Tiny magnets gave corona test in record time

When the corona pandemic hit, NTNU researchers Magnar Bjørås and Sulalit Bandyopadhyay developed a new and far more effective corona test in record time. Now the test is also sold abroad.

Bilete som viser eit frimerke med eit corona molekyl som motiv

In March 2020, when Norway shut down due to the coronavirus, it quickly became clear that Norwegian hospitals had to limit the number of tests. This was because there was not enough access to equipment.

Over the course of a few weeks in March and April 2020, researchers at NTNU developed a new test method that enabled us to test far more people for coronavirus than previously.

At the beginning of May, 100,000 people could be tested every week, while at the end of May this number had increased to 300,000. This meant that the test quickly became one of Norway's most important tools for controlling the virus.

This is how the new test method became

The new test method consisted of two steps. Before the test could be carried out, a sample had to be taken from the patient's nose or throat. This sample was then sent to a laboratory. This is where NTNU's test method began.

The sample was mixed with a chemical solution. This destroyed the surface of the virus and released the genetic material, which remained lying and floating freely in the liquid. Then some tiny magnetic balls were added to the solution. These balls were covered with a special substance that could bind to itself the DNA of the virus. After that, the beads with the DNA were pulled out of the solution using a magnet. These were then sent on for PCR analysis. This identified whether the sample contained a bacterium, influenza virus or coronavirus.

The test was produced at its own factory, which after a while delivered 1.2 million corona tests a week.

Corona test contracts with foreign countries

The innovation success from Trondheim was also noticed abroad. In September 2020, the first contracts were signed with the Technical University of Denmark and the Indian biotechnology company APs LABS. The Ministry of Health and private companies from Asia, Africa, North and South America and Europe also contacted NTNU.

In 2021, the corona test technology was commercialized. The company Lybe Scientific provided diagnostic solutions for covid-19, common flu and sexually transmitted diseases, among others.

The story of the corona test shows how two basic research environments that have not previously worked together, and who are technically far from each other, can together solve a difficult challenge in a short time.

Innovation award in 2021

In autumn 2021, Bjørås and Bandyopadhyay received the Research Council's innovation prize. The Norwegian Research Council's innovation award is given annually to a company or person who has distinguished themselves with exceptionally good use of research results and thus created research-based innovation.

According to the jury, this was a prime example of how long-term basic research and interdisciplinary collaboration can quickly provide an important innovation for the population, the health service and society. The innovation was a central tool in the work to take the country through the corona pandemic, and the innovation also gave rise to a start-up company with great international potential within diagnostics.

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