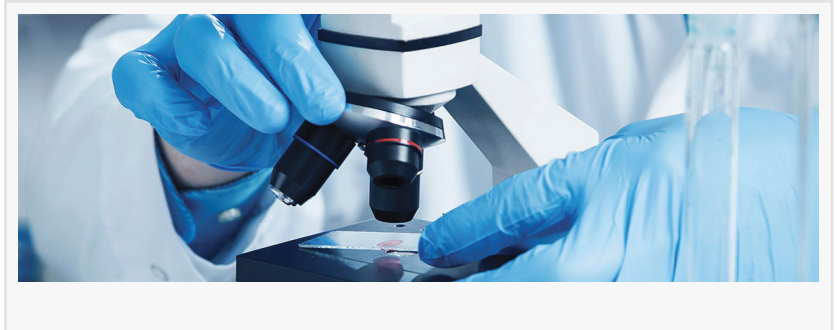


# A pair of gut microbes providing complete protection against SARS-CoV-2 infection has been identified

*Scientists have identified a pair of gut microbes that provided complete protection against infection by SARS-CoV-2, the causative virus of COVID-19.*

TORRANCE, CALIFORNIA, LOS ANGELES, April 25, 2024

[/Einpresswire.com/](https://www.einpresswire.com/) -- Scientists have identified a pair of gut microbes that provided complete protection against SARS-CoV-2 infection, suggesting a possibility of developing them into a gut microbe vaccine.



A research team, reporting on April 18 in the journal 'Gut Microbes', found that a pair of gut microbes from the human intestine can confer protection against viral infections by activating host immunity. The oral administration of the identified microbe pair, *Oribacterium* sp. GMB0313 and *Ruminococcus* sp. GMB0270, conferred complete protection against SARS-CoV-2 infection in an animal model of COVID-19.

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They have the potential to confer broad protection against a wide range of variants of the SARS-CoV-2 virus unlike vaccines which are specific to a certain virus type”

*Professor Jonathan Jacobs at the University of California, Los Angeles*

Over the past two decades, gut microbes, or microbiota, have gained significant attention due to their impact on host traits and their role in health and disease. Gut microbes perform key physiological functions, including shaping the intestinal epithelium, facilitating systemic responses, aiding in nutrient absorption, defending against

pathogenic infections, and modulating host immunity. The recent COVID-19 pandemic propelled numerous studies that demonstrated the role of gut microbes in the functioning of the host's immune system, affecting infectious diseases such as COVID-19. Despite mounting data, however, no gut microbes have been identified yet for the prevention and treatment of COVID-19 until now.

"We identified a pair of gut microbes that boost the immune response against infection by SARS-CoV-2, the causative virus of COVID-19," says Hyeon Kim of [SNJ Pharma](#) Inc, co-corresponding author of the study.

Hyeon and her colleagues have been investigating gut microbes for more than 10 years, establishing a gut microbe collection of over 1,500 species leveraging specialized media for unculturable microbes from the gut. "During the pandemic, we noticed that some people, even without vaccination, never got infected after repeated exposure to infected individuals over extended periods," explains Seong Tshool Hong, PhD, Professor of the Department of Biomedical Sciences at Jeonbuk National University Medical School in South Korea, and the corresponding author of the study. "Considering the role of gut microbes in the function of the immune system on protection against pathogenic infection, we hypothesized that a certain set of gut microbes contributes to the infection-resistant phenotypes in COVID-19-free individuals."

This prompted them to conduct investigations to identify the specific microbes that might contribute to this protection. "We had collected the fecal samples from individuals who had not contracted COVID-19 without vaccination. After a series of fecal microbiota transplantations into a lethal COVID-19 animal model, we obtained infection-resistant subjects. From these subjects, we identified a pair of gut microbes that contribute to protection against pulmonary disease induced by SARS-CoV-2" says Seong. "The identified microbes were confirmed for activating CD8+ T cell-mediated immunity of the host and complete removal of the infected virus. Amazingly, the prophylactic efficacy of the gut microbe pair against SARS-CoV-2 was better than those of current mRNA vaccines, indicating the potential as a gut microbe vaccine." Hyeon adds, "Further development is necessary to apply the identified immune-boosting gut microbes to reduce the risk of COVID-19."

Professor Jonathan Jacobs, MD, PhD, a gastroenterologist, and co-director of the Goodman-Luskin Microbiome Center at the University of California, Los Angeles, notes, "Considering that the gut microbes identified in this study likely act through the host's immune system, they have the potential to confer broad protection against a wide range of variants of the SARS-CoV-2 virus unlike vaccines which are specific to a certain virus type."

In-Kyeom Kim, MD, PhD, President of the Korean Association of Basic Medical Scientists and Professor in the Department of Pharmacology at the School of Medicine, Kyungpook National University, South Korea, remarks, "The discovery of the gut microbe pair offers a potential breakthrough in vaccine development. It suggests a promising avenue for a new era where gut microbes could emerge as a leading solution for protecting humans from infectious diseases."

SNJ Pharma Inc, located in [BioLabs](#)-LA at the Lundquist Institute for BioMedical Innovation at Harbor UCLA, is dedicated to developing gut microbes as pharmabiotic drugs. Jeonbuk National University Medical School, South Korea, is renowned for its leadership in medical education, biomedical research, and innovations aimed at enhancing lives worldwide.

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This article, "The gut microbe pair of *Oribacterium* sp. GMB0313 and *Ruminococcus* sp. GMB0270 confers complete protection against SARS-CoV-2 infection by activating CD8+ T cell-mediated immunity", published in the journal 'Gut Microbes', can be read here [ <https://doi.org/10.1080/19490976.2024.2342497> ].

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Hyeon J. Kim

SNJ Pharma Inc

[hjkim@snjpharma.com](mailto:hjkim@snjpharma.com)

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