

Strategic Focus Area 2017-2024

Personalized Health, the Future of Medicine



RETHINKING CLINICAL RESEARCH

Personalized Health and Related Technologies (PHRT) is a strategic focus area (SFA) of the ETH Domain. The ETH Domain, including the ETHZ, the EPFL, the PSI and the EMPA, is a world leader in the development of innovative technologies and data analysis. Through PHRT, it aims to support and drive transformation in Personalized Health by providing clinicians with access to ETH technologies in order to evaluate their potential contributions to clinical diagnosis, decision-making and therapeutics. Notably, PHRT fosters the generation of multi-omics data and its subsequent integrated computational analysis in a secure IT environment.

The goals of the program include improving the quality of Precision Medicine by supporting earlier and better diagnosis as well as providing a choice of tailored therapeutic strategies for patients based on their particular biological makeup and other individual factors. PHRT achieves this by translating results from advanced scientific research into clinical applications. With its projects, PHRT is building interdisciplinary bridges between medicine & clinical research and the ETH Domain of science & engineering. The PHRT program complements efforts undertaken by other initiatives such as the Swiss Personalized Health Network (SPHN) and the Swiss Data Science Center (SDSC).

CALL FOR PROPOSALS

Through calls for proposals, PHRT funds interdisciplinary projects in education (doctoral and postdoc level), technology translation and research in order to foster the development of Precision Medicine and Personalized Health research. PHRT connects hospitals and the institutions of the ETH Domain so that they can share and use health data across Switzerland.

TYPES OF RESEARCH AT PHRT

- Multi-omics data generation and analysis center: acting as a hub for digitizing clinical biospecimens / samples
- Technology translation projects: bringing research technologies to a clinical performance level for the patients benefit
- Pioneer projects: applying multi-omics to specific cohort samples
- Research and driver projects with direct relevance to patients
- Research projects on the doctoral and postdoc level
- National Data Streams

PHASE 1: MILESTONES AND SUCCESSES 2017-2020

During the first phase of PHRT, the program funded multi-omics centers to digitize the DNA, RNA, protein, metabolite and lipid data points of clinical cohorts. PHRT also funded 55 research projects with University hospitals in Switzerland, thereby building bridges between ETH Domain researchers and clinical scientists. PHRT aims at developing and driving projects in biomedical education (doctoral and post-doctoral level), technology translation to clinical practice, and research on targeted clinical questions. The overarching goal is to evaluate and show how ETH Domain technologies can support clinical diagnosis, decision-making and treatments for the benefit of patients in the context of Precision Medicine. Understanding patients' genetic and other molecular information is essential for developing the next generation of medical decision support algorithms, targeted therapeutics as well as theranostic solutions. This effort has led already to first clinical studies where the ETH Domain technologies are tested on patients and allow a better understanding of the mechanisms underlying certain diseases.

PHASE 2: IMPROVING EACH PATIENT'S HEALTH 2021-2024

"The competitive selection process for the calls should encourage breakthrough projects that will drive Precision Medicine research in Switzerland and abroad. We are thrilled that ETH Domain institutions are part of this movement."

- Prof. Bernd Wollscheid, chair of PHRT

Future PHRT research projects will pave the way for tomorrow's medicine. In particular, the focus will be put on the development of Precision Medicine technologies, which can be implemented rapidly from bench and computer to bedside. The integration of the innovative technologies developed in the ETH Domain should help Personalized Medicine and Health to make significant progresses and to find smart solutions to unmet clinical needs in the fields of diagnosis and treatment. At the end of the PHRT funding period, Personalized Health research and Precision Medicine should be recognized widely as one of the strengths of the ETH Domain institutions.

