SystemsX
The Swiss Initiative in Systems Biology

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CC-SPMD
Competence Center for
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## Media release

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# Roche and SystemsX collaborate in diabetes research

**An innovative industry/academic partnership translates Systems Biology research into improved medicines. Scientists at the Competence Center for Systems Physiology of SystemsX and at Roche are cooperating to find new pathways for Diabetes drugs.**

Roche and the Competence Center for Systems Physiology and Metabolic Diseases (CC-SPMD) of SystemsX, the Swiss Initiative in Systems Biology, today announced a three-year research partnership. Scientists from Roche and the CC-SPMD will participate in a joint research project entitled «Systems biology of the beta cell-application to type 2 diabetes progression». The project aims to identify novel pathways for drug development in diabetes as well as new biomarkers of beta cell failure for diagnostics. Beta cells which are located in the isles of Langerhans in the pancreas produce and release the hormone insulin, controlling the level of glucose (sugar) in the blood.

A team of more than 15 scientists at Roche and the CC-SPMD, including researchers from the Swiss Federal Institute of Technology in Zurich (ETH Zurich) and University of Zurich, will collaborate and exchange research results. The project will be financed by Roche at a cost of 2.1 million Swiss francs each year for three years.

«This new, systems-oriented research approach, the integration of several disciplines and collaboration of outstanding scientists from academia and industry will allow us to obtain new insights into the dysregulation of beta cells and their impact on type 2 diabetes progression. We intend to translate this knowledge into innovative treatment options for patients», said René Imhof, Head of Pharma Research, Basel.

«This holistic approach should prove that the whole is stronger than the sum of the parts and ultimately replace the key physiological pathways at the center of our

attention, which is critical for our understanding of metabolic disorders», said Jacques Mizrahi, Global Therapy Area Head of Metabolic and Vascular Diseases, at Roche. «I am very pleased that such a promising collaboration between a SystemsX project and Roche became reality so fast», said Prof. Ernst Hafen, President of the ETH Zurich and Chairman of the Board of Directors of SystemsX. Prof. Alexander Borbély, Vice-President Research at the University of Zurich, emphasised: «The early incorporation of clinical scientists from the University of Zurich is a good example of an integrative approach to major scientific issues in medicine». And Willy Krek, Professor of Cell Biology at the ETH Zurich and Director of the CC-SPMD, said: «Working closely together with Roche we have designed an exciting project that will accelerate the effective conversion of basic discoveries into evidence-based therapies».

**About Systems Biology**
Systems Biology is a new discipline that addresses the analysis of entire biological systems. Rather than analysing individual components of a cell, Systems Biology is focusing on all components and their interacting networks at the level of genes, proteins, biochemical reactions and physiological processes. It is based on the growing understanding of how biological systems interact dynamically to give rise to physiological functions. Understanding complex biological and physiological interactions can help scientists find new ways to detect, prevent and treat multi-factorial and polygenic diseases such as diabetes.

**Type 2 diabetes**
Health experts have warned of a global epidemic of diabetes caused by a rise in overweight and obesity. There are currently 120-140 million people worldwide with type 2 diabetes, and if trends continue, this number is predicted to double in the next 25 years. In the Western world, around 90% of type 2 diabetes cases are attributable to weight gain. Because of the severe health and cost implications of this disease, organisations such as the International Diabetes Federation (IDF) have called for increased efforts to prevent its development. The IDF estimates that 314 million people worldwide, or 8.2% of the global population, have impaired glucose tolerance, a state that often precedes type 2 diabetes.

**About the Competence Center for Systems Physiology and Metabolic Diseases**
The Competence Center for Systems Physiology and Metabolic Diseases (CC-SPMD) is a multi-disciplinary research collaboration between the ETH Zurich and the University of Zurich, created to bring the power of Systems Biology to physiology and medicine. The CC-SPMD brings together scientists from different disciplines, including biology, computer science, chemistry and medicine, to study metabolic control networks of different biosystems and their dynamic behaviour in health and disease. Additional information about the CC-SPMD is available on the Internet (www.cc-spmd.ethz.ch).

## About SystemsX

The CC-SPMD is a Scientific Node of SystemsX, the Swiss Initiative in Systems Biology. The institutions participating in the initiative are the ETH Zurich, the University of Basel and the University of Zurich. It is envisaged that further Swiss universities will join SystemsX to build up a globally competitive, national research network in Systems Biology. Scientific Nodes like the CC-SPMD are devoted to specific scientific questions in Systems Biology and have one of the SystemsX universities as their lead institution. Besides Scientific Nodes, SystemsX intends to build up so-called Glue Projects. These overarching technology platforms are planned to do research in computer science, data management, imaging, genomics, proteomics and other technologies relevant to Systems Biology. The Glue Projects are intended to interface with all the scientific nodes of SystemsX. For more information on SystemsX, see www.systemsx.ch.

## About Roche

Headquartered in Basel, Switzerland, Roche is one of the world's leading research-focused healthcare groups in the fields of pharmaceuticals and diagnostics. As a supplier of innovative products and services for the early detection, prevention, diagnosis and treatment of disease, the Group contributes on a broad range of fronts to improving people's health and quality of life. Roche is a world leader in diagnostics, the leading supplier of medicines for cancer and transplantation and a market leader in virology. In 2004 sales by the Pharmaceuticals Division totalled 21.7 billion Swiss francs, while the Diagnostics Division posted sales of 7.8 billion Swiss francs. Roche employs roughly 65,000 people in 150 countries and has R&D agreements and strategic alliances with numerous partners, including majority ownership interests in Genentech and Chugai. Additional information about the Roche Group is available on the Internet (www.roche.com).



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