PANV, Inc.

Pan-antiviral antibody strategy targeting conserved post-translational modification

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Problem: Challenges in being prepared for diverse viral outbreaks

- New viruses: cross-species transmission of zoonotic viruses have led to epidemics and global pandemics.
- New strains: RNA viruses have high mutation rate of up to a million times higher than the vertebrate host.

Solution: Developing pan-viral assets targeting diverse viruses

- Target conserved peptide epitopes
- Targeted epitopes mutate less frequent

- Look beyond peptide sequence
- Targeted epitopes are intrinsic feature of viral post-translational modification

PanV antibodies

Densely glycosylated envelope protein

Enveloped virus
The inherent broad reactivity of innate-like B cells
PANV.1 recognizes “non-self” modification

PANV.1 recognizes viral derived components exclusively

[Graph showing antibody reactivity for different concentrations of PANV.1 against ERV and VLP]

ERV VLP

<0.0001 <0.0001 <0.0001

Processing of modification intermediate

Processing of modification precursor

Viral RNA translation

Cellular RNA translation

Golgi

ER

Env Glycoag Host-derived component
PANV.1 recognizes a broad range of viruses

PANV.1 recognizes viral glycoproteins

PANV.1 recognizes viral particles

![Graph showing antibody reactivity for various viruses](image)

- **ERV**
- SARS-CoV-1 spike
- SARS-CoV-2 spike
- H1N1 HA
- H3N2 HA
- HIV gp120

**Antibody reactivity**: 
- PANV.1
- Negative Control

![Graph showing antibody reactivity for various viruses](image)

- SARS-CoV-2
- H1N1
- H3N2
- HSV-1
- HSV-2

**Antibody reactivity**: 
- PANV.1
- Negative Control

2023
Competitive landscape and pan-antiviral antibody advantages

**Vaccines**
- Current vaccines mostly target one virus
- Vaccine is not always effective because of poor host response or mutations in target peptide epitopes
- “Pan-viral” vaccines under development that target a family of viral particles but cannot target multiple families

**Pan-antiviral Antibody**
- Broad range of virus targeting including DNA and RNA viruses
- Antigenic target not virally encoded, not mutable
- Pandemic ready

**Virus Specific Monoclonal Antibodies**
- Limited range of specificity
- Long timeline of manufacturing and regulatory that races against virus mutations
- Beyfortus (Antibody for RSV) has earned approvals in US and EU in infants. Peak sales projected at $3B by 2030.
Potential Development Pathways:
Number of pathogens to explore pre-clinically for prophylaxis and/or treatment

Respiratory Pathogens
- Influenza A – **H5N1 of interest for pandemic preparedness**
- Influenza B
- SARS-CoV-2
- Human metapneumovirus
- RSV

Vector borne
- Chikungunya
- Dengue
- Zika
- West Nile

Biothreat Pathogens
- Filoviruses – **Zmapp available for Ebola**
- Lassa and other arenaviruses
- MERS (respiratory)
- Arbovirus (JEE, EEE, SLE, WEE)

Transplant Patients
- Intolerant/resistant to direct antivirals
- Herpesviruses

Chronic/Recurring Viruses
- Herpesviruses
Near Term Milestones and Capital Plan

**Current Progress - Blavatnik Fund ($400K)**
- Understood nature of binding between PanV.1 and antigen
- Producing humanized antibody

**Anticipated 2023 Milestones**
- Library of humanized antibodies
- Selection of candidate therapeutic

**Capital Plan**
- Seeking co-lead for pre-Series A
- Commitment for $5M equity investment from the Gates Foundation

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<td>Antibody Validation</td>
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<td><em>Transplant: Herpesviruses</em></td>
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Thank you!
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