

FINAL RESUME ON THE RESEARCH UNIT
4CS - Channels and Connexins in Cancers and Stem
Cells

UNDER THE SUPERVISION OF THE
FOLLOWING INSTITUTIONS AND RESEARCH
BODIES:

Université de Poitiers
Centre National de la Recherche Scientifique - CNRS

EVALUATION CAMPAIGN 2020-2022
GROUP B

Report published on August, 23 2021



In the name of Hcéres¹:

Mr Thierry Coulhon, President

In the name of the experts committee²:

Mr Jean-Yves Le Guennec, Chairman of the
committee

Under the decree No.2014-1365 dated 14 November 2014,

¹ The president of Hcéres "countersigns the evaluation reports set up by the experts committees and signed by their chairman." (Article 8, paragraph 5);

² The evaluation reports "are signed by the chairman of the experts committee". (Article 11, paragraph 2).

Tables in this document were filled with certified data submitted by the supervising body on behalf of the unit.

UNIT PRESENTATION

| | |
|--|--|
| Unit name: | Channels and Connexins in Cancers and Stem Cells |
| Unit acronym: | 4CS |
| Current label and N: | ERL 7003 / EA 7349 |
| ID RNSR: | 201420820Z / 201822751F |
| Application type: | Restructuration |
| Head of the unit (2020-2021): | Mr Bruno Constantin |
| Project leader (2021-2025): | Mr Bruno Constantin |
| Number of teams: | 1 |

EXPERTS COMMITTEE MEMBERS

| | |
|------------------|--|
| Chair: | Mr Jean-Yves Le Guennec, Université de Montpellier (representative of CNU) |
| Experts : | Ms Véronique Maguer-Satta, CNRS, Lyon (representative of CoNRS) Ms Émilie Pocachard Pallesi, INSERM, Marseille (supporting personnel) Mr Albrecht Schwab, University of Münster, Germany Mr Mathieu Vinken, Vrije University, Brussels, Belgium |

HCÉRES REPRESENTATIVE

Mr Clair-Yves Boquien

REPRESENTATIVES OF SUPERVISING INSTITUTIONS AND BODIES

Mr Yvan de Launoit, CNRS
Mr Yves Gervais, Université de Poitiers
Mr Ludovic Hamon, CNRS
Mme Carina Prip-Buus, CNRS

INTRODUCTION

HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

The STIM laboratory has a long history in the field of physiology, more specifically in the study of ion channels and ionic homeostasis. The unit is located in the south campus of the Faculty of Fundamental and Applied Sciences in the building *Pôle Biologie Santé*. It is presently organized in three teams, one having both affiliations to CNRS and University of Poitiers (4CS), the two others being only affiliated to the University (TIME and TIRC). One research group is located in the University of Tours. Beside these teams, there is a cooperative laboratory that develops R&D at the interface between the unit and a start-up that emerged from the laboratory. The three teams will dissociate from each other for the next contract, TIME and TIRC forming the PRÉTI unit under the supervision of University of Poitiers and the 4CS team becoming a mono-team unit with both the University of Poitiers and CNRS as supervising bodies, respectively.

RESEARCH ECOSYSTEM

The STIM unit shares the building *Pôle Biologie Santé* with five other research units. Platforms used by the unit (animal, microscopy and imaging facilities) are located in the vicinity of the laboratories of the *Pôle Biologie Santé*. The unit is also located near the Faculty of Medicine and Pharmacy that facilitates collaborations with clinicians. One of the researchers of the unit is the director of the imaging platform. The start-up Conic-Meds originates from the laboratory and is directed by one of the members of the unit. The unit is also at the origin of the creation of a collaborative laboratory that develops R&D inside the unit with its know-how and facilities.

HCÉRES NOMENCLATURE AND THEMATICS OF THE UNIT

The laboratory depends on the following subdomains:

SVE5:

SV5_1

SV5_2

SV5_3

The research topic of the team 4CS of the STIM unit that will constitute 4CS is ion transporters (ionic channels and connexins) in invading tumor cells as well as in normal and cancer stem cells.

MANAGEMENT TEAM

The director of the STIM unit is Mr Bruno Constantin (research director at CNRS) helped by a deputy director, Ms Valérie Coronas. He will be the director of the 4CS unit. She advises the director on the scientific strategy and for representing him in its absence. The management team is assisted in the governance of the unit by a direction committee constituted by the director, the deputy head and the heads of the teams.

UNIT WORKFORCE

| Active staff | Number 06/01/2020 | | Number 01/01/2022 |
|---|-------------------|-----|-------------------|
| | STIM | 4CS | 4CS |
| Full professors and similar positions | 7 | 2 | 2 |
| Assistant professors and similar positions | 16 | 6 | 4 |
| Full time research directors (Directeurs de recherche) and similar positions | 4 | 1 | 1 |
| Full time research associates (Chargés de recherche) and similar positions | 1 | 1 | 1 |
| Other scientists ("Conservateurs, cadres scientifiques des EPIC, fondations, industries, etc.") | 0 | 0 | 0 |
| High school teachers | 0 | 0 | 0 |
| Supporting personnel (ITAs, BIATSSs and others, notably of EPICs) | 14 | 9 | 10 |

| | | | |
|---|-----------|-----------|-----------|
| Permanent staff | 42 | 19 | 18 |
| Non-permanent professors and associate professors, including emeritus | 0 | 0 | |
| Non-permanent full time scientists, including emeritus, post-docs (except PhD students) | 0 | 0 | |
| PhD Students | 7 | 3 | |
| Non-permanent supporting personnel | 4 | 1 | |
| Non permanent staff | 11 | 4 | |
| Total | 53 | 23 | 18 |

GLOBAL ASSESSMENT OF THE UNIT

The 4CS unit possesses a unique nationally recognized expertise in the field of ion channels and calcium in oncology and stem cells research. The unit combines basic research with an ambition of a transfer of their discoveries into clinical applications. Locally, the unit participates to the local research structuration by running several core facilities.

4CS published 44 articles, of which sixteen with first/last and corresponding authorship in mainly very good to excellent journals such as *Stem Cells*, *Cancer*, *Journal of Controlled Release* and 23 reviews, some in high-profile journals (*Nature Reviews Cancer*).

The fundraising capacity of the unit was important but fund was mainly obtained at the local (Région, open calls from universities) and national level (research foundations and charities) except the coordination of a FEDER European project Calscreen and no major grants were obtained from international or national major agencies or participation in national excellent programs.

Even if some members of the unit are internationally recognized, the international visibility of the unit could be further improved by publishing more in high-profile or generalist journals considering the quality and unique expertise of the unit, applying to international funding agencies, recruiting foreign postdoctoral fellows and participating to international training/courses and international student exchanges.

The interaction with the socio-economic world is illustrated by one patent not yet licensed and several contracts with pharmas. Reflecting its attractiveness, the unit attracted one CNRS researcher.

The unit provided successful training for their PhD students with a mean PhD duration of 39 months and all the PhD students (8) got at least one first author publication at the end of their thesis and the majority of PhDs trained in the unit followed their training as postdoctoral fellows or get a permanent position. Additionally, most of the unit members, including full time researchers, actively participate in teaching in science and medical school programmes in Science Faculty and in Medicine-Pharmacy Faculty.

The plans for the next five years are very good. It has potential for breakthrough science upon successfully launching the proposed clinical trials (to test inhibitors targeting transient receptor potential channel as anti-metastatic agents. combo-therapies for metastatic uveal melanoma, and anti-hypertensive drugs as adjuvant therapies). The potential of interdisciplinary collaborations with chemists/pharmacologists and clinicians will be key elements for the success of the project.

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