How to obtain immune bovine milk to strengthen the body against COVID-19

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How to Obtain Immune Bovine Milk to Strengthen the Body Against Covid-19. Credit: University of Cordoba

Physiologically, milk contains biocomponents that are highly protective against infections. In light of this, the AGR-149-Infectious Diseases group at the University of Cordoba's Department of Animal Health is doing research that focuses on cow's milk as a possible source of COVID-19 control. The results have been published, partially, in the journal *Frontiers in Immunology.*

This is possible due to "crossed immunity," and there is already evidence of the protection it provides, explained one of the principal investigators, Mari Carmen Borge. "It has been shown that the immune cells that the vaccinated animal generates against bovine coronavirus are capable of controlling other coronaviruses as well, such as SARS-CoV-2, which causes COVID-19."

Antonio Arenas, principal investigator on the project, spoke of the similarity that exists between Bovine Coronavirus (BCoV) and SARS-CoV-2 to explain the effectiveness of this technique. "There are a number of highly conserved structures of the virus that are similar in both viruses. In fact, both belong to the genus Betacoronavirus. Thus, cow's milk could have a total or partial blocking action against SARS-CoV-2."

In this way, these bovine antibodies could neutralize the virus in people who are already infected, or help prevent the disease in those who have not been vaccinated, or who have been, but have not developed immunity.

Thus, the aim is to come up with a supplement that would boost the immune system through a dairy preparation with a high level of antibodies, helping the system control infection through different immune pathways.

The animals from which the milk is extracted have been previously vaccinated with commercial BCoV vaccines, thus generating high levels of antibodies. However, the time when milk is most effective is just after a birth: "then the level of immunoglobulin in the milk increases—what is called colostrum—but it has a certain duration," Arenas added.

Now the scientific challenge is to be able to extend the colostrum period, and also to study how to always ensure the same level of antibodies in the final product. Plans call for it to be marketed in single-dose format as of September. "For this, we have to readjust the reproduction cycles of bovine farms in order to always maintain a set of animals with high antibodies," the researcher explained.

This dairy preparation, which anyone can consume, has already been tested on more than 300 people. Amongst them, no serious COVID-19 process has been detected. As soon as it goes on the market an observational test will be carried out. In any case, it will not be harmful to health, and it could become a natural resource providing people with a certain level of immunity.

There are other technological challenges: herd management, hygiene processes, conservation,

packaging, marketing, medical, etc., that make this a holistic and complex project.

More information: Antonio Arenas et al, Bovine Coronavirus Immune Milk Against COVID-19, *Frontiers in Immunology* (2021). DOI: 10.3389/fimmu.2021.637152

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