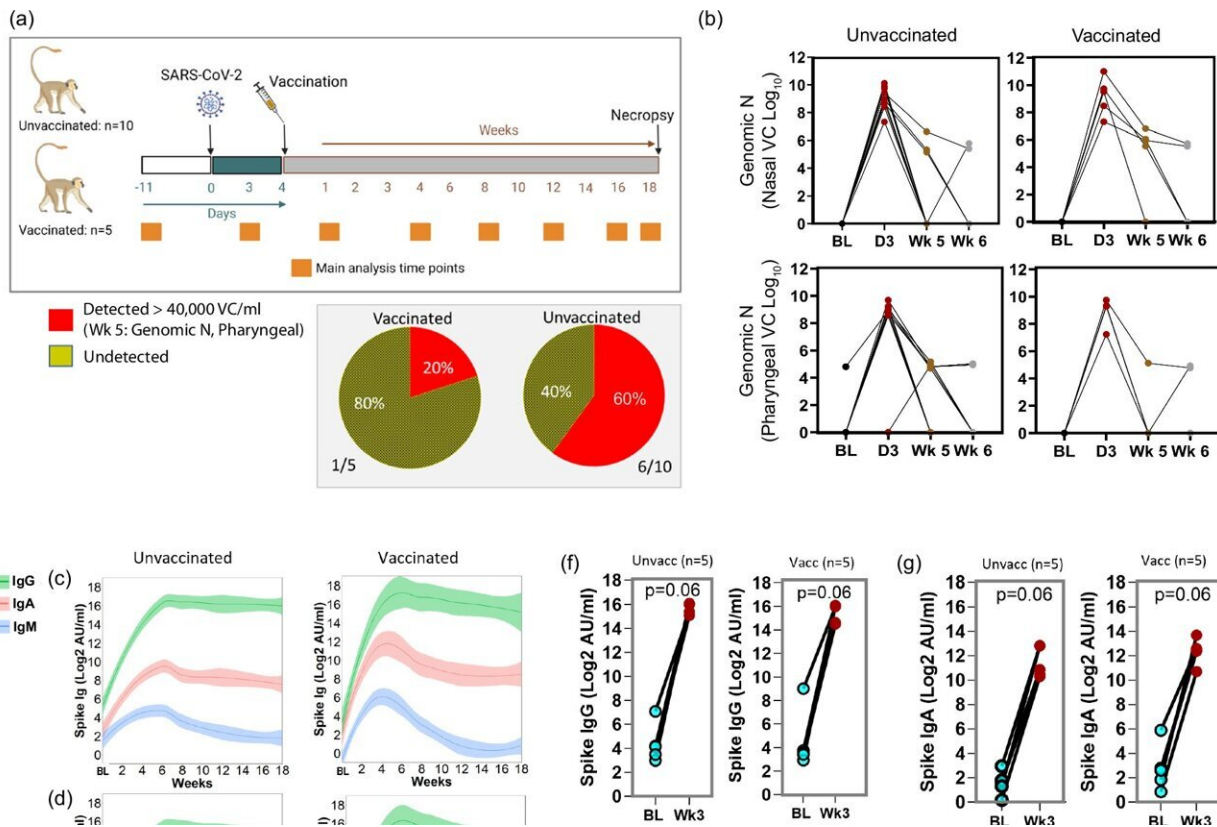# Vaccine shows promise in treating high blood sugar for those with long COVID

August 27 2024, by Leslie Tate

SARS-CoV-2 infection of AGM reflects virologic, and immune response reported in humans. Credit: *Nature Communications* (2024). DOI: 10.1038/s41467-024-50339-4

Researchers at Tulane University have discovered a new approach to tackling a lingering health challenge faced by some with long-term

COVID: high blood sugar levels.

A new [study](#) published in *Nature Communications* and conducted at the Tulane National Primate Research Center suggests that the COVID-19 vaccine could be used therapeutically to address metabolic complications experienced among those with long-term COVID, sometimes called long-haulers, even if the vaccine is administered several days after infection.

Many people who recover from COVID-19 continue to suffer from various long-term health problems, collectively known as long COVID. One of the most concerning issues is persistent hyperglycemia, or high [blood](#) [sugar](#), which can lead to serious health complications such as diabetes and heart disease.

Understanding and addressing this problem has been a major challenge for researchers and health care providers.

To better understand and combat these [long-term effects](#), researchers at the Tulane National Primate Research Center turned to a nonhuman primate model of long-COVID and determined that the model is also appropriate for studying COVID-onset hyperglycemia and diabetes.

The study found that administering the COVID-19 mRNA vaccine four days after infection showed a significant positive effect on blood sugar levels that was sustained over time. This finding suggests that the vaccine could potentially be used not just for prevention but also as a treatment for managing long-term metabolic complications of COVID-19.

Researchers also identified certain inflammatory molecules in the bloodstream linked to high blood sugar levels. The elevated blood sugar seems to result from changes in how the liver stores glucose, even though the virus was no longer present in the liver and pancreas. These findings suggest that diabetes may develop through new mechanisms involving

viral infections and inflammation.

"This research opens up a new frontier in our fight against COVID-19," said Clovis Palmer, Ph.D., one of the lead authors of the study. "By showing that the vaccine can have therapeutic benefits even after infection, we can explore new strategies to help those suffering from long COVID, especially those with symptoms like chronic fatigue that may be linked to metabolic dysfunction."

Jay Rappaport, Ph.D., co-corresponding author and director of the Tulane National Primate Research Center added, "The discovery that COVID can induce diabetes in an animal model is a significant advancement in our understanding of the long-term effects of COVID. The fact that a COVID vaccine given after infection can have protective effects highlights the importance of innovative research in addressing the ongoing challenges of a pandemic."

More information: Clovis S. Palmer et al, Non-human primate model of long-COVID identifies immune associates of hyperglycemia, *Nature Communications* (2024). DOI: 10.1038/s41467-024-50339-4

Provided by Tulane University