HCERES

High Council for the Evaluation of Research and Higher Education

Department of Research Evaluation

report on research unit:

Dynamic of Host-Pathogens Interactions

DHPI

under the supervision of the following institutions and research bodies:

Université de Strasbourg

Evaluation Campaign 2016-2017 (Group C)

HCERES

High Council for the Evaluation of Research and Higher Education

Department of Research Evaluation

In the name of HCERES,[1]

Michel Cosnard, president

In the name of the experts committee,[2]

José Alcami, chairman of the committee

Under the decree N°.2014-1365 dated 14 november 2014,

[1] The president of HCERES "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 expert committee". (Article 11, paragraph 2)

Evaluation report

This report is the sole result of evaluation by the expert committee, the composition of which is specified below.

The assessments contained herein are the expression of an independent and collegial reviewing by the committee.

Unit name:	Dynamic of Host-Pathogens Interactions
Unit acronym:	DHPI
Label requested:	EA
Current number:	EA 7292
Name of Director (2016-2017):	Mr Olivier ROHR
Name of Project Leader (2018-2022):	Mr Olivier ROHR 2018-2020 & Mr Ermanno CANDOLFI 2020-2022

Expert committee members

Chair:	Mr José ALCAMI, National Center for Microbiology, Spain
Experts:	Mr Antoine BERRY, CHU Toulouse (representative of the CNU)
	Ms Delphine MURIAUX, IRIM, CNRS, Montpellier
	Ms Patricia RECORDON-PINSON, Université de Bordeaux (representative of the supporting personnel)
	Mr Boualem SENDID, INSERM, CHU, Lille
Scientific delegate representing the HCERES:	
	Mr Théophile OHLMANN
Representatives of supervising institutions and bodies:	
	Ms Catherine FLORENTZ, Université de Strasbourg
	Mr Dimitri SANCHEZ, CHU Strasbourg
Head of Doctoral School:	
	Ms Catherine SCHUSTER, Doctoral School n°414, “Sciences de la vie et de la santé”

1 • Introduction

History and geographical location of the unit

The Dynamic of Host-Pathogens Interactions (DHPI) unit has been created in 2008 by Mr Olivier ROHR and Mr Ermanno CANDOLFI and is located at the Institute of Parasitology and Tropical Pathology (Institut de Parasitologie et de Pathologie Tropicale (IPPTS)) at the site of the Faculty of Medicine from the University of Strasbourg.

Management team

The unit will be headed by Mr Olivier ROHR, with Mr Ermanno CANDOLFI as deputy head, until mid-term of the contract and then the positions will be exchanged: halfway through the duration of the next contract (in June 2020), they will exchange their positions (Mr Ermanno CANDOLFI will take the head (director) and Mr Olivier ROHR will be deputy-director).

HCERES nomenclature

SVE3 Microbiologie, Immunité

Scientific domain

The unit focuses particularly on the study of the transcriptional and epigenetical mechanisms that regulate the latency of VIH-1 (team 1) and *Toxoplasma gondii* (team 2). These two pathogens establish latently infected cellular and anatomical *reservoirs*, against which current treatment strategies are ineffective.

Unit workforce

Unit workforce	Number on 30/06/2016	Number on 01/01/2018
N1: Permanent professors and similar positions	11	11
N2: Permanent researchers from Institutions and similar positions	0	0
N3: Other permanent staff (technicians and administrative personnel)	6	6
N4: Other researchers (Postdoctoral students, visitors, etc.)	1	
N5: Emeritus	0	
N6: Other contractual staff (technicians and administrative personnel)	0	
N7: PhD students	7	
TOTAL N1 to N7	**25**	
Qualified research supervisors (HDR) or similar positions	7	

Unit record	From 01/01/2011 to 30/06/2016
PhD theses defended	10
Postdoctoral scientists having spent at least 12 months in the unit	4
Number of Research Supervisor Qualifications (HDR) obtained during the period	1

2 • Assessment of the unit

Global assessment of the unit.

The unit gathers two laboratories addressing the study of HIV and *Toxoplasma gondii*. The scientific program aims at the characterization of the molecular mechanisms involved in the establisment and maintenance of cellular and anatomical *reservoirs* of these two microorganisms. From the previous report a clear progress and better definition of research lines has been produced as reflected by the excellent scientific productivity of both teams. It must be highlighted the originality in both lines of research and their relevance in their respective fields. Fund rising capacity is good. Financial support is obtained both from public calls and collaborations with private companies.

Whereas the mechanisms of HIV viral replication from latency have been largely studied, the molecular pathways that establish and maintain viral latency are less understood and few laboratories in the world work on this critical issue. An emerging concept in the field proposes that latency is not a merely passive phenomenon but is maintained through active mechanisms. This represents a change in the previous paradigm and the work of the team has contributed to this shift and the emergence of new questions regarding the HIV replication cycle. In this context the HIV team has identified new cellular proteins like CITP2 and pathways involved in the establishment and maintenance of viral latency.

Concerning *ocular toxoplasmosis*, ocular involvement of this parasitosis is one of the most common infective causes of visual impairment in the world. The research program of the team has evolved gradually towards investigation of different original aspects of *ocular toxoplasmosis* including epidemiological aspects, immunological profiles in populations originated from different geographical areas and development and validation of a mouse model of ocular damage. New findings including the role of IL-6, IL-17 and Müller cell activation in the pathogenesis of *retinal toxoplasmosis* are among the main outcomes of this research. Of note, these findings demonstrate that these cytokines are effective targets for anti-inflammatory and anti-parasitic treatment of toxoplasma uveitis. Altogether these achievements led to connect immunological and inflammatory processes associated with tissue damage in *ocular toxoplasmosis* and represent an original scientific approach to the study of toxoplasma.

Despite the differences between HIV-1 and *Toxoplasma gondii*, research leaders have built up a coherent scientific program that takes advantage of common expertise, knowledge and facilities. The scientific program proposes original approaches and team researchers are becoming a reference in their respective fields. Besides, the unit brings together the efforts of basic researchers, epidemiologists, ophthalmologists and experts in infectious diseases coming from the university and the hospital. A strong impact in Public Health and development of new therapeutic strategies to treat both diseases are important milestones from this research. The unit has established collaborations with industrial partners. Finally, a good communication among members of the two teams and permanent discussions support the scientific progress and interactive collaborations within the unit.

Of note is the effort done by a specific group dedicated to Expertise and Technology Transfer activities that have reached important outcomes as the development of test for Plasmodium detection. A clear progress in the characterization of therapeutic targets was made as compared to the previous report, and this achievement allowed the development of new collaborations with pharmaceutical companies.

Current research projects should be maintained but a continuous evaluation to avoid dispersion from the main objectives is required. Integration in European Networks and greater participation in international meetings to increase the visibility of the team and made it attractive for young scientists is advised. Finally, at this moment the expert committee advices a process of consolidation of the established research lines and the structure of the unit.