



Inventors

Qiang Chen

Professor

The Biodesign Institute
Arizona State University

Huafang Lai

Research Scientist

The Biodesign Institute
Arizona State University

Intellectual Property

Status:

Patent Pending

Contact

Jack Geltosky, PhD

Senior Vice President
of Business Development, Life
Sciences

Arizona Technology
Enterprises, LLC (AzTE)

P: 480.884.1989

F: 480.884.1984

JGELTOSKY@AZTE.COM

HEALTHSCIENCES@AZTE.COM

Plant-based Production of an Antibody Therapeutic for West Nile Virus

AzTE Case # M10-092

Invention Description

In the past decade, West Nile Virus (WNV) in the United States has resulted in more than 29,000 diagnosed cases of infection. These infections can lead to severe neurological disease, long-term morbidity, and in some cases even death.

There are no effective and specific antiviral treatments for infection by WNV. There are no currently approved vaccines or therapeutic agents for human use. The impact of WNV infection—particularly in resource-poor health care systems—calls out for the development of a cost-effective and safe therapeutic.

Researchers at the Biodesign Institute of Arizona State University have produced a therapeutic antibody against West Nile Virus. This antibody can be rapidly produced at high levels in plants.

Results to-date have shown that an antibody purity of greater than 95% can be produced in a scalable manner. In a mouse challenge model, the researchers discovered that the antibody acts as both a prophylactic and post-infection therapeutic agent. This antibody therefore may have the potential to protect against infection in mammalian systems.

Potential Applications

- Prophylactic treatment of West Nile Virus infection
- Post-infection treatment of West Nile Virus infection

Benefits and Advantages

- Scalable: Antibody production in plants can be increased to meet demand.
- Cost-effective: Economical plant-based production of recombinant antibodies.