Salvagene GROUP

Business Unit: SARS-CoV-2 Task Force
Keynote: #61

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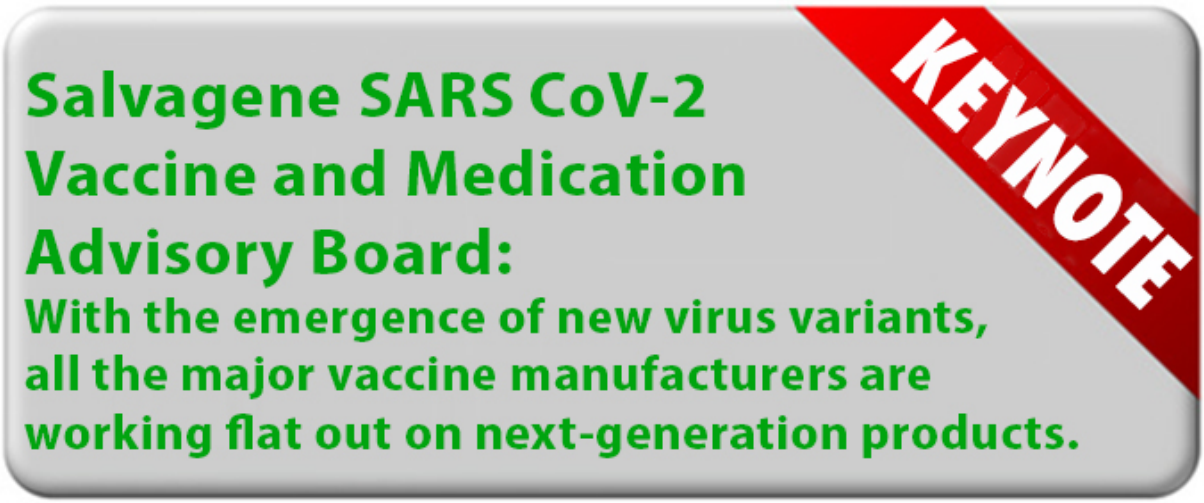

Dear Premium Customers,

Contrary to the reassurance from more or less all major vaccine manufacturers that their current vaccine generation protects against all the variants of the virus to have emerged so far, almost all of them are working intensively on updating their product to combat the next wave of mutant forms.

We Despite confident statements from vaccine manufacturers and health officials – including the claim a few days ago by the head of vaccine development at Oxford University that "the current generation is fully effective against the mutants" – we remain skeptical. Apart from the BioNTech (Pfizer) report, which was patchy and inconclusive about efficacy, most of the studies were internal, not published or simply an expression of opinion.

According to our information, work is proceeding at full speed on the next generation for the 2021/22 autumn-winter season. Our favored vaccine project, even though it has not yet reached the approval stage, is the one being undertaken by biotech company CureVac. In our view, CureVac has anticipated this development for the next vaccine generation and has entered into a collaboration with GlaxsoSmithKline. The British pharmaceutical giant
has had a poor run of luck so far, as the vaccine they were backing in partnership with the French company Sanofi has so far produced disappointing results, with trials indicating relatively low efficacy. We do not expect this project to make a breakthrough any time during 2021.
The scientists at CureVac are specialists in the area of mutation. As with BioNTech, CureVac has a profound understanding of mRNA technology. If a mutation turns out to be potentially dangerous in the course of screening, they are able to carry out the necessary experiments to confirm the effectiveness of the vaccine beyond doubt or to detect any reduction in efficacy.

Where mutant forms arise, it is vital that these are identified at an early stage, so that it can be established whether they have a higher transmission rate (as in the case of the B.1.1.7 variant) and/or entail a higher mortality rate. This is now not only the case with the Brazilian and African variants, but also with B.1.1.7, as is becoming increasingly apparent. The Centers for Disease Control and Prevention (CDC) in the USA as well as the Robert Koch Institute (RKI) in Germany have confirmed this today. With mRNA-based vaccines, it is possible to tweak the formula within a matter of weeks.

Essentially, it remains unclear whether a booster vaccination is possible at all, and whether cross-reactions due to the different antibodies formed by the different vaccine generations can be ruled out, especially if there is a mix-and-match of earlier and later generations of a vaccine or even of different vaccines that work in completely different ways. The latter approach is currently being discussed as an option in the USA and the UK, due to the high prevalence of the disease in those countries and as a way of rolling

out the vaccination program to the maximum number people in the shortest time possible. We consider this to be a panic measure that lacks any scientific basis. The UK authorities have just embarked on a project to test vaccine combinations. However, a conclusive result is not expected until summer at the earliest, so we will certainly not be making any recommendation in this regard for some time to come.

If vaccination were to take place now, a booster would have to be given in autumn. This is because immunity falls away at a disappointingly fast rate, as studies conducted in the UK have shown. The majority of those infected still had antibodies after six months, but that in itself does not constitute immune status – for that to be achieved, there has to be a critical mass of antibodies.

There are currently two options for booster vaccination: injection with an update of the same vaccine or with a second-generation vaccine. It is currently unclear whether this is even an option. As we said in Keynote #60, for Premium clients who are in very good health (i.e. have low risk complication factors) we recommend that they hold off on vaccination until CureVac is ready for rollout. This is a high-quality project and is in line with the latest generation of vaccines, offering all the options for our clients with the relevant health status.

We will continue informing our different Premium client groups when we consider for them to have the right moment and the right vaccine has arrived.

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