

ZMAPP™ FAQ

What is ZMapp™?

ZMapp™ is an experimental new therapy that is being developed to treat patients with Ebola. It is comprised of a series of three different monoclonal antibodies that work to prevent the spread of the disease within the body.

Who developed ZMapp™?

The development of ZMapp™ is a group effort – a great example of scientists working together to get the best results. It was a public-private partnership comprised of a consortium of scientists from the Public Health Agency of Canada, Defyrus, the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID), Kentucky BioProcessing, and Mapp Biopharmaceutical, among other institutions, who joined together to advance plant-based antibody therapies to combat Ebola. Mapp Bio has been working on multiple plant-based antibody therapies and preventatives since 2003.

Does ZMapp™ work?

The combination of the three different antibodies that make up ZMapp™ was identified in January 2014. As an experimental product, only limited supplies were manufactured for testing in animals. ZMapp™ has shown to be effective in a monkey model of Ebola in studies conducted by the Public Health Agency of Canada. Available data in humans are limited.

How is ZMapp™ administered?

ZMapp™ is administered intravenously, i.e. it is introduced directly into a patient's bloodstream.

What are the potential side effects?

ZMapp™ is an experimental therapy that must be tested in clinical trials for safety (and efficacy). Other monoclonal antibody therapies, of which there are over 30 approved by the FDA, have a good safety record.

How is ZMapp™ produced?

The three different antibodies that comprise ZMapp™ are currently grown in tobacco plants. Antibody genes are infiltrated into tobacco plants to transiently manufacture the ZMapp™ antibodies.

How long does it take to make ZMapp™?

ZMapp™ antibodies are produced in tobacco plants for one week. Once the plants are harvested, the antibodies are purified, formulated for injection, and evaluated.

Are tobacco plants the only way to produce ZMapp™? Are there other methods that would be faster?

Mapp is working with other entities to identify additional methods of efficiently manufacturing the antibodies that make up ZMapp™.

What is being done to accelerate ZMapp™ production?

Mapp Bio is working with the US government and other organizations on efforts to scale up production.

Who manufactures ZMapp™?

Mapp Bio has partnered with Kentucky BioProcessing (KBP), which specializes in manufacturing therapeutic proteins in tobacco plants, to produce ZMapp™ using Good Manufacturing Practices (GMP). In addition, Mapp is working with the US government on efforts to identify other manufacturers to scale up production.

What are the benefits of an Ebola therapy versus a vaccine?

A vaccine (active immunization) given prior to infectious exposure will prime a person's immune system to provide protection. Vaccines are excellent public health tools for protecting large numbers of people prior to exposure to a disease. However, once a person is infected, the passive immunity provided by specific antibodies like those used in ZMapp™ may enable a person to overcome the infection.

Ebola has been around for decades. Why is it taking so long to find a cure?

Ebola is a relatively recently discovered disease with sporadic outbreaks and like some other emerging pathogens, Ebola has historically affected a relatively small population compared to malaria, AIDS, tuberculosis, dengue and other diseases which have tremendous public health impact and which are still poorly controlled. Mapp has been working to find a treatment for Ebola for the past ten years, in collaboration with other Ebola investigators. Most new human therapeutic drugs take a decade or more of development work prior to commercialization. The current combination of the three different antibodies that comprise ZMapp™ was arrived at and shown to be effective in animal studies in January of this year, 2014.