



**Salvogene
SARS-CoV-2 Task Force:
The miracle of Madrid: Rapid
antigen testing as a game
changer**

Dear Premium Customers,

In our series on smart solutions for managing the coronavirus crisis, we have frequently reported on C19 rapid antigen testing, and we have explained how this technology has the potential to be a real game changer in the context of the Covid-19 pandemic.

As early as September, we came up with a detailed strategy which we also outlined in one of our Keynotes. We are motivated by a desire to transfer promising solutions or technologies from a prototype for the mass market into a product for individual application, which is why we are interested in rapid testing as a service to our Premium clients. We also consider rapid testing to be highly suitable for private use. However, there is still some way to go. We are proceeding in a similar fashion to the automotive industry, where new technological developments are often tested out as prototypes in motor racing: we see what works and then try to develop it for individual use.

At the end of September, we were in contact with the regional government in Madrid. Spain's capital city was at the apparent epicenter of the second wave in Europe, with extremely high infection rates and intensive care units working at or beyond capacity. This in a nation that has one of the best health care systems in the world and has also been ranked by the WHO as the country with the longest life expectancy and healthiest population in the world. The key feature of the system as presented by us in September is that intelligent implementation of rapid antigen testing will enable the authorities to make future lockdowns less drastic, shorter and more localized.

This is the strategy that has already been implemented in Madrid, more or less precisely as we proposed. For several weeks now, infection rates and other key indicators have been falling, sometimes at a rapid rate. The project was launched in late September when infections were running at a rate of 813 per 100,000 inhabitants – the worst statistics in Europe. The figure has now fallen to 152, and the downward trend has been sustained over several weeks. This is at a time when the continent of Europe is experiencing high infection rates with virtually no region where the numbers are not rising very strongly. This is why one can justifiably speak of the “Milagro de Madrid”.

The region we are talking about has a population of almost seven million and is therefore statistically significant. The authorities started out with the purchase of approximately five million tests in October and administered them in problem neighborhoods. This makes it easier and cheaper to diagnose cases and isolate infected individuals much faster. These rapid tests are, of course, less sensitive than PCR tests, but failure to detect positive cases is rare. It is interesting to note that there is a second large region in Spain – namely Catalonia – which has similarly high numbers. There, they are working with hard lockdowns which are set to continue to 23rd November and which are proving to be far less effective.

Madrid's success is also illustrated by the situation in the city's hospitals. While admissions to hospitals and intensive care units continue to rise in all other regions, the trend in Madrid is exactly the reverse. At the beginning of October, the number of admissions was well over 2,500 per day, but in the last few days this has levelled off to around the 238-mark registered last Thursday. The main tactic is to isolate not an entire city or region but rather districts where infection rates are particularly high and which may be left or entered only with a valid reason. Parks and playgrounds are closed. The advantage is that all other parts of the city can lead a normal life, which means that restaurants also remain open and thus a citywide lockdown with its adverse economic consequences can be avoided. In the meantime, ten of the original 31 areas affected have already been opened up again, because the number of infections there has halved.

As stated before, we intend to provide our Premium clients with rapid antigen tests as soon as a reliable product becomes available. Unfortunately, this is not yet the case. We have already done a preliminary survey of companies active in this field and have so far identified around 100 candidates. However, it is still not possible to forecast when we will have a test which provides a sufficiently reliable indication of sensitivity (i.e. percentage rate of infected persons detected) and specificity (i.e. the number of non-infected persons classified as healthy). The best test currently available is produced by SD BioSensor in South Korea and distributed by Roche of Switzerland. At present, it is completely sold out. We plan to wait another 4-5 weeks, because this test still falls some way short of the level we want to offer to our Premium clients. The main reason is that we envisage it being used mainly for private celebrations or family visits, for example at Thanksgiving or Christmas. For this to work, the test has to be reliable and deliver a result within two minutes (like a pregnancy test) by means of a saliva sample. Unfortunately, this type of application has not yet attained an adequate level of reliability, and we would therefore ask for your patience in this matter.

As you may know, our main laboratory is in the German city of Mainz where we are near neighbors to BioNTech, the company that has developed the highly promising vaccine which will be distributed via Pfizer. Mainz is also home to the Max Planck Institute for Chemistry which has deployed Artificial Intelligence to develop an algorithm for calculating the corona infection risk on the basis of room size, number of persons and duration. This has now been published in the International Journal of Environmental Research and Public Health. We would like to offer this algorithm as a service and think we may be able to publish it this year, thereby enabling schools, shops or private individuals to calculate the risk of infection in their classrooms, premises or homes and work out appropriate safety measures, such as regular airing, wearing face coverings, setting a maximum number of people to be present, restricting the length of time they spend in the room, etc. In this way, users can then calculate for themselves the extent to which the probability of infection changes with an hourly ventilation of the enclosed space.

We will let you know when we are ready to proceed.

SALVAGENE HQ
Université Paris Sorbonne
125 Rue Saint-Jacques, 75005 Paris

SALVAGENE UK
52 Grosvenor Gardens • SW1W 0AU London UF
Tel: 0044 20 3287 0644

SALVAGENE USA
101 Avenue of the Americas, 8th floor • 10013 New York
Tel: +1 646 583 0370

info@salvagene.com • www.salvagene.com