5th Call for Proposals for PHRT Projects: Overview
February 16, 2021

The ETH Board defined “Personalized Health and Related Technologies” (PHRT) in 2016 as one of its Strategic Focus Areas (SFA). After the first phase from 2017 to 2020, it approved in March 2020 a second phase of the program for the period from 2021-2024.

The program PHRT is focusing on core contributions by the ETH Domain institutions in the field of personalized health/medicine and personalized health technologies that are complementary to the efforts undertaken by other programs/initiatives within the ETH Domain such as the SFA Swiss Data Science Center (SDSC) and programs outside the ETH Domain such as the Swiss Personalized Health Network (SPHN). An important goal of PHRT is to put ETH Domain institutions in a position to most fruitfully collaborate with clinical (research) partners, including those from SPHN and from leading international programs.

Summary
PHRT is realizing the goals mandated by the ETH Board by supporting research projects in the field of personalized health and by supporting young scientists at the doctoral and post-doctoral level to embark on a career in personalized health. Specifically, PHRT has created several project categories: (1) education, (2) technology translation (3) technology platforms / centers / hubs, (4) personalized medicine/health research projects, and (5) pioneer multi-omics projects.

This present 5th call invites applicants to team up with partners at clinical institution to submit proposals for:
  (a) Interdisciplinary doctoral, so-called iDoc Projects,
  (b) Transition Postdoc Fellowship, so-called TPdF Projects, and
  (c) Technology Translation Projects (TT Projects).

Project proposals will be peer reviewed and successful projects will receive funding over the period of 2021-2023/4. Researchers and consortia of scientists from all ETH Domain institutions are encouraged to apply. Applicants are encouraged to submit project proposals that collaborate with the Swiss Data Science Center (SDSC).

The 6th call for proposals will be coordinated with the Swiss Personalized Health Network (SPHN) and will be published in summer 2021.

Note: the ETH Board has ruled that PHRT funds can only be received from researchers employed at an ETH Domain institution. However, there are a few, well defined exceptions, in particular “clinical services” to cover expenses of hospitals and clinical partners.

This document summarizes the general goals, scope and mode of operation of PHRT as well as the intended timeline of projects. Detailed description for each proposal type including templates can be found on the PHRT website.

The submission deadline for all proposal types is May 15, 2021.
1 The Strategic Focus Area PHRT

With the Strategic Focus Area Personalized Health and Related Technologies (PHRT), the institutions of the ETH Domain aim to establish and sustain their worldwide leading position in life science research, a field that is currently undergoing a drastic revolution. With the new approaches, today's medicine is being transformed into 'individualized medicine': in essence, a person's unique biological makeup will guide decisions on how to maintain and restore his or her health. These developments require new research approaches which frequently require expertise from different fields of research. To address these challenges PHRT is establishing projects and programs in cooperation with universities, hospitals and other initiatives in Switzerland, notably the Swiss Personalized Health Network (SPHN) and encourages interaction and cooperation between leading international personalized medicine programs.

Advances in the life sciences and information technology (IT) allow the collection and analysis of large amounts of health-related data: clinical data, genomics and other -omics data, data from biobanks and health data collected by individuals themselves. Making use of such data to optimize the medical care of each individual is the ultimate objective of personalized medicine. For the eventual assessment of projects and the PHRT program as a whole direct, successful translation of research results for the benefit of patients will be a high priority. Whereas personalized medicine focuses on individual patients, personalized health aims to use the analyzed data for the benefit of the population at large by identifying and tackling health risks at early stages and applying appropriate preventive and therapeutic measures.

1.1 Goals of PHRT

The PHRT program is concerned with technical applications, diverse types of molecular profiling (-omics technologies), information technology, statistical association methods, molecular modulation of perturbed networks, biotech and monitoring instruments, if they intend to:

1. improve the quality of healthcare delivered through earlier and better diagnosis, less invasive or more efficacious treatment options and reductions in hospital stays/rehabilitation times in patients, with or without a focus on cost reduction, and

2. select optimized therapeutic strategies for individual patients based on their specific molecular makeup or other patient-related factors. This last element is key to the characterization of medical related technology in the framework of personalized medicine.

All projects should contribute to the accumulation of clinical, medicine- and health-relevant data (e.g. in the SPHN Data Coordination Center) and exchanged (i.e. they are interoperable) with interested stakeholders. The outcome of this initiative should provide significant, direct and documentable value for patients and clinicians and foster a healthy society. Since the timeframe of the PHRT program is limited, those projects will be given preference that aim to impact clinical decisions within a short-range timeframe.

One important aspect of this program is to foster interdisciplinary collaboration between scientists/engineers and clinical researches. As an example, Technology Translation Projects (TTP) aim at maturing technologies of any kind developed within the ETH Domain to apply them in clinics. Also, the education of the next generation of researchers are supported through interdisciplinary doctoral projects (iDoc) and Translational Postdoc Fellowships (TPdF).
1.2 PHRT project types

To meet the stated goals of PHRT, projects are expected to directly impact clinical decision-making and practice within a relatively short time frame. Therefore, close collaboration between science, engineering and medicine is essential for the program and strongly encouraged. Furthermore, close interaction and collaboration with leading national programs such as the Swiss Personalized Health Network (SPHN), and international programs that pursuing similar goals in the field of personalized health is strongly encouraged.

The four project categories described below will be implemented. If applicable the project types will be implemented in coordination with SPHN and SDSC:

I. **Technology Platforms / Centers / Hubs** to generate high quality, high volume individualized molecular profiling data from patients and clinical cohorts. The generated data need to fulfil quality standards required for informing clinical decision-making. Data should be interoperable and made available via the SPHN Data Coordination Center.

Two generations of technology centers platforms are envisaged. The first generation of centers operate as a unit. The PHRT EPFL Clinical Genome Analysis Center (CGAC) hosted by the Genome Center as part of the Health 2030 initiative at Campus Biotech Geneva is together with its Zurich-based PHRT ETH Clinical Proteotype Analysis Center (CPAC) and PHRT ETH Clinical Metabotome Analysis Center (CMAC) an essential component of the PHRT multi-omics strategy for Precision Medicine. The three centers are currently digitizing larger cohorts of clinical biospecimen in a coordinated fashion to leverage this multi-omics data together with ETH domain data scientists (incl. SDSC) at the interface to the clinic in order to support clinical decision-making. The PHRT Multi-omics Center is not only generating data for clinical research, but also building up data analysis pipelines and strategies, which are essential for integrated data analysis. PHRT program applicants are strongly encouraged to integrate the PHRT Multi-omics Center if their project needs fall into this category on a fee-for-service basis. PHRT program applicants are also strongly encouraged to reach out and network with all other ETH supported technology platforms. The ETH domain institutions provide and support an excellent ecosystem of technology platforms and PHRT would like to encourage applicants to leverage these unique ETH domain assets.

Information about the ETH PHRT technology platforms can be found [here](#).

The second-generation ETH PHRT technology platforms (imaging, computational analysis) are being set up.

II. **Technology Translation Projects** intend to advance innovative technologies pioneered in the ETH Domain for clinical application. It is envisaged that some of these technologies could form the basis for second-generation platforms or complement already existing first-generation platforms in an essential way. Joint PHRT-SPHN “Technology Translation / Infrastructure Development projects” are funded via this project type.

III. **Personalized Medicine / Personalized Health Research Projects** with direct relevance for the patient. These projects can be carried out in collaboration with and jointly funded by complementary programs such as SPHN, or in partnership with clinical centers. Joint PHRT-SPHN “PM/PH Research / Driver projects” are funded via this project type.
IV. An **educational program** on the interdisciplinary doctoral and postdoc level to train the next generation of scientists in personalized health research.

V. Clinical cohort studies making use of the Technology Platforms / Centers / Hubs applying a multi-omics approach to clinical question, so-called **Pioneer Projects** (for multi “-omics” data collection and interpretation of clinical sample cohorts).

**Note#1:** PHRT has set up three **technology platforms centers / hubs** that must be used on a fee-for-service basis for PHRT and SPHN projects:

(a) Genome Sequencing and Analysis platform in Geneva (by Manolis Dermitzakis and Jacques Fellay)

(b) Mass Spectrometric Platform in Zurich (by Patrick Pedrioli, Sandra Götze and Bernd Wollscheid)

(c) Clinical Metabolome Analysis Center (CMAC) in Zurich (by Nicola Zamboni)

Each platform group has elaborated a particular mode of operation. Respective information and progress are given on the [PHRT website](#).

**Note#2:** Adherence to the current valid version of the Ethical Framework for Responsible Data Processing is mandatory to apply for PHRT funding. Applicants should consult the PHRT webpage for information about the newest version of the Ethical Framework for Responsible Data Processing.

**Note#3:** Typically, PH/PM research projects require approvals (e.g. ethics) and/or agreements (e.g. Data Transfer and Use Agreement). As rules by PHRT, all necessary documents must be **available three month after project start**. In the case of missing permissions/documents the project will be put on hold. An Overview and templates for various agreements are found of the [SPHN-DCC website](#).

**Note#4:** An important part of the project proposal will be to describe how project results can be **applied to patients** for a better understanding of disease, better diagnosis, and/or better treatment from a personalized health/medicine point of view. In case the project will not translate straight away into clinic, the clear path and timeline towards such a development must be described.

**Note#5:** Generated data must follow the [FAIR principle](#), in particular it must be re-usable and accessible. It is suggested to assess the possibility of working with already existing data.

### 1.3 Who can apply for PHRT Projects?

All scientists with a doctoral degree (postdocs only for TPdF Projects) employed by an institutions of the ETH Domain, i.e. faculty members and senior researchers employed at Empa, EPFL, ETHZ, PSI, Eawag or WSL, are eligible for PHRT funding. He/she will act as principal investigator (PI) and coordinate the consortium (if there is one).
Collaboration with “non-ETH Domain” research and/or clinical groups from universities, university hospitals and clinical institutions is highly recommended and desired. However, the ETH Board has ruled that PHRT funds can only be received from researchers of the ETH Domain and must be spent within ETH Domain institutions with a few, well defined exceptions. For each exception, a contract must be set up to regulate the service. Therefore, as a rule, with these proposals a full cost budget must be submitted indicating which parts (research groups and activities) are planned to be funded from various funding sources (PHRT - ETH Domain, SPHN - universities, university hospitals, clinical institution, own contributions, SNSF etc.). In particular cases, e.g. access to -omics or clinical data can be organized as a service via the cost category “consumables” in the PHRT budget. Proposals that bridge PHRT and SDSC or PHRT and SPHN, forming consortia with scientists, engineers and clinicians are particularly welcome. Visit also the SPHN website for more information.

1.4 Conflict of interest policy

PHRT is committed to a fair and transparent review process for submitted proposals. This includes transparent management of conflicts of interest. If a member of a PHRT committee submits a proposal, he/she will be denied access to the evaluation documents and will be obliged to withdraw from any discussions or decision-making concerning his/her proposal. In addition, a member of a PHRT committee must withdraw if he/she has a potential conflict of interest with respect to a proposal under evaluation by the relevant evaluation body.

Members of the PHRT committee must declare any reasons for withdrawal, such as:

- being co-applicant on the proposal or being referred to as a partner in a cooperation project;
- being close family or in a personal relationship with the applicant (relatives, marriage, partnership, close friendship);
- being professionally dependent on or in competition with the applicant (or have been until recently or will be in the foreseeable future);
- having published jointly with the applicant in the last five years and whereby the publication was a result of close cooperation;
- other criteria that put their impartiality in doubt.

All decisions with respect to proposal evaluation and funding will be documented in writing, conflicts of interest and absence from the discussion will be documented in the meeting minutes.

1.5 Additional information

Additional information about the ETH Domain Strategic Focus Area “Personalized Health and Related Technologies” can be found at www.sfa-phrt.ch. Please contact the Executive Director Daniel Vonder Mühll at the PHRT Office if you have any further questions:

vondermuehll@ethz.ch; 044 632 74 23
2 Scope of 5th PHRT call for proposals

In the fifth call PHRT will support doctoral student (iDoc Projects) and postdoc (TPdF Projects) projects bridging the two areas science/engineering and medicine. In addition, Technology Translation Projects (TTP) aim to bring technologies developed in the institutions of the ETH Domain into direct clinical utility.

A total of up to CHF 7.5 million is made available for education (about 15 projects) and technology translation projects (about five projects).

The submission deadline for the proposals of this fifth call is May 15, 2021.

3 Selection procedure for PHRT proposals

The selection of the proposals will be preceded by a formal check by the PHRT office. Proposals which fail to comply with the formal requirements will not be admitted to the next stage of the selection procedure and will be rejected if the defect cannot be easily remedied. The following formal requirements must be met:

- Compliance with the electronic submission deadline;
- Use of the official forms (PHRT) and completeness of the proposal, written in English;
- Eligibility of the applicant.

The interdisciplinary PHRT review panel is composed of up to 15 experts, of which half are from ETH Domain institutions and the other are scientists and experts from other institutions, primarily international.

4 Annual scientific/technical and financial reporting

The annual scientific progress as well as financial reports of each PHRT project are to be submitted to the PHRT Office once a year. The reports will be consolidated and reviewed. Financial and scientific reporting is to be provided according to defined directives.
## 5 Abbreviations

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<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>AM</td>
<td>Advanced Manufacturing (SFA of the ETH Domain)</td>
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<tr>
<td>DCC</td>
<td>Data Coordination Center of SPHN</td>
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<td>EC</td>
<td>Executive Committee of PHRT</td>
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<td>ETH Domain</td>
<td>EAWAG, Empa, ETH Zurich EPF Lausanne, PSI, WSL</td>
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<tr>
<td>iDoc</td>
<td>Interdisciplinary doctoral student Project</td>
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<td>PI</td>
<td>Principal Investigator</td>
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<td>PH</td>
<td>Personalized health</td>
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<td>PHRT</td>
<td>Personalized Health and Related Technologies</td>
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<td>PM</td>
<td>Personalized medicine</td>
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<td>SC</td>
<td>Strategic Committee of PHRT</td>
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<td>SERI</td>
<td>State Secretariat of Education, Research and Innovation (German: SBFI)</td>
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<td>SDSC</td>
<td>Swiss Data Science Center (SFA of the ETH Domain)</td>
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<td>SFA</td>
<td>Strategic Focus Area of the ETH Domain</td>
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<td>SNSF</td>
<td>Swiss National Science Foundation</td>
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