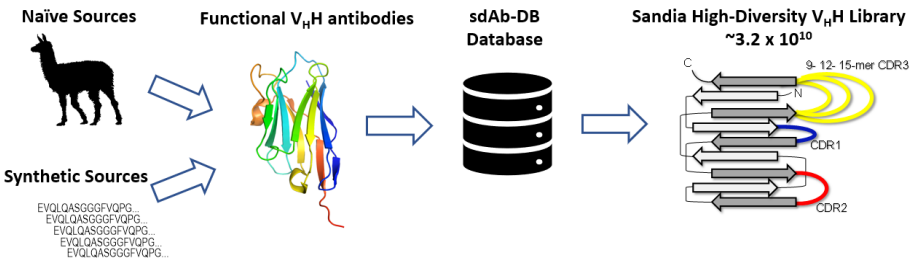
TARGETED ANTIBODY THERAPEUTICS

Sandia National Laboratories

Patent Pending
SD 15639
Technology Readiness Level: 4
Key elements have been demonstrated in a laboratory environment

Highly potent SARS-CoV-2 antibodies show preclinical efficacy and delayed disease progression

The COVID-19 pandemic has emphasized the need for the global community to rapidly acquire a diverse arsenal of prevention and therapeutic options to address SARS-CoV-2. A flexible and robust solution is needed to impact the current threat and shorten the lead time for discovery of therapeutics for future outbreaks. To address this critical need and support our nation's commitment to the health of the global community, Sandia National Laboratories has developed an antibody discovery platform for mitigating current and future biological threats.



The High-Diversity V_HH Library was designed based off the sequence diversity of 670 functional single domain antibodies

Researchers at Sandia have identified and engineered highly potent SARS-CoV-2 antibodies with prophylactic and therapeutic efficacy against SARS-CoV-2 in a rodent model of severe infection and disease. These antibodies were identified using Sandia's proprietary humanized single-domain antibody library and are ideal for the treatment and prevention of mild to moderate COVID-19 disease. Development of second-generation antibodies with efficacy against emerging variants is underway with therapeutic properties comparable to currently deployed therapeutics. These antibody therapies can be used as the foundation for a commercial partner to move forward through their pipeline.

TECHNICAL BENEFITS

- Comparable to commercially available therapeutics
- Bypass initial discovery and proceed to clinical evaluation
- Rapidly adaptable to current and future SARS-CoV-2 variants
- Versatile use, both prophylactically, therapeutically and in diagnostics
- Robustly expressed in high levels to meet clinical needs
- Single domain antibodies are stable, highly soluble, and modular; their structure enables them to target protein domains difficult to target by conventional antibodies
- Simplification of delivery as mRNA with single-chain construction

INDUSTRIES & APPLICATIONS

- Bio and chemical defense
- Diagnostics
- Hospitals and clinics
- Pharmaceuticals
- Medical research

ip.sandia.gov
ip@sandia.gov

U.S. DEPARTMENT OF ENERGY | NNSA National Nuclear Security Administration

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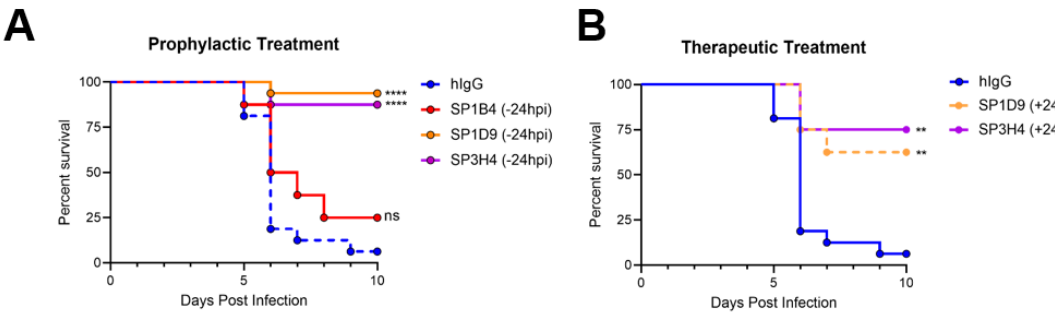
ADDITIONAL FIGURES



Preclinical evaluation of top antibody candidates. Kaplan-Meier curve illustrating percentage survival of A) -24 hour and B) +24 hour in transgenic mice (Jackson Laboratory)

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