



## 2014 call for proposals

### Research projects in the field of multidisciplinary approaches in modeling complex biological processes applied to cancer field (Systems biology)

*The Cancer ITMO of the French National Alliance for Life and Health Sciences (AVIESAN), in collaboration with the Institut National du Cancer (French National Cancer Institute) and Inserm, implements the research section of the cancer plan; the budget allocated to the various actions (call for proposals, call for applicants, support for cohorts, integrated platforms and research centers, etc.) is about €27M in 2014.*

#### On-line submission:

[https://www.eva2.Inserm.fr/EVA/jsp/AppelsOffres/CANCER/BS/index\\_F.jsp](https://www.eva2.Inserm.fr/EVA/jsp/AppelsOffres/CANCER/BS/index_F.jsp)

Deadline: **January 21, 2014**

Contact: [plancancerbiosys@inserm.fr](mailto:plancancerbiosys@inserm.fr)

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## **Developing multidisciplinary approaches in modeling complex biological processes in the field of cancer (systems biology).**

### **1. Context and objectives of the call for proposals**

Systems biology is a biology-based interdisciplinary field of study that focuses on the relation and interactions within biological systems (organism, cells, normal and pathological signal transduction, metabolism, network of genes and proteins allowing the communication of cells). One of the aims of systems biology is to propose a model of the big functions at the cellular, tissues or the organism level in a physiological or pathological situation. The proposed model will be confirmed by experimental approaches using tools from the experimental biology to the clinical observation.

This call for projects whose aim is to develop multidisciplinary approaches to modeling complex process fits into the continuity of the Cancer Plan 2009-2013. It is organized by the Cancer ITMO of the French National Alliance for Life and Health Sciences (Aviesan) in collaboration with INCa (French National Cancer Institute). The operational management has been entrusted to Inserm.

The general objective of this call for proposals is to support multidisciplinary upstream research (mathematics, physics, chemistry, computers, biology, etc.), in order to make progress toward modeling of complex processes or integrative biology, in the field of cancer. It must in particular allow for the development of multidisciplinary integrated teams that interact with clinicians, anathomopathologists and biologists in the field of cancer.

### **2. Scope of the call for proposals**

This call for proposals covers any model integrating molecular and cellular data to the clinical response (predicting the survival of patients). Any model that addresses the various intermediate steps in the continuum will be considered.

The proposals must fall within a multi-scale integration which, using the analysis of pre-clinical data, will lead to predicting the clinical response, therapeutic evaluation, modeling tumors on a macroscopic and cellular level in order to understand the cellular development and proliferation of it, by integrating the signaling pathways and the cellular interactions. Their ambition is to understand the development, growth and changes in tumors and response to the treatment. They should make it possible at an earlier stage to adjust a therapeutic choice by including inter-individual variability.

To implement them, projects will have to call upon multi-disciplinary consortia. The modeling proposed will have to be validated experimentally, making it possible to refine the models.

The following fields are clearly eligible:

- Modeling the major signaling pathways involved in tumor progression incorporating a specific cellular context,
- Modeling the tumor micro-environment and cellular interactions,
- Development of tools and methods for integrating high-throughput data around biological networks (especially large-scale sequencing data, e.g. ICGC, 1000 genome project),
- Development of tools for quantifying cellular mechanisms,
- Multi-level analysis of data of tumor profiles (genome, epigenome, transcriptome, proteome, metabolome, and cellular and clinical phenotypes),
- Modeling interaction networks for predicting therapeutic targets,
- Modeling the pharmacology of multi-scale molecular systems (PK-PD) for antineoplastic drugs and their associations in combined therapies, whether or not targeted,
- Modeling of possible new molecular targets for pharmacological research,
- Analytical and digital optimizing (algorithmic) of pharmacotherapeutic control,
- Modeling the response or resistance to treatments,
- Modeling the role of malignant stem cells,
- Modeling the cellular adaptive dynamic (modeling the change in tissues toward malignancy),
- Modeling the diagnosis, monitoring, response to treatments and population analysis for an individual estimation,
- Developing models using image or biological "data" that is proper to the patient.

The following are out of scope:

- Projects concerning bioinformatics platforms,
- Clinical trial projects,
- Projects devoted to traditional imaging approaches,
- Taking the psycho-sociological factors into account in oncology (for which there is a specific call for projects).

### **3. Participation particulars**

#### **3.a. Duration of the projects**

The projects may have a duration of 12 to 36 months and it will begin in 2014.

### 3.b. Eligible teams

The projects shall therefore associate at least two teams that belong to different research units and/or bodies.

✚ The teams shall belong to the following bodies:

- Public research bodies (EPST (French Public Establishments for Scientific and Technological Research), EPIC (French Public Industrial and Commercial Establishment), etc.);
- Higher education institute (University, schools, etc.);
- Research foundations;
- Healthcare institutions;
- Other bodies that work in the area of research.

✚ The participation of industrial partners and/or foreign teams is possible as long as the latter provide their own financing in the project.

### 3.c. Coordinator

For each project submitted, the participating teams shall designate a scientific coordinator for the project. In addition to his or her scientific and technical role, the coordinator is responsible for setting up the procedures for the collaboration between the participating teams, for the production of the required documents (reports and assessments), holding meetings, the progress and the communication of results.

The project coordinator must be:

- **A permanent member** of a public research organization or of a higher public education institute
- involved **at least 30%** of their time in the project.

Applications from early-stage investigators are strongly encouraged.

### 3.d. Management body

For each project submitted, the participating teams shall designate their management body to receive the funding (which can be different from the body that the coordinator belongs to). The bank information (Relevé d'Identité Bancaire) will be included to the application file.

The management body is contractually liable to Inserm for implementing the contract, forwarding all of the financial and scientific reports provided for in the agreement.

For projects that involve several teams that belong to different bodies, and which benefit from a portion of the funds awarded, each management body shall sign an agreement concluded with Inserm.

The management body of the project coordinator must not be an association.

#### **4. Criteria for eligibility and project evaluation**

After the eligibility criteria have been verified, the application files are submitted for written evaluation by international experts and two referees from the evaluation committee, the members of which cannot be involved in the projects. Projects that do not meet the eligibility criteria shown in point 4a will not be evaluated.

After publication of the list of projects selected, the membership of the evaluation committee will be posted on the EVA website of Inserm. The opinions of the committee and experts will be sent at the request of the project coordinator.

##### **4.a. Criteria for eligibility**

In order to be eligible, the projects must satisfy the following conditions:

- The application file must be duly completed and include the required documents, and comply with the submission procedures mentioned in point 7,
- The project must meet the objectives of this call for proposals and fall within one of the identified fields,
- The project must have a duration that is compliant with the duration mentioned in point 3.a,
- A calendar of key stages must be presented. This calendar will be the primary element for monitoring results,
- The project coordinator must spend at least 30% of his/her time on the project.

##### **4.b. Criteria for evaluation**

- Innovation and development:
  - Innovative nature (strategy, concept, technology, etc.),
  - Perspectives in terms of later developments.
- Scientific qualities:
  - Project relevance and originality,
  - Positioning of the project in the national and international context,
  - Clarity of the objectives.
- Coordinator and participating teams:
  - Skills of the coordinator in his/her discipline (applications from early-stage investigators are encouraged),
  - Complementarity and/or multidisciplinary of the various teams associated with the project,

- Organization of the collaboration between the candidate teams, scheduling for the production of summary documents, holding meetings for follow-up and for putting the results into form.
- Methodology and feasibility:
  - Methodological pertinence,
  - Project environment (human resources, host structure),
  - Credibility of the project's calendar and of the funding requested.

## **5. Provisions for funding**

### **5.a. General methods**

Financing is awarded for the duration of the project (12 to 36 months). The amount requested must be duly justified and consumables fees, small equipment and recruitment of personal will be described in detail.

The funding awarded to each project shall be provided in the form of a non-refundable grant within the framework of an agreement between Inserm and the management body designated in the application file.

The minimum amount requested by a successful group must be over €25,000.

The Inserm grant can be used to finance:

- Equipment (< €50,000 exc. tax),
- Post-doctoral researchers,
- Missions,
- Provisions of service,
- Operations and various scientific consumable items,
- Personnel costs for temporary staff and post-doctoral researchers; Management costs, for a maximum of 4% of the grant awarded by Inserm. (teams which are managed by Inserm will not include management costs).

**Funding of PhD students is not allowed in this call for proposals.** An annual call for applicants intended for training physicians, dentists, pharmacists and veterinarians via research on translational research projects is open to doctoral students (opening in December 2013 with taking up duty in the fall of 2014).

For private law establishments, personnel holding open-ended contracts assigned to the research project and for whom funding is requested in the strict framework of conducting the research project is authorized.

Budgetary items except for the "personnel" item shall be fungible during the execution of the project, after approval obtained from Inserm.

### **5.b. Methods for funding associations**

Management via an association cannot be retained unless it can justify research activity.

Funding for not-for-profit associations is not, save for some exceptions, authorized; public research teams that are attached to a public body or entity must have their grant managed by the public body they are attached to or by one of the joint authorities of their structure.

Associations in difficulty are not eligible for funding allocated within the framework of the Cancer Plan. Inserm will therefore ensure, for all of the projects selected and funded by the Institute and at the end of the selection process that any partner associations in the research project are not in this situation. Likewise, Inserm will make sure of the association's ability to fund the counterpart of the work remaining at their expense. Inserm will therefore ensure for all of the projects funded by Inserm at the end of the selection process any partner associations in the research project are able to fund the portion of the work that is not covered by the grant from Inserm.

Associations selected for funding can be called on, during the finalization phase of the administrative and financial aspects, to provide any additional items for assessment.

## **6. Calendar of the call for proposals**

<b>Publication date for the call for proposals</b>		<b>September, 2013</b>
<b>Opening of the proposal submission website:</b>		<b>December 10, 2013</b>
<b>Deadline for submitting application files</b>	Electronic submission of the complete application file <b>and</b> Paper copy (including 1 original) sent by the post	<b>January 21, 2014</b>
<b>Tentative meeting date for the evaluation committee:</b>		<b>April 2014</b>
<b>Tentative date for publishing the results:</b>		<b>May 2014</b>

## **7. Submission procedure**

### **7.a. Electronic submission procedure**

Website: [https://www.eva2.Inserm.fr/EVA/jsp/AppelsOffres/CANCER/BS/index\\_F.jsp](https://www.eva2.Inserm.fr/EVA/jsp/AppelsOffres/CANCER/BS/index_F.jsp)

This submission procedure, using the EVA website of Inserm, includes:

- Identification of the candidate (last name, first name and email),
- The administrative portion which is a form to be completed online,
- Filing via uploading the requested documents (scientific document, financial appendices and the CV of the project coordinator and heads of the participating teams).

**Submission deadline: January 21, 2014**



It is strongly recommended that you do not wait until the proposal closing deadline to submit your project proposal.

### 7.b. Application file

The application file must include all of the elements that are required and needed for the scientific, technical and financial evaluation of the project. It is recommended that a scientific and technical description of the project proposal be provided in English. In the event the scientific and technical description is written in French, a translation into English may be requested within a timeframe that is compatible with the evaluation process deadlines.

The complete dossier is submitted in electronic format and in paper format.

Both formats are identical except for the signatures which will be required only on the original paper version.

### 7.c. Paper format

Two copies of the application file including 1 original signed by the persons in charge (management body + scientific coordinator of the project), and sent to the following address:

Inserm – DESP  
Plan Cancer – AAP « Biologie des systèmes »  
101, rue de Tolbiac  
75013 Paris

**Submission deadline: January 21, 2014 (submission date based on the postmark)**

## **8. Publication of the results**

The list of projects funded will be published on the EVA website of Inserm. For these projects, the abstract will be published later; each applicant will be contacted in order to confirm the content or provide a publishable version.

Results will be communicated in writing to the coordinators and to the legal representatives of the management bodies.

## **9. Contacts**

For further information, please contact:

- for scientific and technical aspects: [plancancerbiosys@inserm.fr](mailto:plancancerbiosys@inserm.fr)
- for administrative and financial aspects: [plancancer.daf@inserm.fr](mailto:plancancer.daf@inserm.fr)

Please do not hesitate to refer to the application guide.