinitely in mouse model after intravenous inoculation.

Wollmann et al, 2015
Lassa-VSV also targets melanoma in brain.
- Lassa-VSV (green) injected into the right melanoma (red) eliminates it, and then moves through brain to left melanoma and selectively infects that.
Competition Landscape

Conventional treatment for glioblastoma not effective.

1. Amgen spent $ billion dollars for herpes virus leading to T-VEC (IMLYGIC), now approved by FDA for melanoma, opening door for FDA approval of additional oncoviruses.


3. Compared with another VSV-based virus in clinical trials for liver cancer, our virus Lassa-VSV is safe in brain. The other virus, VSV-IFN, is safe/effective outside brain, but deadly if it enters brain.
We propose to generate clinical grade virus, perform key de-risking safety test in brains of non-human primates.

**Funding used for two major steps forward:**

1A. Generation of clinical/preclinical grade Lassa-VSV.

1B. Test clinical grade virus to ensure it retains safety and efficacy in rodents.


**Goal:** drive toward corporate-sponsored clinical trials in humans; accomplishing goals here puts on threshold of clinical trials.
Recent Oncolytic Virus Partnerships include:

- **AstraZeneca** with **Omnis** (now **Vyriad**)  Ph 1, no financials disclosed

- **BMS** with **PsiOxus**
  - Preclinical, $50 million up front,  $886 million in milestones, Sales royalties

- **Boehringer Ingelheim** with **ViraTherapeutics**
  - Preclinical, “potential transaction value” of $230 million

- **Johnson&Johnson/Janssen** with **BeneVir**
  - $Billion

- **Merck** with **DNAtrix** - Ph 2 combination with Keytruda, no financials disclosed
  - **Merck** with **Viralytics** - $390 Million

- **Pfizer** with **Western Oncolytics** - Preclinical, no financials disclosed