

- Virus

## Mild COVID-19 induces lasting antibody protection – study

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CHICAGO, United States (Xinhua) – Months after recovering from mild cases of COVID-19, people still have immune cells in their body pumping out antibodies against the virus that causes COVID-19, and such cells could persist for a lifetime, according to a study from Washington University School of Medicine in St. Louis.

To find out whether those who have recovered from mild cases of COVID-19 harbor long-lived plasma cells that produce antibodies specifically targeted to SARS-CoV-2, the virus that causes COVID-19, the researchers started on a project to track antibody levels in blood samples from COVID-19 survivors. The research team already had enrolled 77 participants who were giving blood samples at three-month intervals starting about a month after initial infection. Most participants had had mild cases of COVID-19, and only six had been hospitalized.

The researchers obtained bone marrow from 18 of the participants seven or eight months after their initial infections. Five of them came back four months later and provided a second bone marrow sample. For comparison, the scientists also obtained bone marrow from 11 people who had never had COVID-19.

As expected, antibody levels in the blood of the COVID-19 participants dropped quickly in the first few months after infection and then mostly leveled off, with some antibodies detectable even 11 months after infection. Further, 15 of the 19 bone marrow samples from people who had had COVID-19 contained antibody-producing cells specifically targeting the virus that causes COVID-19, and such cells could still be found four months later in the five people who came back to provide a second bone-marrow sample.

None of the 11 people who had never had COVID-19 had such antibody-producing cells in their bone marrow.

“People with mild cases of COVID-19 clear the virus from their bodies two to three weeks after infection, so there would be no virus driving an active immune response seven or 11 months after infection,” said senior author Ali Ellebedy, an associate professor of pathology and immunology, and of medicine and of molecular microbiology. “These cells are not dividing. They are quiescent, just sitting in the bone marrow and secreting antibodies. They have been doing that ever since the infection resolved, and they will continue doing that indefinitely.”

People who were infected and never had symptoms also may be left with long-lasting immunity, the researchers speculated. But it's yet to be investigated whether those who endured more severe infection would be protected against a future bout of disease.

The researchers now are studying whether vaccination also induces long-lived antibody-producing cells. The findings were published Monday in the journal *Nature*.