

## Team isolates antibodies that neutralize GI bug norovirus

August 31 2018, by Liz Entman



From left, Nurgun Kose, Robin Bombardi, Gabriela Alvarado (seated) and James Crowe Jr., MD, have identified neutralizing antibodies against norovirus, a leading cause of acute gastrointestinal illness. Credit: Anne Rayner

Researchers at Vanderbilt University Medical Center have isolated the first human monoclonal antibodies that can neutralize norovirus, the leading cause of acute gastrointestinal illness in the world.



These <u>antibodies</u>, described this week in the journal *Gastroenterology*, "have high potential" for improving diagnosis and treatment of norovirus illness as well as furthering efforts to develop the first effective norovirus vaccine, the researchers concluded.

"In the past no one could grow norovirus in the lab, so progress on developing treatments was slow," said James Crowe Jr., MD, the paper's corresponding author. "Here we combined brand-new technologies for growing norovirus in primary human gut tissues with our state-of-the-art antibody discovery platform to identify these exciting antibodies."

Norovirus is a highly contagious virus that causes vomiting and diarrhea. According to the U.S. Centers for Disease Control and Prevention, about 20 million people get sick from norovirus each year in the United States, most from close contact with infected people or by eating contaminated food.

While most people recover from norovirus illness in one to three days, the infection contributes to approximately 200,000 deaths worldwide each year, mostly among young children and the elderly. Roughly 600 of those deaths occur annually in the United States.

Crowe directs the Vanderbilt Vaccine Center. He and his colleagues have developed innovative technologies for isolating and studying antiviral antibodies, and they have isolated human monoclonal antibodies for many pathogenic viruses, including Zika, HIV, dengue, influenza, Ebola, <u>respiratory syncytial virus</u> (RSV) and <u>rotavirus</u>.

His lab has developed high-efficiency methods that can quickly isolate antibody-producing white blood cells from survivor blood samples. By fusing the <u>white blood cells</u> to fast-growing myeloma (cancer) cells, the researchers can produce large quantities of "monoclonal" antibodies that target specific viruses.



The current study, conducted in collaboration with researchers at Baylor College of Medicine, isolated monoclonal antibodies from patients previously infected with norovirus. The researchers tested the neutralizing capability of the antibodies against live virus grown in a monolayer culture of human cells from the middle segment of the small intestine.

They identified a large panel of <u>human monoclonal antibodies</u> that neutralize the pandemic GII.4 Sydney strain of the virus, which currently is the major circulating <u>norovirus</u> strain associated with human disease. They identified at least three neutralizing sites on the virus that should aid efforts to develop an effective vaccine.

**More information:** Gabriela Alvarado et al. Human Monoclonal Antibodies That Neutralize Pandemic GII.4 Noroviruses, *Gastroenterology* (2018). DOI: 10.1053/j.gastro.2018.08.039

Provided by Vanderbilt University

Citation: Team isolates antibodies that neutralize GI bug norovirus (2018, August 31) retrieved 28 April 2024 from <a href="https://medicalxpress.com/news/2018-08-team-isolates-antibodies-neutralize-gibug.html">https://medicalxpress.com/news/2018-08-team-isolates-antibodies-neutralize-gibug.html</a>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.