

First-Of-Its-Kind Vaccine To Potentially Reduce Childhood Norovirus Deaths On A Global Scale

Indiana University



Norovirus is a highly contagious virus that causes severe vomiting and diarrhea, especially in young children. Young children who contract the norovirus often face hospitalizations and severe dehydration. Globally, norovirus infections are responsible for approximately 100,000 childhood deaths each year.

Researchers at Indiana University (IU), in collaboration with GIVAX, Inc., have made a groundbreaking discovery enabling the production of a first-of-its-kind rotavirus-norovirus vaccine for infants by modifying already available rotavirus vaccines. John Patton, a biology professor at IU College of Arts and Sciences, and his team genetically manipulated rotavirus vaccine strains to drive the production of norovirus protein to trigger an antibody response from the immune system. By modifying the already available rotavirus vaccine, this new vaccine could help prevent various deadly infectious childhood diseases, including norovirus.

“The two most significant causes of viral gastroenteritis are norovirus and rotavirus, so by creating this combination vaccine we hope to induce protective immune responses to protect children against these severe illnesses,” noted Patton.

This inexpensive oral combination vaccine could make a huge difference for children in developing countries. This



vaccine should be easy to distribute since rotavirus vaccines are already used around the globe, with distribution channels already in place. Furthermore, this vaccine would not require needles and injections for administration and, therefore, medical professionals would not be required to administer the vaccine, reducing the cost of immunization programs. Additionally, rotavirus vaccines do not require special storage or temperature conditions, making transportation easier for widespread use.

“We like to think of it as a vaccine for the world,” Patton said. “The children that are the most at risk of dying from these viral infections are in developing countries. We’re modifying a vaccine that is already widely used, giving it greater potential.”

Patton and his team were awarded a \$1.2 million grant from a venture backed start-up, GIVAX, Inc., to support the development of the first combination oral vaccine. GIVAX, Inc., is a start-up vaccine development company dedicated to eliminating the burden of gastrointestinal diseases in children and adults. In addition, this technology was developed with support from National Institutes of Health (NIH) research grants.

The researchers worked with IU's Innovation and Commercialization Office (ICO) to file multiple patent applications on the discovery, as well as license the technology to GIVAX to develop the innovation as an oral vaccine. Currently, ICO and Patton are working on an effective commercialization strategy to globalize the vaccine.

Once the rotavirus platform technology is fully developed and approved, Patton and his team hope to make new combinations of vaccines against other pathogens and provide protection for other age groups, including babies and adults.

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