Domaine d’Intérêt Majeur (DIM)

Empowering LIfe sCiences with Innovative Technologies (ELICIT)

Call 2019

Equipment support for the development of innovative technologies to support research in Life Sciences

This call will be open from the 25th of July 2019 to the 15th of October 2019.

Applications will have to be sent to dim.elicit@pasteur.fr.We will acknowledge the receipt of all the applications within a month.

Projects will have to be written in English.

More details about DIM ELICIT philosophy and objectives on:

<https://dim-elicit.fr/>

We are trying to provide clear information on the eligibility criteria in the call description. However, we will be happy to answer further questions and help you check the eligibility of your project prior to the submission. For any question, please contact:

dim.elicit@pasteur.fr

or

axel.bonetto@pasteur.fr (01.45.68.82.26)

Table of contents

**Call description**

[1. Aims 3](#_Toc14453766)

[2. Call design 3](#_Toc14453767)

[3. Eligibility criteria 6](#_Toc14453768)

[4. Awards 6](#_Toc14453769)

[5. Core technologies 7](#_Toc14453770)

[6. End-user applications 7](#_Toc14453771)

[7. Selection process and Evaluation criteria 8](#_Toc14453772)

**Application Form**

[1. Type of project 9](#_Toc14453773)

[2. Thematic axis 9](#_Toc14453774)

[Core Technologies 9](#_Toc14453775)

[End-user applications: 9](#_Toc14453776)

[3. Teams 9](#_Toc14453777)

[Technology team or Fabrication team 9](#_Toc14453778)

[Application team 1 or User team 1 10](#_Toc14453779)

[Application team 2 or User team 2 10](#_Toc14453780)

[Application team 3 or User team 3 10](#_Toc14453781)

[Associated company (if relevant) 11](#_Toc14453782)

[Short description of the company and of its implication in the project: 11](#_Toc14453783)

[4. History of collaboration 11](#_Toc14453784)

[5. Publications 11](#_Toc14453785)

[6. Scientific description of the project 12](#_Toc14453786)

[Abstract (French) 12](#_Toc14453787)

[Abstract (English) 12](#_Toc14453788)

[Description of the project 12](#_Toc14453789)

[Technology readiness level 12](#_Toc14453790)

[Economic potential impact and strategy of Tech Transfer 13](#_Toc14453791)

[Adequacy with the DIM ELICIT objectives 13](#_Toc14453792)

[7. Resources that will be available to achieve the scientific project 13](#_Toc14453793)

[Persons involved in the project 13](#_Toc14453794)

[Equipment expected to be used in the project 14](#_Toc14453795)

[8. Additional information for equipment 14](#_Toc14453796)

[Total cost of the equipment 14](#_Toc14453797)

[Amount of funding requested 14](#_Toc14453798)

[Co-funding plan 14](#_Toc14453799)

[Host institution (Equipment) 14](#_Toc14453800)

[Equipment localization 14](#_Toc14453801)

[Envisioned date of equipment purchase 15](#_Toc14453802)

[Equipment list 15](#_Toc14453803)

[9. Signatures 15](#_Toc14453804)

Call description

## Aims

**The aim of this call is to promote the emergence of innovations able to address the market of instruments and technologies for Life Sciences (with potential dual applications in healthcare, agronomy or other industrial sectors), in the mid-term.**

This Call aims at supporting interdisciplinary collaborative research projects that will combine:

* Implementation of disruptive technologies or methods in biology, the disruptiveness criteria being assessed regarding their impact and transformative nature;
* Integration in the industrial value-added chain, in particular in Ile-de-France, in the area of Technologies for Life Sciences either through future tech transfer or start-ups creation.
* Integration in an open access environment for Life Sciences research teams.

## Call design

Three kinds of initiative **detailed below** will be fund in the context of this call:

1. Co-development of innovative technologies and methods;
2. Dissemination of new technologies or methods for new applications in Life Sciences (noncommercial methods and/or instruments);
3. Provide technologic platforms with prototyping/manufacturing devices to develop new innovative technologies or methods for research in Life Sciences.
4. **Co-development of innovative technologies and methods**

*This call has been designed to set up innovative/disruptive technologies which will benefit the Life Science community.*

**We will fund exclusively collaborations between:**

* **At least** one academic research team from the Region Ile de France working on the creation & development of devices or methods, according to the 3 Core Technologies of the DIM (Microfluidics, Biophotonics and waves, Image analysis and Big Data)

**AND**

* **At least** one academic research team from the Region Ile de France in biology, within the application axis of the DIM ELICIT (see section 6)

The two major partners are encouraged but not required to come from two different institutes.

Additional teams can participate to the project to bring additional specific expertise without geographic limitation. Start-ups and companies can also be associated to the project without geographic limitation.

Please note that the following **examples of consortia are NOT eligible**:

* Co-development with an industrial partner as one of the two major partners (Tech or Biology) 🡺 non-eligible
* Co-development between only several technology partners 🡺 non-eligible
* Co-development between only several biology/biochemistry partners 🡺 non-eligible
* Co-development between several members of the same lab with different expertise 🡺 non-eligible

**Important criteria**

A clear statement of the **economic impact of technologies** and methods to be developed will be asked as part of the application. This aspect being an important part in the evaluation, project leaders are asked to write this part with their tech transfer department (SATT, internal departments…).

Proof of concept or development of technologies/methods close to industrial applications are encouraged.

1. **Dissemination of new technologies or methods for new applications in Life Sciences (noncommercial methods and/or instruments)**

*This call has been designed to support the establishment of competitive technology platforms and to introduce relevant prototypes in biological research environments.*

**We will fund collaborations between:**

* At least one academic research team or academic technologic platform from the region Ile de France working on the creation of devices or methods, according to the 3 Core technologies of the DIM (Microfluidics, Biophotonics and waves, Image analysis and Big Data). This team – the “Technology Team” - will set up an innovative instrument and will lead the action of dissemination;

**AND**

* At least 2 additional academic research teams -“Application teams”- from the region Ile de France working on applied biology which will demonstrate the competitive advantages brought by the new technology/methods for their research. The research should fit in the scope of one of the 4 End-user applications axis of the DIM ELICIT (see section 6).

Participation of research teams belonging to different institutes are encouraged. A start-up company can be associated to the project.

**We will consider projects proposing:**

* The duplication in a biology environment of an existing noncommercial prototype previously developed by the Technology Team;
* The adaptation by the Technology Team of an existing prototype to fit specific applications and its implementation in the end-user environment.

**Important criteria**

The Technology Readiness Level (TRL) expected for this call is higher than for the Co-Development call. We will not consider totally new/invalidated technologies. A preexisting publication or patent of the technology team showcasing the technology is a must.

The envisioned equipment can be manufactured by a private third party under the supervision of the Technology Team.

**Some examples regarding eligibility:**

* Development by technology partner of an add-on/adaptation to a technology commercialized by a spin-off company of the lab, and dissemination in at least 2 laboratories 🡺 eligible, and highly favored if said spin-off is based in the Region Ile de France
* Development by technology partner of an add-on/adaptation to a technology commercialized by a third party, and dissemination in at least 2 biology laboratories 🡺 eligible only if the company express interest on the commercialization of the new technological developments (letter to be provided with the application)
* Development of new protocols on a commercially available device, without modification of the device 🡺 non-eligible
1. **Provide technologic platforms with prototyping/manufacturing devices to develop new innovative technologies for research in Life Sciences**

*This call has been designed to purchase pertinent prototyping/manufacturing devices that will allow research teams to design projects in Life sciences through original and innovative technologic components.*

**We will fund collaborations between:**

* At least one academic technologic/microfabrication platform from the region Ile de France working on the creation of devices or methods, according to one of the 3 Core technologies of the DIM (Microfluidics, Biophotonics and waves, Image analysis and Big Data). This team – the “Fabrication Team” - will set up a prototyping/manufacturing device and will lead the action of design/production;

**AND**

* At least 3 additional academic research teams -“User teams”- from the region Ile de France working on developing technologies for biology which will demonstrate the competitive advantages brought by the device for their research. The research should fit in the scope of one of the 4 End-user applications axis of the DIM ELICIT (see section 6).

**Important criteria**

A precise description of the impact of the device to purchase on the different research projects envisioned will be asked on the application. These research projects will have to fit with one or several of the End-user applications axis.

**Some examples:**

* Micromilling machine
* 3D printers
* Litography device for microfluidics

## Eligibility criteria

Any research team from the region Ile de France can apply with a project in line with the aims, positioning and thematic axes of the DIM.

A researcher can only coordinate one project within the framework of this call but can be partner in other projects.

The proposed project should not have been previously supported by another DIM, the SESAME program, a program from the Genopole or a collaborative project from a competitive cluster.

## Awards

In the context of this call, the DIM ELICIT will fund for each project equipment purchase(66% max of total cost without VAT) with a maximal participation of 300k€ from DIM ELICIT.

We will not fund:

* Academic teams out of the region Ile de France
* Start-up and companies.

## Core technologies

* **Microfludics**: micro droplets, lab-on-chip, organ-on-chip, 3D printing, surface patterning, low-cost technologies (paper microfluidics), submicrometric scale microfluidics, nanofluidics…
* **Biophotonic and waves**: acoustic and electromagnetic waves, super-resolution, associated sensor technologies, multiphoton microscopy, visible spectroscopy, terahertz spectroscopy, Raman, innovative probes (nanoparticles, nanosensors, ...), ontogenetic, adaptive optics, photoablation and stimulation, emission tomography positron ...
* **Image analysis and Big Datas:** compressive sensing, tracking, localization, digital pathology, statistical analysis, spatial analysis, harmonic analysis, optimization, automation, deep learning, cloud software deployment, augmented and immersive visualization ...

## End-user applications

* **Single Cell, single molecule**: technology development to manipulate and to analyze single cell and single molecule in order to understand biological phenomena involved in heterogeneous populations (eg a subset of cells resistant to chemotherapy in a tumor). The ability to act / manipulate before the analytic phase is critical. Breakthrough results are expected with this type of method in immunology, developmental biology, cancer ...
* **Organ on chips:** In order to outperform more and more animal models, these technologies will have to fully mimic biology of tissues and organs (3D aspects, signaling, mechanobiology…). Key applications would be models to understand diseases development, toxicology assessment, drug screening…
* **Technologies for *in vivo* biology:** Animal models remain an essential and critical step to understand complex phenomena such as drug metabolism, psychiatric diseases, or tumors’ development in an organism. Thus, it is essential to rationalize the use of these models through a more and more accurate and efficient extraction of data from these experiments (ad hos microscopy devices, implanted and connected sensors…)
* **High Tech – Low Cost technologies**: Disruptive technologies to ensure affordable access to manipulation and analysis tools of biologic systems in low resources contexts like in developing countries (Low-cost “point of care” diagnosis, low-cost microscopy…)

## Selection process and Evaluation criteria

Project selection will be organized by the [DIM ELICIT Steering Committee](https://dim-elicit.fr/dim-elicit/) and will be based on external evaluations.

Results will be announced in December 2019.

Applications will be assessed according to the following evaluation criteria:

* Innovation and originality of the proposal
* Scientific quality, implementation, timeline
* Competitive positioning
* Adequacy of resources with the proposed project
* Economic impact and tech transfer potential and perspectives

Application form

**Acronym and title of the project**

# Type of project

|  |  |
| --- | --- |
|  | *A-* Co-development of innovative technologies and methods |
|  | *B-* Dissemination of new technologies or methods for new applications in Life Sciences (noncommercial methods and/or instruments) |
|  | *C-* Provide technologic platforms with prototyping/manufacturing devices to develop new innovative technologies or methods for research in Life Sciences |

# Thematic axis

Core Technologies: Tick the dominant box

|  |  |
| --- | --- |
|  | *Microfluidics* |
|  | *Biophotonics and waves* |
|  | *Image analysis and Big Data* |

End-user applications: Tick the dominant box

|  |  |
| --- | --- |
|  | Digital Biology : single-cell and single-molecule analysis |
|  | Organ-on-chips |
|  | Technologies for in vivo biology |
|  | High Tech at Low Cost |

## Teams

*Teams will have to work in different labs but can belong to the same research institute/structure.*

*Please do not mention more than 5 research teams in biology (Application Teams)*

### **Technology team or Fabrication team**

|  |  |
| --- | --- |
| Name of the PI |  |
| Email |  |
| Phone number  |  |
| Lab’s name, number and address  |  |
| COMUE’s name  |  |

Short description of the laboratory:

(Max 10 lines)

|  |
| --- |
|  |

### Application team 1 or User team 1

|  |  |
| --- | --- |
| Name of the PI |  |
| Email |  |
| Phone number  |  |
| Lab’s name, number and address  |  |
| COMUE’s name  |  |

Short description of the laboratory:

(Max 10 lines)

|  |
| --- |
|  |

### Application team 2 or User team 2

|  |  |
| --- | --- |
| Name of the PI |  |
| Email |  |
| Phone number  |  |
| Lab’s name, number and address  |  |
| COMUE’s name  |  |

Short description of the laboratory:

(Max 10 lines)

|  |
| --- |
|  |

### Application team 3 or User team 3

|  |  |
| --- | --- |
| Name of the PI |  |
| Email |  |
| Phone number  |  |
| Lab’s name, number and address  |  |
| COMUE’s name  |  |

Short description of the laboratory:

(Max 10 lines)

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|  |

### **Associated company** (if relevant)

|  |  |
| --- | --- |
| Person in charge  |  |
| Email |  |
| Phone Number |  |
| Company’s address |  |

### Short description of the company and of its implication in the project:

(Max 15 lines)

|  |
| --- |
| The company should provide a letter demonstrating its interest in commercializing new results, ideally signed by an executive of the company. |

## History of collaboration

Have the teams already worked together?

|  |  |  |  |
| --- | --- | --- | --- |
| Yes |  | No |  |

If yes, on which occasion? Please describe

|  |
| --- |
|  |

## Publications

Recent publications related to the project ( max 3 per team)

|  |
| --- |
|  |

## Scientific description of the project

### **Abstract (French)**

(Max. 10 lignes)

|  |
| --- |
|  |

### **Abstract (English)**

(Max. 10 lignes)

|  |
| --- |
|  |

Description of the project*:* state of the art, objectives, time table, description and figures, deliverables and project plan, innovative aspects, description of scientific projects to be conducted on the technology

For each piece of equipment requested, please specifically describe and justify it:

(Max. 4 pages + ½ page per Application Team, Times 11)

|  |
| --- |
|  |

### **Technology readiness level**

(Max 0,5 page, Times 11)

Please comment on the envisioned time to start-up creation/tech transfer after the completion of the project.

You can use the positioning in the Technology Readiness Level scale of the European Commission.

|  |  |
| --- | --- |
| **Technology Readiness Level** | **Description** |
| TRL 1. | Basic principles observed |
| TRL 2. | Technology concept formulated |
| TRL 3. | Experimental proof of concept |
| TRL 4. | Technology validated in lab |
| TRL 5. | Technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) |
| TRL 6. | Technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies) |
| TRL 7. | System prototype demonstration in operational environment |
| TRL 8. | System complete and qualified |
| TRL 9. | Actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies; or in space) |

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### Economic potential impact and strategy of Tech Transfer

(Max 0,5 page, Times 11)

Inputs of your patent office / tech transfer office are very recommended

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### **Adequacy with the DIM ELICIT objectives**

(Max 0,5 page, Times 11)

|  |
| --- |
|  |

## Resources that will be available to achieve the scientific project

### Persons involved in the project

Please demonstrate that the human resources are adequate to run the project smoothly.

|  |  |  |
| --- | --- | --- |
| Name | Position | Percentage of implication |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

### Equipment expected to be used in the project

List the equipment the equipment that will be used in the project, except the one that will be purchased.

|  |
| --- |
|  |

## Additional information for equipment

###

### Total cost of the equipment

|  |  |
| --- | --- |
|  | € HT  |

### Amount of funding requested

|  |  |
| --- | --- |
|  | €  |

|  |  |
| --- | --- |
|  | % total cost |

You shall respect the maximum rate of 66% and a maximum amount of 300k€.

###

### Co-funding plan

Please indicate the amount and the percentage of implication of each co-funder.

NB: Co-funding letters signed by a qualified person will be asked to laureates before the signature of the funding agreement.

|  |
| --- |
|  |

### Host institution (Equipment)

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| --- |
|  |

### Equipment localization

|  |  |
| --- | --- |
| Laboratory : |  |
| Site : |  |

### Envisioned date of equipment purchase

|  |
| --- |
|  |

### Equipment list

Please include quotes

For internal developments assembling components into a device, no quote for small parts (< 1000 euros/piece) is required

|  |
| --- |
|  |

## Signatures

**Technology/Fabrication Team**

|  |  |
| --- | --- |
| First name, surname  |  |
| Position  |  |
| Location |  |
| Date  |  |
| Signature |   |

**Application/User team 1**

|  |  |
| --- | --- |
| First name, surname  |  |
| Position  |  |
| Location |  |
| Date  |  |
| Signature |   |

**Application/User team 2**

|  |  |
| --- | --- |
| First name, surname  |  |
| Position  |  |
| Location |  |
| Date  |  |
| Signature |   |

**Application/User team 3**

|  |  |
| --- | --- |
| First name, surname  |  |
| Position  |  |
| Location |  |
| Date  |  |
| Signature |   |

…