

Press Release

## SIX TEAMS RECEIVE 1.5 MILLION EUROS EACH FOR THE DEVELOPMENT OF NEW ANTIVIRAL AGENTS

Leipzig, October 26, 2022

The Federal Agency for Disruptive Innovation (SPRIND) is pleased to announce the participants of the second phase of the SPRIND Challenge "A Quantum Shift for New Antiviral Agents". Six teams will each receive up to €1.5 million for the next twelve months to further develop new drug candidates against viral diseases.

Since the Covid 19 pandemic, we know: Viruses are a threat to human health worldwide. Despite the considerable success of vaccines, antiviral drugs are also needed to help sufferers. For many viral diseases there are still no effective drugs or therapeutic treatments. Yet, looking at outbreaks of SARS-CoV-1, MERS-CoV, Ebola or influenza has made it clear that we must prepare for future epidemics and pandemics.

In order to achieve breakthroughs in the development of new antiviral drugs, the Federal Agency for Disruptive Innovation last year called upon innovators and researchers to participate in this SPRIND Challenge. Within the framework of this 3-year challenge multiple teams compete in parallel with different solution strategies to find the most promising active compounds and drug targets in the fight against viral diseases.

A jury drawn from science and industry has now narrowed down the field from initially nine teams to the six candidates who will continue to participate in the next stage of this innovation competition. The following teams were able to convince the jury that their work can produce new antiviral drugs with the potential to be used successfully against viruses that are still unknown today:

- **VIRUSTRAP** uses DNA origami technology to build nanoscale traps for viruses. To this end, the team led by Prof. Dr. Hendrik Dietz (TUM, spin-off Capsitec GmbH) constructs half-shells of single-stranded DNA that enclose and neutralize viruses. The size and shape of the shells can be flexibly adapted to different viruses.
- **RNA-DRUGS**, headed by Prof. Dr. Harald Schwalbe (Goethe University Frankfurt), is working on a platform for the development of antiviral small-molecule inhibitors that target viral RNAs. The focus is on RNA segments that are not translated into proteins. These segments are less likely to be affected by mutations and thus provide a robust target.
- **PROTAC-POWERED ANTIVIRALS** creates a platform for accelerated development of next-generation, broad-spectrum antiviral drugs by exploiting strategies of *in silico* modeling and targeted protein degradation. For this purpose, Prof. Dr. Mark Brönstrup (HZI) and his team recruit enzymes within the cell that degrade viral proteins. Once the viral protein has been degraded, the compounds, called PROTRACs, can be reused to stop the rapid multiplication of the viruses.
- **MUCBOOST**, led by Dr. Daniel Lauster (FU Berlin), is developing an upgrade against pathogens by enhancing the antiviral efficacy of mucus, the coating of our airways. This upgrade works according to a modular principle and can be flexibly adapted to a wide

variety of viruses. At the same time, the approach has the potential to reduce transmissibility by making the viruses adhere more strongly to the mucus: It thus acts like a molecular mask.

- **CRISPR ANTIVIRALS** uses the CRISPR/Cas13 antiviral defense system, perfected over millions of years of bacterial evolution, to block the replication and cytopathic effects of RNA viruses such as SARS-CoV-2 by cleaving their viral genome and mRNA. Prof. Dr. Elisabeth Zeisberg (UMG) and her team have found a way that promises to be particularly robust against viral mutations.

- **IGUARD**, led by Prof. Dr. Axel Schambach (MHH), is developing next-generation RNAi-based molecular therapeutics against respiratory viral infections. The team uses machine learning to automatically identify targets as well as an optimized vector platform for delivery and preclinical validation in human-derived, patient-relevant models. This automatic identification of target structures is expected to allow antiviral therapeutics to be developed much faster than before.

Dr. Franziska Brantner, Parliamentary State Secretary at the German Federal Ministry for Economic Affairs and Climate Protection, said: "I congratulate all the teams that have made it to the second round of SPRIND's Anti-Virus Challenge. They are working to expand the repertoire of antiviral therapeutics with breakthrough technologies so that new treatment options will be available in the future and patients can be helped quickly. The Covid-19 pandemic is a stark reminder of the importance of progress in this area. It is therefore impossible to overemphasize the importance of this competition. I would also like to extend my sincere thanks to the teams that have not progressed - their results from the first round also have great added value, as we can also learn from this work."

For the allocation of funds in the SPRIND Challenges, the Federal Agency for Disruptive Innovation is utilizing a new innovation funding mechanism in Germany, the pre-commercial procurement process. Compared to other mechanisms for government innovation funding, pre-commercial procurement is much faster and allows greater flexibility in the use of the funds, so that even smaller teams and start-ups can afford to participate without prior funding application expertise.

"SPRIND Challenges have quickly established themselves as an effective funding tool for bridging the 'valley of death' between basic research and proof of concept," explains Dr. Jano Costard, Challenge Officer at SPRIND. "By funding different approaches over several years and evaluating their development progress, we can select the best solution."

In one year, the results of the second stage of this SPRIND Challenge will once more be re-evaluated by the jury. Up to four teams will then progress to the third and final stage of the innovation competition, upon which each of them will receive a further two million euros to continue their proof-of-concept work.

Further information on this SPRIND Challenge and the participating teams can be found at <https://www.sprind.org/en/challenges/antiviral>.

About SPRIND Challenges

# SPRIND

SPRIND Challenges are innovation competitions that aim to generate solutions to the grand societal and technological challenges of our time. They create the vision of a better future and gather the scientists, innovators and entrepreneurs who can make this vision a reality. That's why Challenge teams are funded quickly and without unnecessary bureaucracy, and immediately launch into a multi-stage competition. At the end of each stage, the teams' work is evaluated and only the most promising remain in the Challenge and receive further financial support to develop their idea.

## About SPRIND

The Federal Agency for Disruptive Innovations (SPRIND) was founded on December 16, 2019, with its registered office in Leipzig. The sole shareholder is the Federal Republic of Germany, represented by the Federal Ministry of Education and Research (BMBF) and the Federal Ministry of Economics and Climate Protection (BMWK). SPRIND fills a gap in the German innovation landscape: it finds new, groundbreaking technologies for the major challenges of our time, while ensuring that the value created by the resulting companies and industries remains in Germany and Europe. SPRIND is financed by funds from the federal budget. SPRIND is managed by Rafael Laguna de la Vera and Berit Dannenberg.

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