



To beat COVID-19, science must lead the way: An inside look at the development of a vaccine

(BPT) - Around the world, more than 10 million people have been infected with COVID-19, more than a half million have died, and thousands are still diagnosed daily. In an effort to stop its spread and eradicate COVID-19 forever, the global scientific community has been working together to develop a vaccine in record time.

Before the COVID-19 pandemic, research, development and distribution for a new vaccine could take up to 15 years. But today, healthcare companies around the world are racing against the clock to create a safe and effective COVID-19 vaccine in a matter of months.

"This is an Apollo-13 moment on a global scale," said Seema Kumar, Vice President Innovation, Global Health and Science Policy, Johnson & Johnson, referring to the heroic and herculean effort it took to save a precarious space mission. "The very best minds around the world are working around the clock, with extreme urgency, with great innovation and science and with great collaboration to save people everywhere."

But what will it take to develop a COVID-19 vaccine? The Road to a Vaccine, a live digital series from Johnson & Johnson, goes behind the scenes to explore the COVID-19 crisis and the global community's efforts to develop a working vaccination at a record pace. Journalist Lisa Ling hosts the series, which brings a broad range of experts from the scientific community, including scientists and frontline health workers, together with the public to discuss the world's response to the pandemic. Building off millions of video views in its debut season, The Road to a Vaccine enters its second season this month, diving further into truth, transparency and science of COVID-19 and the path to a potential vaccine.

What is the coronavirus?

Coronavirus is a class of viruses in animals and humans. There are coronaviruses that cause the common cold and others that cause more serious sickness, such as the original SARS virus in 2003, the MERS virus in 2012 and now COVID-19.

How is COVID-19 different?

On the premiere episode of "The Road to a Vaccine," Chief Scientific Officer for Johnson & Johnson, Dr. Paul Stoffels, said COVID-19 is different for two reasons: It's spreading extremely fast and there's no immunity. Organizations are working tirelessly on a vaccine in hope of making one available next year. He says there is a great need for the global health community to ensure the vaccine is available to those most at risk, such as healthcare workers who care for ailing patients.

How does a COVID-19 virus enter healthy cells?

Dr. Rinke Bos, principal scientist, vaccines at The Janssen Pharmaceutical Companies of Johnson & Johnson, explains that the COVID-19 virus has spikes on the outside that are needed for it to enter the cell. She says that a successful vaccine would need to introduce antibodies that bind to those spikes so it could no longer penetrate a cell. When you inject a vaccine like this into healthy people, it signals the immune system to start making antibodies that do this.

How would a potential vaccine work?

While there are different methods to create a vaccine, one potential option is to use a common cold virus that is changed so it can't replicate in humans, meaning it won't cause disease. However, it still serves as a carrier to bring in a piece of the COVID-19 virus to stimulate an immune response. This carrier would include the genetic code that creates antibodies that bind to the COVID-19 spikes, preventing it from penetrating a human cell.

Episodes of The Road to a Vaccine series are live Tuesdays at 12 p.m. EDT with recordings available immediately. The second season of the series debuts July 7. Learn more and view online at [JNJ.com/RoadtoaVaccine](https://www.jnj.com/RoadtoaVaccine), [LinkedIn.com](https://www.linkedin.com/company/jnj) or [Facebook.com](https://www.facebook.com/jnj).