Basel: A Hotspot for Drug Discovery and Development Against Poverty-related Diseases

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Abstract: In discussion with Lukas Meier from the Swiss Tropical and Public Health Institute (Swiss TPH), Lutz Hegemann, Head of Novartis Global Health and Sustainability and Marcel Tanner, President of the Swiss Academies of Arts and Sciences, give their opinions on the changes that occurred in drug discovery and development for poverty-related diseases over the past 30 years. They emphasise the power of public–private partnerships and provide their points of views on what needs to be done in the future to ensure that the poorest of the poor also have access to important therapies.

Keywords: Drugs · Leprosy · Malaria · Neglected tropical diseases · Novartis · Product development partnerships · Public–private partnerships · Research & development · Swiss Tropical and Public Health Institute

Introduction

As far as healthcare innovations are concerned, Basel is a special place. From here, LSD slowly conquered the globe in 1943 and made the world a little bit more colourful. A year later, Ciba researcher Leandro Panizzon synthesised Ritalin, a blockbuster researcher Leandro Panizzon synthesised Ritalin, a blockbuster researcher Leandro Panizzon synthesised Ritalin, a blockbuster researcher Leandro Panizzon synthesised Ritalin, a blockbuster researcher Leandro Panizzon synthesised Ritalin, a blockbuster researcher Leandro Panizzon synthesised Ritalin, a blockbuster researcher Leandro Panizzon synthesised Ritalin, a blockbuster researcher Leandro Panizzon synthesised Ritalin, a blockbuster researcher Leandro Panizzon synthesised Ritalin, a blockbuster researcher Leandro Panizzon synthesised Ritalin, a blockbuster researcher Leandro Panizzon synthesised Ritalin, a blockbuster researcher Leandro Panizzon synthesised Ritalin, a blockbuster researcher Leandro Panizzon synthesised Ritalin, a blockbuster researcher Leandro Panizzon synthesised Ritalin, a blockbuster researcher Leandro Panizzon synthesised Ritalin, a blockbuster researcher Leandro Panizzon 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diseases of poverty did not offer them clear returns on investments made. In the 1990s we could profit from this unique insight that we were all sitting in the same boat to contributing to solve major global public health problems. Specifically, we discussed new public-private partnership models, which brought the industry and academic partners together under new auspices. We set up a so-called, international ‘Strategic Project Preparation Group’ with 12 members from the public and private sectors. I had the privilege to act as secretary on behalf of the Swiss government. Originally, the project was intended to stimulate research and development of new drugs against various neglected diseases but later it was argued that the initiative should first prove itself in one disease before developing a portfolio across other infectious diseases of poverty and NTDs. This explains the creation of Medicines for Malaria Venture (MMV) in the late 1990s and its focus on malaria only. Five years later followed the creation of the Drugs for Neglected Diseases initiative (DNDi), founded in the wake of the Nobel Prize awarded to Médecins Sans Frontières (MSF), finally also the Foundation for Innovative Diagnostics (FINDD) was created."

Lutz Hegemann, one of the still most effective drugs against malaria is Novartis' combination therapy artemether-lumefantrine (known as Coartem), which has been provided to people at cost price in endemic settings since 2009. What interest does Novartis have in investing in the development of therapies against poverty-related diseases?

Lutz Hegemann: “I see malaria drug development as part of the DNA of Novartis. To date, we have delivered over 1 billion doses of Coartem to the world’s population without any profit to the company. We have also developed a paediatric formulation together with MMV. The long tradition of Novartis in R&D against NTDs, starting with leprosy, is a great motivation to continue in this field. For me, it has always been a big priority to develop a successor to Coartem, in case Coartem loses its efficacy due to the development of resistance. At the moment we are testing a compound from our own research at the Novartis Institutes for Biomedical Research in a phase III trial, which was developed together with Swiss TPH among others.”

Swiss TPH’s collaboration with Novartis was already very pronounced during the development of Coartem?

Marcel Tanner: “The development of Coartem has historically been independent of MMV, but derives from Ciba-Geigy’s activities in the search for a new antihelminthic drug. After a visit to China in 1995, Ciba-Geigy employees by chance were made aware by the Chinese of the antimalarial properties of Coartem, which has been provided to people at cost price in endemic settings since 2009. What interest does Novartis have in investing in the development of therapies against poverty-related diseases?”

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Lutz Hegemann, what is Novartis doing to propel the R&D process for NTDs beyond malaria drug development?

Lutz Hegemann: “In 2022, the company signed the ‘Kigali Declaration of Neglected Tropical Diseases’ and committed to invest US$ 250 million over the next 5 years in R&D for new drugs against diseases of poverty. Besides malaria, the Novartis commitment also covers a series of NTDs, including leishmaniasis, Chagas disease, cryptosporidiosis or dengue fever.”

Marcel Tanner: “The difference between malaria and the NTDs is that for malaria we formulated a consistent R&D agenda in the course of the elimination strategy in 2007, that prioritizes the R&D research questions to be tackled. Such a generally supported agenda does not yet exist for NTDs. Thus, in the absence of these global R&D priorities, the Novartis Institute for Global Health Research (known until 2023 as Novartis Institute for Tropical Diseases, NITD) and other institutions in the field of NTDs still have to rely on their internal strategies that in turn may fragment coherent and effective progress.”

The development of new therapies and the validation of their safety and efficacy in clinical trials is undoubtedly central. But equally important is the distribution and access of disadvantaged people to such therapies. What are the challenges here?

Lutz Hegemann: “In the public discussion, pricing is often seen as the biggest barrier to people’s ability to access a drug, and in many cases this is true. Leprosy, however, paints a different picture. Since 2000, Novartis has made its multi-drug therapy available free of charge to patients worldwide through the World Health Organization. And yet there are still patients who do not receive therapy. The problem lies in the robustness and performance of the health systems themselves. Especially in the case of diseases with strong stigma, we need to ensure that people are diagnosed, drugs are delivered even to the remotest corners of the country, and that medical follow-up examinations take place. All this cannot be taken for granted.”

Marcel Tanner: “The most important determinant of community effectiveness is the degree of decentralization of health systems. The more decentralized a health system is, and the more powerful local governments are, the better integrated control and elimination can be tailored to a given setting and thus, the better is people’s access to essential medicines, care and prevention. It is important to see that the health system not only comprises the public system but the whole public-private mix, including non-governmental organizations and charities. Therefore, cooperation between the global public-private partnerships and all the different actors of the national health systems is essential in the distribution process.”

How would you assess Basel and the greater region as an innovation hub for the development of new therapies for neglected tropical diseases? Do we need new forms of public-private partnerships today?

Lutz Hegemann: “In Basel, the Swiss TPH is a central cooperation partner of Novartis. What is important in drug development is an iterative process along the entire value chain from innovation, to validation of new compounds, to implementation of the programmes. I have just returned from a visit to the Centre Suisse de Recherches Scientifiques en Côte d’Ivoire (CSRS), a close partner of Swiss TPH. The CSRS and the Swiss TPH are very well placed to implement new innovations in health systems in the countries of the South.”

Marcel Tanner: “The CSRS is, after all, part of the European & Developing Countries Clinical Trials Partnership (EDCTP), another key player in R&D of neglected diseases. It is precisely through this collaboration between Novartis, the Novartis Foundation, the Swiss TPH, the EDCTPs and other public-private partnerships that the Basel innovation ecosystem has a much greater impact today than in the past. It doesn’t matter where exactly the various players are headquartered. What is important is that they work together iteratively and that everyone assumes their role and responsibility. And this is what we now need to do more of for a coherent R&D portfolio for NTDs, so that further innovations..."
will emerge in Basel and we will not restrict ourselves to just looking at a new drug, but will contribute with innovative tools and approaches to the universal access and thus to the well-being of a society with the limited possibilities that are available to us.”

Lutz Hegemann (born 1966) leads the Novartis Global Health and Sustainability unit and is responsible for integrating environmental, social and governance (ESG) matters into the core of the company’s business, with a special emphasis on innovation and access. The Global Health and Sustainability unit focuses on transforming health in low- and middle-income countries with programmes targeting malaria, neglected tropical diseases and non-communicable diseases such as sickle cell disease. It also represents the company’s business in sub-Saharan Africa. Before taking on his present role, Lutz was Group Head of Corporate Affairs and Global Health. He has held roles of increasing responsibility since joining Novartis in 2005 in the Consumer Health Division. He began his career as a public health physician and scientist. Lutz Hegemann is a Fellow of the Royal Society for Tropical Medicine & Hygiene and serves on the boards of the Novartis Foundation, the Swiss Alliance against Neglected Tropical Diseases, the Tanzania Training Centre of International Health, PATH, and the Swiss Tropical and Public Health Institute.

Marcel Tanner (born 1952) is President of the Swiss Academies of Arts and Sciences, Professor emeritus of Epidemiology/Public Health and Medical Parasitology at the Faculties of Science and Medicine of the University of Basel and Director emeritus of Swiss TPH. As a member of the Advisory Panel of the Swiss National COVID-19 Science Task Force, he played an important role in advising the Swiss government and the population in better controlling the pandemic in Switzerland. Since 1977 and closely linked to Swiss TPH and Africa and Asia, his research focus ranges from basic research on the cell biology and immunology on malaria, schistosomiasis, trypanosomiasis, filariasis and HIV/AIDS to epidemiological and public health research on risk assessment, vulnerability, health impact and district health planning. Besides research, he contributed considerably to capacity strengthening and North-South partnership as reflected in his thrive to develop the Ifakara Health Institute (IHI) in Tanzania and the CSRS in Côte d’Ivoire. He has published extensively in many fields (>800 original papers). He also acts as advisor on communicable diseases research and control, health systems strengthening and capacity strengthening in various national and international agencies/bodies and in boards/committees such as University Hospital Basel, WHO/SAG, DNDi, FIND, INCLLEN-Trust, Gebert-Rüf Foundation, Fondation Botnar and as High Representative North of EDCTP.

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