João Encarnation and Carolina Persson working at A23 Lab in Uppsala will be part of the large-scale testing for covid-19. Photo: Beatrice Lundborg

A new lab will have the capacity to test 10,000 people daily

News. The Public Health Authority is aiming for a testing capacity of 100,000 covid-19 tests a week. This large-scale testing will be carried out by A23 Lab, a clinical laboratory based at the Biomedical Center in Uppsala — among others. Until a few weeks ago the laboratory only conducted testing for prostate cancer using a proprietary test — but is now redirecting its efforts towards covid-19 sampling as an official partner to the Public Health Authority.

— All the basic infrastructure, including processes for referral, sampling and analysis have already been implemented and is functional. We will be able to run over 10,000 tests per day, says founder Ola Steinberg.

Marianne Björklund: Kinas hjälp till resten av världen är ett försök att tvätta bort skammen för att ha mördlagt viruset.

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Preparations to analyze 10,000 covid-19 tests daily are under way

The Public Health Authority is hoping for a testing capacity of 100,000 covid-19 tests a week in Sweden. Some of the samples will be analyzed at a laboratory in Uppsala, which until recently has functioned as a prostate cancer sampling facility.

João Encarnação and Carolina Persson are involved in an on-the-job training at the first of the lab’s stations where the new samples will be received.

The Public Health Authority has been incredibly great help, says Ola Steinberg, founder of A23 Lab.

In late March, the government tasked the Public Health Authority with developing a national strategy aimed at increasing the capacity to test people for covid-19 in Sweden. The following week, Karin Tegmark Wisell, the head of the department, stated that the aim is to reach a testing capacity of 100,000 tests per week, on the popular TV program Agenda. This large-scale testing will be conducted by A23 Lab, which is a clinical laboratory based at the Biomedical Center associated with Uppsala University – among others. Until a few weeks ago, the laboratory only worked with a proprietary test (Stockholm3) for prostate cancer. Now A23 Lab is also an official partner of the Public Health Agency, sampling for covid-19.

We realized that we could be of great help to the country and the Public Health Authority has been incredibly pragmatic and quick to act, says founder Ola Steinberg and continues:

- All the basic infrastructure, including processes for referral, sampling and analysis, has already been implemented and is functional. We are an experienced healthcare provider, so this is just a matter of scaling our services.

When DN paid a visit to the laboratory on Monday, the final preparations, before commencing the analysis of covid-19 tests, were underway. There has been a flurry of activity at the lab lately: new staff have been hired, additional equipment has been tracked down and an unused space has been converted into a laboratory with an enhanced biomedical security level and several stations, designed for everything from the reception of samples to data analysis.

On Good Friday a final component arrived at the laboratory: A small container containing a liquid crucial to the process of disintegrating the virus, to enable analysis of it. The container with the liquid got stuck in Cologne when a flight was canceled, so it instead had to be taken by car to Uppsala, a journey that took 22 hours.

This was the third attempt to get a hold of it and we finally succeeded. There is fierce competition on the world market for equipment and important components, says Karl Andersson, CEO of A23 Lab.

For the covid-19 tests, the laboratory will be employing a method similar to the one they use when analyzing prostate cancer tests.

The genetic material in the virus is multiplied using a technique called polymerase chain reaction, or PCR. Three different parts are then measured for each test, which make it possible to determine whether or not the person who the sample was taken from carries the novel coronavirus.

In urgent cases we can produce a result within three hours after a test arrives. However, we do expect this process to take an average of six hours for each test, says Karl Andersson.

On Tuesday, the laboratory will receive and begin to analyze the first samples collected in Stockholm. During the initial 24 hours the work will mainly consist of ensuring that the routines are effective and that the safety of the staff can be ensured. No unauthorized person, and no one without adequate protective equipment, will be allowed to cross a boundary drawn in the newly furnished corridor of the laboratory.

How can you be sure that the test results are accurate?

- We compare test results with international partner labs in Finland, Portugal and Belgium to ensure that the results are accurate. The first couple of tests have shared a similarity of at least 99 percent. We are doing at least as well as the others, if not better, says Karl Andersson.

A23 Lab collaborates with several different entities when conducting this sampling, including the Public Health Authority, InfoSolutions, 1177 Health Care Guidance and Santrans.

The samples are collected, following referrals, in mobile sampling units. They are then transported to the laboratory in Uppsala, where the analysis is carried out. When the test result has been obtained, the affected person is notified through the 1177 Health Care Guidance digital system, PEP (Patient’s own sampling). Results are also sent to the relevant health care provider.

Anders Wallensten, Deputy State Epidemiologist, on Monday, in an interview with DN, stated that the priority groups for sampling in Sweden are those who are sick as well as health care staff.

The possibility of testing people involved in providing essential services is also being discussed.

The hope is that the lab will reach this capacity within a few weeks.

At the final stage of the process we use artificial intelligence to search for irregular patterns in the results. An unusually large number of samples in close proximity to each other that all test positive, could be an indication of contamination.

During the first week the laboratory aims to analyze up to 300 samples a day. Then, when the routines are in place, we want to scale up quickly. Since we have access to several PCR machines we can run nearly 1000 samples simultaneously. This means that at least 10,000 test results can be delivered every day. According to Ola Steinberg, the hope is that the lab will reach this capacity within a few weeks.

The most amount of time can be saved during the actual sampling phase, says Steinberg. Plans are under way, in collaboration with partner labs, to conduct “drive-in” testing, where people receive a test kit with which they can collect a sample by scraping a sampling stick against the pharynx or the inside of the nose. First and foremost, however, the work should be focused on priority groups – hospitalized patients as well as healthcare and care staff.

We are prioritizing groups in accordance with directives from the Public Health Authority. When they choose to prioritize another group, we will allow people in that group to be tested as well, says Karl Andersson.

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