

FINAL SUMMARY OF THE EVALUATION ON THE RESEARCH UNIT:

Radiations: Defense, Health,
Environment

UNDER THE SUPERVISION OF THE FOLLOWING INSTITUTIONS AND RESEARCH BODIES:

Institut national de la santé et de la
recherche médicale - Inserm

Ministry of Army

EVALUATION CAMPAIGN 2019-2020
GROUP A



In the name of Hcéres¹:

Nelly Dupin, Acting
President

In the name of the experts committee²:

Catharine West, Chair 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 data submitted by the supervising body on behalf the unit.

UNIT PRESENTATION

Unit name:	Radiations: Defense, Health, Environment
Unit acronym:	
Current label and N°:	UA8
ID RNSR:	
Application type:	Identical renewal
Head of the unit (2019-2020):	Mr Nicolas FORAY and Mr Michel DROUET
Project leader (2021-2025):	Mr Nicolas Foray and Mr Michel DROUET
Number of teams and/or themes:	

EXPERTS COMMITTEE MEMBERS

Chair:	Ms Catharine WEST, University of Manchester, United Kingdom
Experts:	Mr Xavier COUMOUL, Université de Paris, Paris (representative of Inserm CSS)
	Mr Jurgen FUTTERER, Radboudumc, Netherlands
	Ms Karin HAUSERMANS, University Hospitals Leuven, Belgium
	Mr Marek JANIAK, Military Institute of Hygiene and Epidemiology, Poland
	Ms Marjorie JUCHAUX, CNRS, Orsay (supporting personnel)

HCÉRES REPRESENTATIVE

Mr Jean-Edouard GAIRIN

REPRESENTATIVES OF SUPERVISING BODIES

Ms Marie-Josèphe LEROY-ZAMIA, Inserm

Mr Jean-Christophe AMABILE, IRBA

Ms Marina Rousseau-TSANGARIS, Centre Leon Berard (partenaire)

INTRODUCTION

HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

The Radiations: Defense, Health & Environment UA8 unit was created in January 2019 as an expansion of the Group of Radiobiology (GRad) of the U1052 INSERM unit. It was created to bring together a multi-disciplinary team covering all aspects of radiobiology (research field for all poles).

The headquarters and overall coordination of the unit is located on the Center Léon-Bérard (CLB) campus in Lyon. CLB is a comprehensive cancer center linked to the University Claude Bernard Lyon (UCBL). The other main research structure of the UA8 unit is located at the Institut de Recherche Biomédicale des Armées (IRBA) in Brétigny-sur-Orge.

While CLB/UCBL are the headquarters, activities will take place on multiple sites. The local (in or close to Lyon) research ecosystem includes or will include: the University Lyon 2, the Hospices Civils de Lyon (HCL), the Army Hospital HIA (hôpital d'instruction des armées) Desgenettes, the Army Health School of Lyon-Bron EMSLB (Écoles Militaires de Santé Lyon-Bron), the Medical Unit of Decontamination UMDA (Unité Médicale de Décontamination des Armées), in La Valbonne and the Nuclear Rapid Action Force FARN (Force d'action rapide nucléaire) in Bugey. The National Space Agency (CNES) in Paris, and the University Paris-Saclay are and will also be associated in the project.

MANAGEMENT TEAM

The heads of the unit are Mr Nicolas Foray (co-director, INSERM) and Mr Michel DROUET (co-director, IRBA). Ms Béatrice FERVERS is the deputy director.

HCÉRES NOMENCLATURE

SVE 5 : Physiologie, physiopathologie, cardiologie, pharmacologie, endocrinologie, cancer, technologies médicales.

THEMATICS

The Radiations: Defense, Health & Environment unit is dedicated to human radiobiology research. At initiation, the unit had the following research topics: high dose radiobiology; low dose radiobiology; environmental radiobiology; and socio-radiobiology. For the 2012-2025 period the *research* themes are re-defined as: fundamental radiobiology (pole 1), defense (pole 2), health (pole 3), environment and space (pole 4), and human social sciences (pole 5).

Fundamental radiobiology covers mechanisms of radiosensitivity and susceptibility to radiation effects; it also includes targeting radioresistance and modulating immune responses. The defense research topic covers acute radiation effects (high dose); individual biodosimetry assays; radioprotection and radiomitigation; electromitigation and response to multiple genotoxic agents. Health research will compare radiotherapy modalities, introduce a radiosensitivity assay into routine clinical practice, and evaluate risks from low dose radiation.

The environment and space pole will research aspects of space radiobiology (e.g., impact of individual radiosensitivity; role of statins and bisphosphonates as radioprotectors); electroradiosensitivity and environmental genotoxicology. The human social science pole will study psychosocial perceptions of radiation risks and how radiation protection regulations would incorporate individual measurements of radiosensitivity.

UNIT WORKFORCE

Radiations: Defense, Health & Environment		
Active staff	Number 06/30/2019	Number 01/01/2021
Full professors and similar positions	1	4
Assistant professors and similar positions	2	3
Full time research directors (Directeurs de recherche) and similar positions	1	2
Full time research associates (Chargés de recherche) and similar positions	1	3
Other scientists ("Conservateurs, cadres scientifiques des EPIC, fondations, industries, etc.")	13	17
High school teachers	0	0
Supporting personnel (ITAs, BIATSSs and others, notably of EPICs)	10	13
Permanent staff	28	42
Non-permanent professors and associate professors, including emeritus	1	NA
Non-permanent full-time scientists, including emeritus, post-docs (except PhD students)	8	NA
PhD Students	4	NA
Non-permanent supporting personnel	0	NA
Non-permanent staff	13	NA
Total	41	42

GLOBAL ASSESSMENT OF THE UNIT

Establishing the unit is an achievement and an excellent initiative for France. The policy behind its establishment is to reinvigorate radiobiology in France, which is underpinned by the willingness of national institutions (Inserm, Army) to bring together cross-cutting and multidisciplinary expertise (clinical, military, scientific) from different organizations, research cultures and disciplines. The unit aims to stimulate radiobiology in France, link academic laboratories with national defense priorities in radiation research and expand radiation research relevant for patients undergoing radiotherapy for cancer. Key scientific objectives are to better understand the biological consequences of exposure to radiation (and DNA-breaking agents in general) and the impact of inter individual differences in the repair and signaling of DNA damage. An original feature of the unit is the co-study of fundamental (including space & defense-related), clinical (radiotherapy, radiology, nuclear medicine) and sociopsychology radiobiology. During the first year of its creation the unit has defined its strategy and brought together different groups to develop a sense of belonging. As it was only formed in January 2019, the unit as a whole has not yet achieved international recognition. The multi-disciplinary and multi-site research pose a threat to the timely delivery of objectives and training/teaching activities could overwhelm resources. The research strategy would benefit from reducing the coalescing emphasis on the RIANS (Radiation-Induced ATM Nucleo-Shuttling) model, which oversimplifies radiation effects. RIANS is of interest to increase understanding of the effects of radiation, but there is limited international interest in its use as a routine radiosensitivity test. There are absences from the strategy that can be addressed as the unit builds in strength, e.g., consideration of other assays of radiation sensitivity / susceptibility / exposure; radiation hormesis including immunostimulatory, anti-inflammatory, anti-neoplastic, and other potential beneficial effects.

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2 rue Albert Einstein
75013 Paris, France
T. 33 (0)1 55 55 60 10

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