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New therapeutic approach against SARS-CoV-2 successfully tested

Pfungstadt (ots) -

- Scientists at the Universities of Frankfurt a.M. and Kent (UK) have identified a metabolic pathway (pentose-phosphate pathway) that is crucial for the propagation of the SARS-CoV-2 virus in human cells.
- The compound benfo-oxythiamine, an inhibitor of this metabolic pathway, has succeeded in blocking the replication of the SARS-CoV-2 virus in human cells.
- Preclinical testing of this compound has now been successfully completed.
- The company benfovir is now planning to start clinical trials to test this compound in humans in the next few weeks.

Imagine you become infected with the SARS-CoV-2 virus, but your body simply refuses to propagate it. This is how you could describe the revolutionary approach against the SARS-CoV-2 virus that has now been successfully tested in preclinical settings. The research group led by Prof. Cinatl, the discoverer of the first SARS-CoV virus, was able to show that the SARS-CoV-2 virus manipulates the sugar metabolism of the infected human cell in such a way that it produces efficiently the sugar building block that is needed for the propagation of the virus. The so-called pentose-phosphate pathway activated in this process represents an important part of the sugar metabolism that forms the sugar building block ribose-5-phosphate to form new RNA or DNA. A cell infected by a virus can only form new viruses if this sugar building block is present in sufficient quantity. While dextrose (glucose) strongly promotes virus multiplication, the use of a modified glucose (deoxy-glucose) inhibited SARS-CoV-2 virus proliferation because this form of glucose cannot be metabolized by the cell and thus no sugar building blocks is present. Administration of the new drug benfo-oxythiamine, which inhibits transketolase enzymes and thus the key enzymes of the pentose-phosphate pathway, also led to inhibition of SARS-CoV-2 virus formation because it inhibits the conversion of glucose to ribose and thus the crucial sugar building block for virus formation is no longer available in sufficient quantities. The fact that both ways of inhibiting the formation of the sugar building block ribose were so successful in preventing the SARS-CoV-2 virus propagation opens completely new avenues in the fight against the current pandemic, as it is independent of the gene sequence and mutations of the SARS-CoV-2 virus. This approach, which is directed against all forms of viruses, is also suitable against other, as yet unknown, new viruses that could potentially cause pandemics, and could thus make an important contribution to protecting humanity against future viral diseases. Now that the preclinical evaluation of the compound benfo-oxythiamine has been successfully completed, the head of drug development at benfovir AG, Dr. Ahrens-Fath, is looking forward to the upcoming clinical trial testing the compound in humans.

About the company: benfovir AG is a young pharmaceutical technology company from Pfungstadt in Hesse that specializes in the therapy of viral infections such as the SARS-CoV-2 virus. For its clinical research, it uses a compound that inhibits the sugar metabolism in such a way that the formation of the crucial building block (ribose-5-phosphate) for virus production is disabled and at the same time the overshooting of the immune system is prevented. The near-term goal of benfovir is to obtain the necessary approvals for clinical trials, to conduct them rapidly and receive marketing approval to provide a new therapeutic option for SARS-CoV-2 infection and Covid-19 disease as soon as possible.

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