



SystemsX.ch

The Swiss Initiative in Systems Biology

4th Call for Proposals for SystemsX.ch Projects

In its *Message on Education, Research and Innovation for 2008-2011*, the Federal Council has proposed to provide funds to the SystemsX.ch initiative. This is the fourth Call for Proposals within this initiative.

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1 What is Systems Biology?

The primary objective of Systems Biology is to achieve a **comprehensive understanding of the quantitative behavior of biological systems** that arises from the dynamic interplay of its components. It is expected that Systems Biology research projects will culminate in a mathematical model that simulates *in silico* the system's properties and predicts its quantitative response to internal or external perturbations. Frequently, biological systems are represented as networks of interacting elements, whereby the structure and the dynamic behavior of the network determine its phenotypic traits. The study of biological systems in this framework requires interdisciplinary cooperation and a division of labor between biologists, medical scientists, mathematicians, physicists, computer scientists, chemists and engineers. The present Call for Proposals is based on this definition of Systems Biology.

2 What is SystemsX.ch?

SystemsX.ch is a “simple partnership”, funded by the Swiss Confederation which enables institutes, competence centers, and scientific research groups to interact and cooperate by establishing common technological platforms and sharing the data collected. The members of the partnership, i.e. the partner institutions, intend to position Switzerland among the world leaders in Systems Biology. SystemsX.ch will enhance and extend interdisciplinary research and education at the highest level in this field. It will develop and use the knowledge and tools necessary to expand our understanding of and ability to teach biology as an integrated quantitative science. It will foster the ongoing design, development, and application of advanced technology and the training of scientists and engineers in the special skills required to understand biological systems. To achieve its goals, SystemsX.ch relies on the creative talents of its scientific and professional staff and its ability to initiate and nurture partnerships between the projects associated with the program and with other academic institutions, private industry, and society.

2.1 Goals of SystemsX.ch

SystemsX.ch, the Swiss Initiative in Systems Biology, aims at:

- gathering scientific competences on a national level to establish Switzerland at the forefront of the Systems Biology research;
- setting up and developing the cutting-edge technology required for Systems Biology research;
- implementing a truly interdisciplinary research culture by assembling complementary disciplines to stimulate mutual benefits;
- establishing collaborations with the private industry and SMEs in flexible forms of public private partnership;
- educating PhD students and young researchers for the future accordingly.

2.2 Scope of 4th Call

SystemsX.ch supports projects that comply with above definition of Systems Biology. After three calls, more than 75 SystemsX.ch projects have been launched since 2008: 14 large integrated research projects (RTDs), 40 student projects (IPhDs), 21 pilot projects (IPPs), and six Bridge-to-Industry projects (BIP). This is the last call for proposals of the first SystemsX.ch phase (2008-2011). A plan for a second phase of consolidation (2012-2016) was submitted to the State Secretariat for Education and Research. It will be up to the national parliament to approve an extension allowing for further calls for proposals.

The present call encourages to submit proposals for **Interdisciplinary Pilot Projects** (for more information please see section 3.1). Also, SystemsX.ch promotes interactions between academia and industry. This is supported through either a **Bridge 2 Industry** or an **Industrial Sabbaticals in Academia** project (see section 3.2 for BIP and ISA).

2.3 All-SystemsX.ch Day: An Information Forum

The annual information event is the All-SystemsX.ch Day, to be held on November 1-2, 2010 in Geneva. The event is open to anyone interested in Systems Biology. It is a Swiss-wide networking and information exchange event, where ongoing projects and new project-ideas are presented and discussed.

It also promotes education and training opportunities in Systems Biology. A scientific poster competition for young scientists will award successful PhD students or postdocs.

Please find the program and registration info under:

<http://www.systemsx.ch/events/events/all-systemsxch-day/2010-all-systemsxch-day/>

2.4 Additional Information

Additional information is available under www.SystemsX.ch and the SystemsX.ch Management Office if you have any questions (admin@systemsx.ch 044 632 78 88).

3 Types of proposals SystemsX.ch is calling for

3.1 Interdisciplinary Pilot Projects (IPP)

As an emerging field of research, Systems Biology critically depends on new innovative impulses, many of which are expected to come from the interfaces of traditional science disciplines. SystemsX.ch will therefore support IPPs to catalyze the exploration of new research directions and ideas. These projects will bring together research teams from the different disciplines mentioned above to address high risk topics critical for Systems Biology. IPPs will be supported for one (1) year at most and are non-renewable. The funds granted cannot be used to hire PhD students. The applicants can be employed at different SystemsX.ch institutions.

The present call welcomes proposals from the whole range of systems Biology. However, SystemsX.ch encourages to submit **medical oriented IPP**-proposals in particular. The aim is to promote at least two (2) medical IPPs. This call will provide funds for up to 12 IPP Projects. The applicants will indicate whether or not their proposal is a 'medical oriented' one. Per approved IPP, SystemsX.ch will provide funding of up to 120 kCHF for personnel (no PhD students), consumables, and equipment.

3.1.1 Who May Apply for IPP Projects?

Faculty members and senior researchers of SystemsX.ch partner institutions are eligible as main applicant. The main applicant's home institution must be a member of SystemsX.ch.

3.1.2 Information to be Submitted

The IPP proposals are to be submitted using the official form (cf. [IPP Proposal and Budget Forms on the SystemsX.ch website](#): General information, budget overview and budget details) that consists of two parts:

Part 1: General Information

Part 2: Scientific Information

1. Summary (1 page)
2. International standing of the applicant in her/his field of research (1 page)
3. Research plan: state of the art, questions, methods, milestones (3-4 pages)
4. Expected impact on capacity building in Systems Biology (1 page)
5. Justification of the Systems Biology approach, significance of the planned research for the scientific community and eventual users (private industry, economy, medicine, etc.) (1 page)

Annex:

CV and publication list over the past 5 years of the main applicant.

3.1.3 Submission Deadline

The IPP proposals are to be submitted by **15 January 2011** in electronic form (PDF) to admin@systemsx.ch

It is the applicants' responsibility to ensure timely delivery of the proposal. SystemsX.ch rejects any responsibility for electronic / e-mail problems or any other problems.

3.1.4 Selection Criteria

The Scientific Executive Board (SEB) of SystemsX.ch will evaluate the IPP proposals according to the following criteria:

- Formal criteria (deadline, completeness of the proposal, eligibility of the applicants)
- Focus on clearly defined biological systems and questions
- Does the proposal describe an integrated, interdisciplinary and quantitative project?
- Does the proposal catalyze novel interactions between groups in different fields of Systems Biology?
- Does the proposal generate new data and knowledge that could not be obtained by traditionally structured projects – what is the added value?
- What are the respective contributions of the different disciplines?
- What is the standing of the principal scientists in their respective fields?
- Does the project have a realistic budget and a clear leadership structure?

In addition, the standard scientific criteria will apply:

- a) Scientific relevance and actuality of the proposal
- b) Originality of the goals
- c) Adequacy of the methodology
- d) Scientific track record of the applicants
- e) Expertise of the applicants concerning the proposal
- f) Feasibility of the proposal.

The decision will be based on scientific criteria, primarily on (1) added value to Systems Biology and (2) scientific quality.

3.1.5 Scientific and Financial Reporting

After completion of the IPP project, a scientific and financial report is to be submitted to the SystemsX.ch Management Office and evaluated by the SNSF Systems Biology Panel.

Financial reporting including own contributions from the institutions, third parties will be according to defined directives (cf. Partnership Agreement Article 38, No. 4). *All IPP projects must be completed within two (2) calendar years after their payments have been released to avoid retraction of leftover funds.*

3.2 Industry Collaboration Projects (BIP and ISA)

The SystemsX.ch SEB decided to launch two new types of calls to strengthen the incentive for academia and industry to develop Systems Biology projects/ collaborations together. These kinds of project proposals will be open for submission four times per year. The two project types are 'Bridge 2 Industry Projects' (BIP) and Industry in 'Sabbatical in Academia' (ISA). Descriptions for both of these can be found on the [SystemsX.ch website](#) along with the corresponding submission files. We encourage scientists to use these new opportunities to open opportunities with industrial partners.

3.2.1 Who may apply for BIPs and ISAs?

A BIP proposal must consist of at least one academic and one industrial partner. The academic partner must be affiliated with one of SystemsX.ch's partner institutions. An ISA must consist of at least one academic and one industrial partner. The industrial partner does not have to be Swiss or in Switzerland. The academic partner must be affiliated with one of SystemsX.ch's partner institutions.

3.2.2 Documentation to be submitted

For BIPs ([link to further information and forms](#)):

Part 1: General Information

Part 2: Scientific Information

1. Summary (max 1 page)
2. International standing of the academic and industrial applicants in her/his field of research (max 1 page)
3. Research plan: state of the art, questions, methods, milestones (max 3-4 pages)
4. Budget: funds requested from SystemsX.ch, contributions by Industry, Own Contributions (matching funds) by the Institution
5. Expected impact on Systems Biology and industrial interaction in future (max 1 page)
6. Justification of the Systems Biology approach, significance of the planned research for the scientific community and eventual users (private industry, economy, medicine, etc.) (1 page)

Annex:

CV and publication list over the past 5 years of the main applicant from academia and industry.

For ISAs ([link to further information and forms](#)):

Part 1: General information about the sabbatical person and the company

Part 2: Sabbatical plan

1. Summary (max 1 page)
2. International standing of the academic applicant in her/his field of research (max 1 page)
3. Sabbatical details: goals, scientific questions, technology and methods, milestones, timeline (max 3 pages)
4. Budget: SystemsX.ch will pay CHF 1'000 per month the sabbatical runs to cover the consumables of the industry scientist. (NO budget form required). Additional financial requests may be submitted, but require a full cost budget including contributions made by both the industry partner and the academic institution. (2 pages max.)

5. Expected impact on collaboration with this industrial partner in future (1 page)
6. Justification of the industrial collaboration being pursued

Annex:

CV and publication list over the past 5 years of the main applicants from academia and industry.

3.2.3 Selection Criteria (Rules and Regulations)

For BIPs:

The project must involve at least one research group from a SystemsX.ch partner institution. The scientific question or technique being addressed must be relevant to Systems Biology. A sound track record of the involved groups is expected. The requested SystemsX.ch funds must be matched by the industry partner. Ideally, the academic partner can also make some additional contribution to the project (in kind or in cash).

The proposal consists of a detailed project plan including goals, questions; milestones and budget (see form). Please use the BIP-form to submit the proposal by e-mail. The proposals must be jointly elaborated and submitted. Details concerning intellectual property rights should be addressed prior to submission between the academic and industrial partners.

The submitted proposals will be reviewed by the SystemsX.ch Scientific Executive Board (SEB). The SEB will decide which proposals are accepted, and how much funding shall be granted. SystemsX.ch funds cannot flow to the industrial partner. The industrial partner does not have to be Swiss or in Switzerland.

For ISAs:

An ISA must involve at least one research group from a SystemsX.ch partner institution. It may, however, involve a rotation between various labs already collaborating on a Systems Biology project to give the industrial scientist a wider range of understanding of the aims of a SystemsX.ch project(s). The sabbatical should be prepared and structured to maximize mutual benefits. The goals of the sabbatical can be either to work on specific scientific questions or to allow the sabbatical scientist from industry to be introduced and/or trained on particular methods/ technologies. Addressed goals must be relevant to Systems Biology.

The industrial scientists' salary is paid by her/his company for the duration of the sabbatical. The academic research group can make contributions in terms of disposables and lab equipment needed by the scientists during his/ her stay. To reach particular goals during the sabbatical, the academic partner may apply for up to 50% funding from SystemsX.ch for consumables etc (**no salary costs**). The planning of the sabbaticals must be jointly elaborated and submitted. Details concerning intellectual property rights should be addressed prior to submission between the academic and industrial partners.

The submitted proposals can be submitted any time via the management office and will be reviewed by the SystemsX.ch Scientific Executive Board. The SEB will decide which proposals are accepted, and how much funding shall be granted. SystemsX.ch funds can not flow to the industrial partner.

The ISA proposal must include a goals, milestones and timelines. If your project has special funding needs, please contact the Management Office.

3.2.4 Submission Deadlines

Deadlines are February 1; May 1; August 1; and November 1 of each year. The next deadline will be **November 1, 2010**. The final deadline in the first phase of SystemsX.ch calls (2008-2011) will be November 1, 2011.

4 Appendix: Abbreviations

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| BIP | Bridge to Industry Projects |
| BoD | Board of Directors (all Presidents and Rectors of SystemsX.ch partner institutions) |
| SEB | Scientific Executive Board (scientists of different Systems Biology fields & partner institutions) |
| ISA | Industrial Sabbaticals in Academia |
| MO | SystemsX.ch Management Office |
| IPP | Interdisciplinary Pilot Project |
| IPhD | Interdisciplinary PhD Project |
| SNSF | Swiss National Science Foundation |
| SER | State Secretary for Education and Research |
| SUK/CUS | Swiss University Conference |