

# Call by science and industry to make more effective use of Switzerland's innovation capacity to combat antimicrobial resistance and develop new antibiotics

The increasing number of antimicrobial resistances combined with the lack of development of new antimicrobial agents represents one of the greatest medical challenges of our time. While basic research demonstrates new antimicrobially active molecules, their development into commercially available drugs and cost-efficient diagnostic tests often fails because of the unresolved issues of financing and profitability.

## **ROUND TABLE ANTIBIOTIKA**

The "Round Table Antibiotika" is an interdisciplinary group of experts from medicine, research and economics of almost all Swiss universities as well as committed personalities from industry.

Its aim is to drive Switzerland's contribution to innovation, research and development of new active substances. The development in this area, which has been stagnating for decades, shows that previous approaches and research programmes do not work well enough at national and international level. A better coordination and expansion of the activities supported by Switzerland for the development of market-ready antibiotics and diagnostics is needed.

## **CALL**

The "Round Table Antibiotika" therefore calls on the Federal Council to structure and strengthen the dialogue between the federal offices involved, the pharmaceutical industry, science and society. Within the framework of this dialogue, the Federal Council should

- a. develop and adopt a strategically sound research agenda that addresses open questions in research, development, prevention, promotion of innovation, as well as financing and approval of new products as a whole,
- b. outline how long-term and medium-term financing strategies for the necessary incentives to develop antimicrobial agents can be designed,
- c. take measures to facilitate the approval of drugs and diagnostic tests and provide the population with rapid and controlled access to innovative and alternative antimicrobial agents,
- d. identify and prepare ways in which the pharmaceutical industry, including research-based SMEs, can once again play a leading role in antibiotics research and development in Switzerland and
- e. thus further define Switzerland's profile as a humanitarian and innovative high-tech country in the fight against infectious diseases and strengthen the business location.

## **BACKGROUND**

The number of serious and often difficult to treat infections in humans and animals with resistant microorganisms has risen sharply in recent years. Due to the transferability of pathogenic resistance mechanisms between humans, animals and the environment, this trend represents a major challenge for the society as a whole. Antibiotics, most of which were developed in the 1970s, are currently the most important weapon in the fight against bacterial infections, but the number of resistances is increasing. Due to a lack of financial incentives, the industry hardly invests in the risky, time-consuming and costly development of new forms of therapy.

There are various national and international research programmes dealing with this topic: In 2015, Switzerland defined the National Strategy for Antimicrobial Resistance (StAR) and is driving forward the National Research Programme on Antimicrobial Resistance (NRP 72). At European level, Switzerland is involved in various projects, such as the programmes "New Drugs for Bad Bugs" (ND4BB) and "DRIVE-AB" of the Innovative Medicines Initiative (IMI). In addition to other programmes, Switzerland supports the WHO's Global Action Plan on Antimicrobial Resistance at international level. These programs focus on the prevention of antimicrobial resistance through prevention, research into new active ingredients and the design of incentive structures for the development of new products. Some of the research programmes complement each other, some overlap and some important topics are not addressed at all. Although various drug candidates have already been discovered and potent incentive mechanisms have been developed that could motivate the pharmaceutical industry to further develop these candidates, hardly any new antibiotics and antifungals have yet been approved in Switzerland due to the lack of financing and implementation of the incentive mechanisms. After all, the crucial question of how these development incentives could be financed in the long and medium term is not adequately addressed by existing research programmes.

The "Round Table Antibiotics" is an interdisciplinary group of experts from medicine, research and economics from almost all Swiss universities and personalities from industry under the direction of Jean-Claude Piffaretti and Bea Heim. The Group would like Switzerland to strategically coordinate and expand its activities in the fight against antimicrobial resistance. In view of the excellent research environment and the strong research presence of the Swiss pharmaceutical industry worldwide, Switzerland should once again be able to play a leading international role in antibiotics research, development and production. To this end, however, the course must now be set accordingly and cooperation between industry, universities, medical service providers and health insurance companies must be promoted. The "Round Table Antibiotics" is convinced that a reactivation of research and development in the antimicrobial field should not only take place for economic policy reasons, but should also be promoted in the sense of a stronger positioning of Switzerland as an innovative humanitarian high-tech country.

### **THE SIGNERS OF THIS CALL ARE AVAILABLE FOR A DIALOG:**

- Prof. Dr. Jean-Claude Piffaretti, founder and director of Interlifescience and former president of the Federation of European Microbiological Societies
- Bea Heim, Member of the National Council
- Prof. Dr. Rudolf Blankart, Center of Competence for Public Management, University of Berne and Director Promoting Services, sitem-insel AG
- Prof. Dr. Sebastian Bonhoeffer, Chair of the Institute of Integrative Biology, ETH Zurich

- Prof. Stewart Cole, PhD, Director of the Global Health Institute, École polytechnique fédérale de Lausanne (EPFL) and President-elect of the Institut Pasteur, Paris
- Giacomo Di Nepi, CEO Polyphor AG
- Prof. Dr. Andrea Endimiani, Institute for Infectious Diseases, University of Berne
- Dr. Marc Gitzinger, CEO and Co-founder at BioVersys AG and Vice-President of the BEAM Alliance
- Prof. Gilbert Greub, PhD, Directeur de l'Institut de Microbiologie, Centre Hospitalier Universitaire Vaudois and President of the Swiss Society for Microbiology
- Prof. Dr. Michael Hennig, CEO and Co-founder leadXpro AG
- Prof. Dr. Achim Kaufhold, Chief Medical Officer, Basilea Pharmaceutica International Ltd.
- PD Dr. Andreas Kronenberg, Head of the Swiss Centre for Antimicrobial Resistance (anresis.ch), Institute for Infectious Diseases, University of Bern
- Prof. Dr. Stephen Leib, Director, Institute for Infectious Diseases, University of Berne
- Prof. Dr. Daniel Lew, Member of the Board of Directors, Basilea Pharmaceutica Ltd., Honorary Professor, Université de Genève and Board Member of the Swiss Academic Foundation for Education in Infectious Diseases
- Prof. Dr. Nicolas Müller, Clinic for Infectiology and Hospital Hygiene, University Hospital Zurich
- Prof. Patrice Nordmann, PhD, Head Microbiologie Médicale et Moléculaire, Director of the National Reference Laboratory for the Early Detection of New Antibiotic Resistance and Resistance Mechanisms, Université de Fribourg
- Prof. Malcolm Page, PhD, former Head of Biology, Basilea Pharmaceutica Ltd. and member of the Steering Committee of the National Research Program Antimicrobial Resistance (NRP 72)
- Prof. Daniel Paris, PhD, Head of Dept. Medicine, Swiss Tropical and Public Health Institute
- Prof. Vincent Perreten, PhD, Head of the Molecular Epidemiology and Infectious Diseases Division, Institute of Veterinary Bacteriology, University of Bern
- PD Dr. Esther Schelling, Swiss Tropical and Public Health Institute
- Prof. Dr. Jacques Schrenzel, Laboratoires de Bactériologie et de Recherche Génomique, Service des Maladies Infectieuses, Hôpitaux Universitaires de Genève
- Prof. Dr. Marcel Tanner, former Director of the Swiss Tropical and Public Health Institute and President of the Academy of Sciences
- Prof. Dr. Andreas F. Widmer, Head of Department of Hospital Hygiene, University Hospital Basel
- Prof. Dr. Reinhard Zbinden, Institute of Medical Microbiology, University of Zurich
- Prof. Dr. Jakob Zinsstag, Swiss Tropical and Public Health Institute

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