

Appeal by science and industry to make more effective use of Switzerland's innovative capacity to fight antibiotic resistance and to develop new antibiotics

The increasing number of antimicrobial resistant infections, combined with the lack of new antimicrobial agents, is one of the greatest public health challenges of our time. While basic research identifies new potential antimicrobial molecules and develops rapid diagnostic tests, the translation of this knowledge into market-ready and cost-efficient products often fail due to the unanswered questions of financing and profitability.

ROUND TABLE ANTIBIOTICS

The Round Table on Antibiotics is an interdisciplinary group of experts in medicine, research and economics coming from almost all Swiss universities and polytechnic schools, as well as of committed personalities from industry. It aims to stimulate Switzerland's contribution to innovation, research and development in the field of antibiotic resistance, in particular by promoting the development and release to the market of new active antimicrobial drugs. The stagnating progresses in this area for decades show that the current approaches and the research programmes on national and international levels are not sufficient. The Round Table Antibiotics is firmly convinced of the need in Switzerland, as well as elsewhere, to better coordinate and expand the activities aimed to introduce and bring to the market new antimicrobials and new rapid diagnostic tests.

THE CALL

Within this context, the Round Table on Antibiotics calls on the Federal Council to initiate a structured and strengthened dialogue between the involved federal offices, the pharmaceutical industry, science and society. The objectives of this dialogue should be:

- a) to develop and adopt a strategically sound research agenda that addresses open questions in research, development, prevention, innovation promotion, funding and approval of new products,
- b) to indicate innovative long-term and medium-term financing strategies for industry incentives, aimed to develop new antimicrobial agents,
- c) to take measures to facilitate the approval of new drugs and of new rapid diagnostic tests in order to provide the population with rapid and affordable access to innovative and efficient products aimed to fight antimicrobial resistance,
- d) to identify and propose ways in which the Swiss pharmaceutical industry, including the SMEs, can again play a leading role in antimicrobial research and development, and
- e) thus to strengthen Switzerland's profile as a humanitarian and innovative high-tech country in the fight against infectious diseases and hence make stronger its economic position.

BACKGROUND

In recent years, the number of severe, often difficult to treat or even untreatable infections, has risen sharply because of the resistance of the causative microorganisms. Due to the easy transferability of the resistance between humans, animals and the environment, this trend represents a major challenge for society as a whole. Most of the antibiotic families have been developed in the 1970s or during the following decade: they still constitute the

most important weapons in the fight against bacterial infections. However, the resistance to them has been steadily 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, which in addition do not bring a return of investment.

On a national and international level, there are various research programmes dealing with this issue: In 2015, Switzerland defined the National Strategy for Antibiotic Resistance (StAR) and is currently driving the National Research Programme for Antimicrobial Resistance (NRP 72). At the European level, Switzerland is involved in various projects such as the "New Drugs for Bad Bugs" (ND4BB) and "DRIVE-AB" programmes of the Innovative Medicines Initiative (IMI). In addition, at international level, Switzerland supports the WHO's "Global Action Plan on Antimicrobial Resistance". These programmes focus on the control of antimicrobial resistance through surveillance, prevention and research into new active medicines, but less on the elaboration of financial incentives for the development of new drugs. In some cases, these research programmes complement each other, in others there are overlaps, and in some cases important subject areas are not addressed at all. Although a number of drug candidates have already been identified and potential incentive mechanisms are being discussed that could encourage the pharmaceutical industry to further develop these candidate molecules, the lack of funding and implementation of incentive mechanisms lead to the point that hardly any really new antimicrobials have been approved in Switzerland or elsewhere so far. The crucial question of how to ensure the medium- and long-term financing of these development incentives is not adequately addressed by the existing research programmes.

The Round Table Antibiotics is an interdisciplinary group of experts from the fields of medicine, research and economics from almost all Swiss universities and polytechnic schools, as well as of personalities from the pharmaceutical industry. It is chaired by Jean-Claude Piffaretti and Bea Heim. The Group would like to see Switzerland strategically refocus and expand its activities in the fight against antibiotic resistance. In view of the excellent research environment and the strong global presence of the Swiss pharmaceutical industry, Switzerland should in future be able to play again a leading international role in antibiotics research, development and production. The path must now be set accordingly and cooperation between industry, universities, medical service providers and health insurance companies must be promoted. The Round Table on Antibiotics is convinced that the reactivation of research and development in the antimicrobial field should not only be carried out for economic policy reasons, but should also be pursued in terms of strengthening Switzerland's position as a high-tech country with an innovative humanitarian dimension.

THE FOLLOWING SUBSCRIBERS OF THIS CALL ARE AVAILABLE FOR THE DIALOG:

- Prof. Jean-Claude Piffaretti, founder and director of Interlifescience and past president of the Federation of European Microbiological Societies (FEMS)
- Bea Heim, Member of the Swiss Parliament
- Prof. Rudolf Blankart, Kompetenzzentrum für Public Management, Universität Bern and director of Promoting Services, sitem-insel AG
- Prof. Sebastian Bonhoeffer, chair of the Institute of Integrative Biology, ETH Zürich
- Prof. Stewart Cole, 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. Andrea Endimiani, Institut für Infektionskrankheiten, Universität Bern

- Dr. Marc Gitzinger, CEO and Co-founder at BioVersys AG and Vice-President of the BEAM Alliance
- Prof. Gilbert Greub, director, Institut de Microbiologie, Centre Hospitalier Universitaire Vaudois and president of the Swiss Society for Microbiology
- Prof. Michael Hennig, CEO and co-founder leadXpro AG
- Prof. Achim Kaufhold, Chief Medical Officer, Basilea Pharmaceutica International Ltd.
- PD Dr. Andreas Kronenberg, head of the Schweizerisches Zentrum für Antibiotikaresistenzen (anresis.ch), Institut für Infektionskrankheiten, Universität Bern
- Prof. Stephen Leib, director, Institut für Infektionskrankheiten, Universität Bern
- Prof. Daniel Lew, member of the Board, Basilea Pharmaceutica Ltd., honorary professor, Université de Genève and member of the Board of the Swiss Academic Foundation for Education in Infectious Diseases
- Prof. Nicolas Müller, Klinik für Infektiologie und Spitalhygiene, Universitätsspital Zürich
- Prof. Patrice Nordmann, head Microbiologie Médicale et Moléculaire, director of the National reference laboratory for the early detection of new antimicrobial resistance and resistance mechanisms, Université de Fribourg
- Prof. Malcolm Page, former head of Biology, Basilea Pharmaceutica Ltd and member of the steering committee of the National Research Programme Antimicrobial Resistance (NFP 72)
- Prof. Daniel Paris, head of the Dept. Medicine, Schweizerisches Tropen- und Public Health-Institut
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- Prof. Marcel Tanner, former director, Schweizerisches Tropen- und Public Health-Institut and president of the Swiss Academy of Sciences
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