ARN - Architecture et réactivité de l'ARN

Rapport Hcéres

HCERES

High Council for the Evaluation of Research and Higher Education

Department of Research Evaluation

report on research unit:

Architecture and Reactivity of RNA

ARN

under the supervision of the following institutions and research bodies:

Université de Strasbourg

Centre National de la Recherche Scientifique - CNRS

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]

Yves Mechulam, chairman of the committee

Under the decree No.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 experts 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:	Architecture and Reactivity of RNA
Unit acronym:	ARN
Label requested:	UPR
Current number:	UPR 9002
Name of Director (2016-2017):	Ms Pascale ROMBY
Name of Project Leader (2018-2022):	Ms Pascale ROMBY

Expert committee members

Chair: Mr Yves MECHULAM, CNRS-Ecole Polytechnique, Palaiseau

Experts:

Ms Gwennola ERMEL, Université de Rennes (representative of the CNU)

Mr Ariberto FASSATI, University College London, UK

Ms Fatima GEBAUER, Center for Genomic Regulation, Barcelona, Spain

Mr Philipp HOLLIGER, MRC laboratory of Molecular Biology, Cambridge, UK

Mr Guillaume PINNA, CEA Saclay, Gif-sur-Yvette (representative of supporting personnel)

Mr Harald PUTZER, IBPC, Paris

Mr Guy SCHOEHN, Institut de Biology Structurale, Grenoble (representative of the CoNRS)

Scientific delegate representing the HCERES:

Mr Pierre COUBLE

Representatives of supervising institutions and bodies:

Ms Catherine FLORENTZ, University of Strasbourg

Mr Hugues LORTAT-JACOB, CNRS

Representative 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 UPR 9002 – Architecture and Reactivity of RNA was first created in January 2005. It is one of the three CNRS units (UPR) constituting the Institute of Cellular and Molecular Biology (IBMC), organized as a CNRS Federation of Research Units (FRC 1589). The institute is located in the center of Strasbourg. The unit has strong links with the University of Strasbourg.

Management team

Mr Éric WESTHOF has been the director of the unit during the review period, until the end of August 2016. The deputy director, Ms Pascale ROMBY, has been directing UPR 9002 since this date. She is proposed as the director for the next contract, with the assistance of Ms Danièle WERLING as administrative and financial manager.

HCERES nomenclature

SVE1-LS1.

Scientific domains

The teams share a common objective, which is to decipher the roles of RNAs in the regulation of gene expression and to analyze various aspects of the translation machinery and its control. The function and mechanisms of action of various classes of regulatory RNAs (eukaryotic miRNAs, bacterial RNAs, antisense RNAs, tRNAs, multifunctional RNAs, genomic viral RNAs) and their associated machineries are studied in details in eukaryotes (yeast, anopheles, mammals) and pathogens (viruses, bacteria, parasites). The study of various model organisms allows the unit to bring evolutionary understanding of biological phenomena from molecules to phenotypes. The unit also exploits its fundamental and methodological know-how for biotechnology and/or therapeutic applications.

Keywords: RNAs, Ribonucleoprotein particle, structure-function, regulation, RNA interactome, RNAs in human pathologies, evolution, RNA as a tool.

Unit workforce

Unit workforce	Number on 30/06/2016	Number on 01/01/2018
N1: Permanent professors and similar positions	9 (8,9)	8 (7,9)
N2: Permanent researchers from Institutions and similar positions	25 (24,6)	25 (24,6)
N3: Other permanent staff (technicians and administrative personnel)	19 (18)	20 (19)
N4: Other researchers (Postdoctoral students, visitors, etc.)	14	
N5: Emeritus	2	
N6: Other contractual staff (technicians and administrative personnel)	5	
N7: PhD students	30	
TOTAL N1 to N7	**104 (102,5)**	
Qualified research supervisors (HDR) or similar positions	31	

Unit record	From 01/01/2011 to 30/06/2016
PhD theses defended	30
Postdoctoral scientists having spent at least 12 months in the unit	26
Number of Research Supervisor Qualifications (HDR) obtained during the period	7

2 • Assessment of the unit

Global assessment of the unit

The overall scope of the unit is the analysis of structure and function of RNAs in various cellular processes. The functional context has significantly expanded in the past few years and the unit has followed this trend and maintained a high level of international visibility. Since the last evaluation report, the unit has been reorganized. Three new teams have been created, thanks to the recruitment of researchers and to the involvement of a company. Other teams have been reorganized following the retirement of team leaders. In the new organization, some teams have a special status because they develop a unique methodological expertise that favours the involvement in projects that are transverse within the unit. The unit has in particular developed an expertise in microfluidic tools, in cryo-electron microscopy and in biophysical methods for charaterization of RNAs and of their functional complexes.

During the review period, the unit has produced important contributions in several fields of RNA science, including the involvement of RNAs in human disease. The publication record is excellent at the international level. The unit has constructed a project relying on its deeply anchored know-how and on its capacity to implement state-of-the-art methodologies. These specificities and the strong relationships of the unit with the University of Strasbourg allow the unit to be closely involved in teaching and in the training of students at all levels, including PhD. The organisation of the unit is excellent, and there is a strong sense of belonging to a same research unit for the members of the various teams. This atmosphere is favoured by the open and respected personality of the director.

The organisation of the unit should favour the emergence of transverse research that needs to be carefully encouraged. Some obstacles are the lack of technical staff for supporting platform activities, and the risk that a high level of collaboration becomes detrimental to the development of research projects, in particular for teams that have a marked methodological specificity.

Overall, the unit has produced an excellent work during the last evaluation period, and has constructed an excellent project, relying on its strengths and specificities, as well as on the development of new themes and methodologies.