CALL FOR SUBMISSIONS

WHO IS SPRIND?

SPRIND is Germany's Federal Agency for Disruptive Innovation. The agency's origins can be traced back to one of the 'Innovation Dialogues' which Chancellor Merkel regularly holds as a forum of exchange between the Federal Government, business and research representatives. The concept of SPRIND was first presented in 2016 and the agency formally came into being at the end of 2019. Rafael Laguna de La Vera, a German software entrepreneur (Open X-Change), was appointed as SPRIND's Founding Director. SPRIND is a subsidiary of the German government and its task is to identify, develop, fund and scale breakthrough innovations. Inspired by DARPA its main goal is to deploy agile and proactive support, both financially and structurally. Unlike DARPA, however, SPRIND only supports civilian projects.

SPRIND's challenges are one way through which the agency sources and identifies breakthrough innovations. The Challenges are intended to serve as a nucleus and core around which radically new ideas can crystallize and form.

WHAT IS THE CHALLENGE ABOUT?

Broad spectrum antiviral drug development is a trade-off between inter/intra-virus family spanning specificity and side effects. Viruses- half alive structures- crucially depend on and use their host for replication and survival- the perfect hostile takeover. Modern technologies enabled greater understanding of virus biology. Sequences of viral genomes can be identified within hours. However, antivirals designed for inhibiting proteases, polymerases and other viral proteins lack the efficacy in terms of being akin to antibiotics.

Decades of investment and interest from big pharma into the parthenogenesis of HIV and HCV fueled innovative strategies for combating these viruses. The development of a single pill that cures HCV and a triple therapy that controls HIV/AIDS are antiviral flagships. Both HIV and HCV are chronic viral infections that affect millions of people world-wide and make drug development for these diseases a lucrative market. Yet, for other virus infections biological hurdles, such as their frequency to mutate, their modes of transmission and their sometimes sudden emergence remain. This stymies R&D activities of pharmaceutical companies as the economic potential of antivirals against acute infections or newly emerging viruses is often unclear.

Furthermore, virology is a highly demanding area and field of research as it requires high safety considerations. Laboratory-acquired virus infections have occurred more than once in the past. Experiments in vitro and in vivo have to meet required safety standards and demand infrastructure as well as comprehensive employee-training. These high demands may be overcome by collaborative research.

This Challenge - A quantum shift for new antiviral agents - aims to actively contribute to advancing the development of antivirals for the treatment of infections. SPRIND is looking for new approaches that fundamentally change the development of antiviral agents. The final result may expand the repertoire for combating viruses or may be a technology that can be adapted to the respective situation using new drug candidates, assays, platforms, etc. We are looking for solutions that combat human pathogenic viruses, preferably newly

emerging viruses with pandemic potential. Ideas should ideally result in antiviral agents for more than one virus family if possible. Applicants are expected to develop their projects up to a proof-of-concept within the framework of the Challenge. Clinical trials may be funded subsequently to the Challenge if SPRIND and its jury of experts find that the proposed solution has disruptive potential. Our desired outcome is to enable better and improved treatment options for virus-infected individuals in the future.

THE GOAL

The overall goal of this Challenge is to explore fundamentally new approaches for the development of antiviral agents. The solutions proposed by the participating teams should demonstrate that therapeutically relevant active compounds will or can emerge from their approach. Participants are free to choose any technological or scientific basis for their approach. The teams' approaches will be tested at the end of the Challenge by carrying out a Proof-of-Concept (PoC) adapted to the development status of the active compound in a relevant biological model. In their proposal, the participants must state and justify which model is best suited for the proof-of-concept with regard to testing their approach.

PROCESS

The Challenge runs over the course of approximately 3 years (for details, Table 1). Interested teams are asked to submit their application to join the Challenge. A jury of world-renowned experts will support SPRIND in the evaluation of the applications and will select up to 11 teams who are invited to join. During years 1 to 3, teams work on their ability to reach the Challenge goal. The Challenge has three stages. Each stage takes 12 months. At the end of stage 1, the jury will evaluate the progress made by the teams and selects up to 6 teams that continue to stage 2. Similarly, at the end of stage 2, the jury selects up to 4 finalist teams that proceed to stage 3 where teams must perform a PoC in a relevant biological model.

Table 1: Timeline

DATE	EVENT
12.09.2021	Deadline for applications
October 2021	Decision on participating teams by jury
November 2021	Start of stage 1
October 2022	Evaluation of Teams in stage 1 and decision on teams participating in stage 2
November 2022	Start of stage 2
October 2023	Evaluation of Teams in stage 2 and decision on teams in stage 3
November 2023	Start of stage 3
November 2024	Proof-of-Concept
December 2024	Best teams will be awarded

WHAT IS IN IT FOR MY TEAM?

SPRIND will fund the team's development work from the start of the Challenge. For stage 1, SPRIND funds up to 700.000 € per team, depending on the financial requirements teams are asked to supply with their application. This funding takes the form of an individual fixed price based on the team's cost estimate. Funding for subsequent stages may be higher. To help teams achieve their full potential, SPRIND provides a coach that will closely follow each team's journey. The coach provides advice and facilitates access to new collaboration partners and experts. In addition, the SPRIND team is on stand-by for additional support in terms of networks and additional experts.

To ensure that teams remain in the driver's seat to implement their innovation, all intellectual property generated during the challenge will remain with the teams. SPRIND will merely get a non-exclusive licence.

SPRIND is in the position to continue its support for teams after the end of the Challenge for clinical trials if jointly with its expert jury it sees the potential for a breakthrough innovation.

WHO IS ELIGIBLE TO APPLY?

Teams from any legal entities, such as universities, non-university research institutions, SMEs, Start-ups, incubators are eligible to apply. Incubators are welcome to share the call for submissions with their networks.

Teams are eligible to apply if their primary residence is in the European Economic Area (EEA). Yet, teams may also join in a cooperation with a team based in the EEA.

Applicants must ensure that the work in their project is not already funded by other public entities.

HOW DOES THE APPLICATION PROCESS WORK?

Applicants are invited to complete our application form to apply for this challenge.

HOW WILL THE TEAMS BE SELECTED?

SPRIND will be supported in the selection by a jury of internationally renowned experts from different research fields and areas of expertise. Applications will be prescreened by SPRIND. Selected applications will go through to the jury and are invited for a pitch in front of the jury. Applications are evaluated regarding their potential for becoming a breakthrough innovation, their effectiveness of the proposed work plan, the team's ability to implement that plan as well as its economic efficiency. Table 2 gives guidance as to how these criteria might be judged.

Table 2: Selection criteria

APPROACH
Does the approach have the potential to become a breakthrough innovation?
Is the approach suitable for achieving the goal of the Challenge?
Is the approach a significant improvement over the state-of-the-art?
IMPLEMENTATION
Is the work plan based on realistic assumptions?
Is it expected that the necessary work packages can be carried out by the team or the listed co-operations and assignments?
Are the required resources, such as access to safety laboratories and equipment, available or planned for?
TEAM
Does the team bring the necessary expertise, dynamism and innovative strength for the Challenge?
ECONOMIC EFFICIENCY
Is the financial plan in line with the planned activity?

WHAT WILL HAPPEN IN THE FIRST YEAR OF THE CHALLENGE, WHAT HAS TO BE ACHIEVED?

Teams may conduct further conceptual work or experiments as described in their working plan in the application. Teams may consult the Challenge coach for questions regarding the development of their solution approach at any time. At the end of stage 1, the participating team summarizes essential elements of the basic functioning of their solution approach in a stage report. The stage report shall describe whether the objective described in the application has been achieved. It should also outline the intellectual property developed (know-how, data, inventions, etc.) and contain a list of publications, if applicable. Furthermore, the first stage report shall contain a proposal for a suitable PoC study. The stage report is due one month before the end of the first stage. Reports are required regardless whether teams decide to apply for the next stage or not. More information on requirements and format of the application for stage 2 will be shared with the teams in time before the end of the first stage.

HOW DOES MY TEAM WIN THE CHALLENGE?

Teams competing in the challenge will have to convince the jury of the potential of their solution at the end of every stage. The jury will evaluate teams based on their stage reports and reports by the Challenge coach. The jury will focus on the concept, the progress made, the cost effectiveness of the solution approach and the team. Teams that have been chosen for the final third stage get the chance to demonstrate the applicability of their solution approach in a relevant biological PoC. To choose the Challenge's winner, the jury will evaluate the therapeutic relevance of active compounds that emerge from their solution approach. In this respect the jury will consider qualities such as the effectiveness

of the resulting antiviral compound, flexibility of the solution approach or breadth of applicability, side effects, pharmacodynamics and other applicable properties.

CONFIDENTIALITY

SPRIND will treat all submissions confidentially. It will only share information on submissions with the jury, reviewers and the Challenge Coach. SPRIND also obliges these persons to maintain confidentiality.

WHO CAN I CALL IN CASE OF FURTHER QUESTIONS AND QUERIES?

Applicants are invited to have a look at the participation agreement and the FAQs. If you do not find your question addressed in there, please contact challenge@sprind.org for additional clarification.