



**Salvogene  
SARS-CoV-2 Task Force:  
Severe cases of Covid-19:  
Immune system caught in a  
perpetual loop**

Dear Premium Customers,

**In severely ill Covid-19 patients, we are increasingly seeing the presence of a particular type of blood cell that explains why the body's defense system is unable to combat the virus.**

Covid-19 generally presents itself in such a way that the individual is not aware of being ill, and the conclusion could almost be drawn that it does not even deserve to be classified as a "disease". Most people who catch it recognize the characteristic symptoms of dry cough and high temperature, but nothing more worrying than that. However, it is clear that far more is going on in the background. Covid-19 can lead to lung failure, with patients having to be treated in intensive care for many weeks and sometimes even put on a ventilating machine. In short, it can be said that Covid-19 manifests itself in many different ways.

Here at Salvagene, we are investigating why it is that the disease can take such very different courses. As clients will already know, our focus is on biochemistry: we analyze blood samples with regard to the cells, proteins, genes and gene regulation mechanisms (epigenetics). We use this analysis methodology to compare blood samples from severely ill Covid-19 patients with those from infected individuals with mild to no symptoms in order to establish wherein the difference lies.

A working group drawn from the Berlin Charité, the University of Bonn, the German Center for Infection Research (DZIF) and various other institutes has been doing some very useful research in this area that shows what happens when the disease escalates. They have observed some abnormalities in the immune system that occur in severely ill patients. The immune response fires up normally, but then **gets stuck in a perpetual loop**. At first glance, the immune response seems strong, but a close look at the outcome reveals that it is ineffective. We have noticed that, in such cases, there is a conspicuously high number of white cells (granulocytes) present in the blood. **In the analyses we conduct for our Premium clients, we already measure these levels very precisely. With regular monitoring, we can very quickly detect irregularities.**

In fact, the granulocytes are there to fight the infection and to activate other immune responses, such as antibodies, T helper cells and the T memory cells (see previous Keynotes) which in turn can eradicate the pathogen. They are produced by the immune system as one of the first lines of defense after a pathogen has been identified. They fight the microbes directly and support the formation of T cells and antibodies that recognize and kill the viruses.

For Covid-19 patients with only mild symptoms, this mechanism works well, but in the case of severely ill patients, the bone marrow releases white blood cells that are not mature and therefore do not function properly. Instead, they have an

inhibitory effect on the immune reaction. The body's defense system is effectively kept busy with activating immature cells instead of activating cells capable of targeted defense.

This is a familiar phenomenon, seen for example in blood poisoning. Here too, the body's defense may produce an abundance of immature white blood cells. In the case of Covid-19, this leads to the immune system getting stuck in a perpetual loop. We know one possible solution to this problem from the treatment of tumors and liver inflammation: there are active substances that make immature immune cells mature faster.

Here at the Salvagene SARS-CoV-2 Task Force, we do not understand why the regulatory authorities have not yet taken an official stance on this approach. We consider that this would significantly reduce the number of severe Covid-19 cases. We are continuing to pursue this matter and expect to be able to offer our Premium clientele further news in this regard soon.

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