Research evaluation

FINAL RESUME ON THE RESEARCH UNIT

ISTCT - Imaging and therapeutical strategies in cerebral and tumoral pathologies

UNDER THE SUPERVISION OF THE FOLLOWING INSTITUTIONS AND RESEARCH BODIES:

Université de Caen Normandie - UNICAEN
Commissariat à l'énergie atomique et aux énergies alternatives - CEA
Centre national de la recherche scientifique - CNRS

EVALUATION CAMPAIGN 2020-2022
GROUP B

Report published on September, 30 2021

In the name of Hcéres[1]:	In the name of the experts committee[2]:
Mr Thierry Coulhon, President	Mr Bernard Gallez, 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:	Imaging and therapeutical strategies in cerebral and tumoral pathologies
Unit acronym:	ISTCT
Current label and N:	UMR 6030
ID RNSR:	201722484V
Application type:	Renewal
Head of the unit (2020-2021):	Ms Myriam Bernaudin
Project leader (2021-2025):	Ms Myriam Bernaudin
Number of teams:	2 becoming 1

EXPERTS COMMITTEE MEMBERS

Chair:	Mr Bernard Gallez, Université Catholique de Louvain, Belgique
Experts :	Ms Monique Dontenwill, CNRS, Université de Strasbourg, Illkirch (representative of CoNRS)
	Mr Stéphane Supiot, Université de Nantes
	Mr Fréderic Taran, CEA, Gif-sur-Yvette (representative of CEA)
	Ms Irène Troprès, Université Grenoble Alpes (supporting personnel)
	Mr Julien Valette, CEA, Fontenay-aux-Roses
	Mr Franck Vidal, CNRS, Aix-Marseille Université (representative of CNU)

HCÉRES REPRESENTATIVE

Mr Jean Edouard Gairin

REPRESENTATIVES OF SUPERVISING INSTITUTIONS AND BODIES

Ms Sonia Colette-Maatouk, CEA

Ms Annie-Claude Gaumont, université de Caen

Mr Benoît Haelewyn, université de Caen

Mr Vincent Lebon, CEA

Ms Aurélie Ménard, CNRS

Ms Florence Noble, INSB CNRS

INTRODUCTION

HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

ISTCT was created in 2012. The unit UMR6301 (CNRS-CEA-University of Caen) evolved from three teams (during the period 2012-2016) to two teams as FRE2001 in 2017, then as UMR6030 in 2019. The unit is composed of two teams LDM-TEP (Laboratory of Methodological Development in Tomography by Emission of Positrons) and CERVOxy (Hypoxia, cerebrovascular and tumoral pathophysiologies). Both teams are located at the GIP CYCERON, a biomedical imaging research platform. The CYCERON platform is on the same campus than the animal facility CURB (Unicaen) and are located at the proximity of the anticancer center François Baclesse (CLCC Baclesse) and the University Hospital of Caen (CHU of Caen).

During the evaluation procedure, a separation between both teams was decided: the unit will continue with the single team "TUMOxy" ("Hypoxia and radiotherapy in brain and lung tumors") while the radiochemistry group (renamed RadioPETT, "Radiochemistry & Radiopharmaceuticals for PET Imaging and Therapy") will continue its activities within the UMS3408 CYCERON.

RESEARCH ECOSYSTEM

Members of ISTCT have access to the CYCERON platform and the animal facility CURB (Unicaen). CYCERON is a fusion of public bodies including CEA, CNRS, and Inserm, but also the Unicaen, the CHU of Caen, the nuclear physics center GANIL, the CLCC Baclesse, the Normandy Region and the city of Caen.

ISTCT is partner of the INNOVONS2 project coordinated by CYCERON in the framework of the CPER 2021-2027, a federating/structuring project for the biomedical campus of Caen called EPOPEA - CAEN NORMANDIE SCIENCE & INNOVATION PARK that regroups CYCERON, Caen's hospitals (CHU Caen, CLCC F Baclesse), GANIL, Campus of Sciences of Unicaen. The ISTCT project is in the framework of the Structuring Cluster of Unicaen "Integrative Biology, Health, Environment" (Bise) which includes the federative organization ICORE (SF4206). ISTCT develops researches that are part of one of the priorities of the Lower Normandy Council identified in the context of the Smart Specialization Strategy. ISTCT partner of the I2C « Innovation Chimie Carnot » within the framework of *Carnot 3-tremplin* which regroups most of the Normandy's teams working in chemistry for health.

ISTCT belongs to the ARCHADE program « Advanced Resource Centre for Hadrontherapy in Europe » in link with the CYCLHAD center for hadrontherapy and is located in the vicinity of the campus of CYCERON and GANIL at Caen. ISTCT is partner of the EquipEx REC-HADRON "fundamental research in Hadrontherapy" (PIA ANR 2011-2024) and was also part of Infrastructure France-HADRON (PIA 2012-2017). ISTCT joined the French network RadioTransNet for preclinical research in oncological radiotherapy (INCa, 2018). ISTCT is also partner since 2012 of the LabEx IRON "Innovative Radiopharmaceuticals in Oncology and Neurology" (2012-2024). ISTCT also belongs to "France Life Imaging", "Cancéropôle Nord-Ouest", "OncoThera" regional network created in 2018 (through the RIN "Réseau d'intérêt Normand"). ISTCT also works with several regional research entities in the field of chemistry thanks to the network FR CNRS 3038 INC3M, innovative therapeutic strategies such as hadrontherapy (LPC UMR6534, LARIA/CIMAP UMR6252), nanomaterials (LCS UMR6506, a collaboration supported by region/FEDER funds, INCA funding (2018-2020), drugs (CERMN, Inserm U1086 Anticipe/Bioticla) and imaging (CYCERON UMS3408, CHU of Caen, CLCC F. Baclesse, LMNO UMR6139).

HCÉRES NOMENCLATURE AND THEMATICS OF THE UNIT

Principal :

SVE5 Physiologie, physiopathologie, cardiologie, pharmacologie, endocrinologie, cancer, technologies médicales

Others :

SVE5_3 Génétique médicale, pharmacologie, technologie médicale

ST4_4 Chimie du et pour le vivant

SVE5_4 Cancer

SVE4_1 Neurologie

The overall objectives of the ISTCT unit, are to study the pathophysiology, to define new diagnostic tools using MRI and PET imaging, and to develop new therapeutic strategies on a restricted number of hypoxic cancers resistant to treatment.

MANAGEMENT TEAM

The ISTCT unit is directed by Ms Myriam Bernaudin. For the future, Ms Myriam Bernaudin will be the director and Mr Samuel Valable will be the associate director of the unit.

UNIT WORKFORCE

ISTCT		
Active staff	**Number 06/01/2020**	**Number 01/01/2022**
Full professors and similar positions	4	4
Assistant professors and similar positions	3	3
Full time research directors (Directeurs de recherche) and similar positions	3	3
Full time research associates (Chargés de recherche) and similar positions	3	3
Other scientists ("Conservateurs, cadres scientifiques des EPIC, fondations, industries, etc.")	2	2
High school teachers	0	0
Supporting personnel (ITAs, BIATSSs and others, notably of EPICs)	11	11
Permanent staff	**26**	**26**
Non-permanent professors and associate professors, including emeritus	1	
Non-permanent full time scientists, including emeritus, post-docs (except PhD students)	3	
PhD Students	12	
Non-permanent supporting personnel	1	
Non-permanent staff	**17**	
Total	**43**	**26**

GLOBAL ASSESSMENT OF THE UNIT

The research topics developed by the ISTCT unit are mainly dedicated to study hypoxic cancers resistant to treatment by using MRI and PET imaging. In the previous contract, the unit was composed of two teams, the RadioPETT (formerly LDM-TEP) team that develops radiopharmaceuticals for preclinical and clinical researches and the TUMOxy (formerly CERVOxy) team that conducts researches in particular in the field of the hypoxia, brain tumors (glioblastoma, brain metastasis). For the next contract, ISTCT will continue with the sole TUMOxy team while the RadioPETT team will join the UMS 3408 CYCERON, a unique infrastructure that benefits to ISTCT.

The quality of the research and the scientific output of the ISTCT unit are overall very good. In the five-year contract, 85 scientific papers were published in international peer-reviewed journals. In total, more than half of the publications are with unit members in leading positions. There was an important improvement towards publications in top-level journals with high impact in the field of medical imaging, but publication in high level multidisciplinary journals with a larger audience is still to be achieved. Senior scientists are regularly invited for conferences in national and international meetings. A total of 74 grants (including 21 PhD fellowships) were obtained by the unit for an amount of about 3.5 M€. The grants are from local public agencies, European structural funds, national agencies, industrial contracts and charities but international competitive grants are lacking.

The impact of unit's activity on clinical practice and health is very good with clear multidisciplinary translational studies addressing unmet clinical needs. Interactions with the industrial and economic world are strong over the reporting period, two patents were filed and two others were accepted, and three CIFRE PhD contracts were granted. The unit should however avoid a large number of too small contracts with industries to avoid dispersion of effort.

The supervision and training of Master and PhD students in the unit is very good with 30 PhD students having completed or in finalization of their PhD thesis during the contract and an excellent professional integration afterwards.

The visibility, recognition and attractiveness of the unit is very good at the national level. International networking has been increased over time and should still progress to achieve international funding support and larger recruitment of international students.

The research projects for the next five years are considered as very good and internationally competitive, but needs focusing. The objectives of the projects address very important questions and unmet clinical needs in oncology focused on very aggressive tumors (brain tumors, brain metastases and primary lung tumors). The research projects will be carried out by an interdisciplinary panel of researchers who possess a high expertise in radiochemistry, brain/tumor hypoxia and models. The split of the two teams for the next contract could endanger the access of the ISTCT unit to radiopharmaceuticals that will be only accessible through the CYCERON UMS.

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