

FINAL RESUME ON THE RESEARCH UNIT:
Laboratory of Structural and Functional
Glycobiology (UGSF)

UNDER THE SUPERVISION OF THE
FOLLOWING INSTITUTIONS AND
RESEARCH BODIES:

Université de Lille

Centre national de la recherche scientifique -
CNRS

EVALUATION CAMPAIGN 2018-2019
GROUP E



In the name of Hcéres¹:

Michel Cosnard, President

In the name of the experts committee²:

Rita Gerardy-Schahn, Chairwoman 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 provided by laboratories and supervising bodies in the unit's application and in the Excel files "Données du contrat en cours" and "Données du prochain contrat".

UNIT PRESENTATION

Unit name:	Laboratory of Structural and Functional Glycobiology
Unit acronym:	UGSF
Requested label:	UMR
Application type:	Restructuration
Current number:	UMR8576
Head of the unit (2018-2019):	Mr Christophe D'HULST
Project leader (2020-2024):	Mr Yann GUERARDEL
Number of teams:	14

EXPERTS COMMITTEE MEMBERS

Chair:	Ms Rita GERARDY-SCHAHN, Medical School Hannover, Germany
Experts:	Mr Vincent BURLAT, Université de Toulouse
	Mr Nico CALLEWAERT, Ghent University, Belgium
	Mr Pedro COUTINHO, Aix-Marseille Université
	Mr Richard DANIELLOU, Université d'Orléans (representative of CNU)
	Ms Sylvie FOURNEL-GIGLEUX, Université de Lorraine (representative of CoNRS)
	Mr Thomas GRUTTER, CNRS Illkirch
	Mr Francois HOH, CNRS Montpellier (supporting personnel)
	Ms Nathalie JUGE, Quadram Institute, United Kingdom
	Mr Jacques LE PENDU, Inserm Nantes
	Ms Barbara MULLOY, Imperial College London, United Kingdom
	Mr Michel RIVIÈRE, CNRS Toulouse
	Mr Daan VAN AALTEN, University of Dundee, United Kingdom

HCÉRES REPRESENTATIVE

Mr Yacine GRABA

REPRESENTATIVES OF SUPERVISING INSTITUTIONS AND BODIES

Mr Hugues LORTAT-JACOB, CNRS

Mr Lionel MONTAGNE, Université de Lille

INTRODUCTION

HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

Established in 1966 the research unit "Glycobiologie Structurale et Fonctionnelle" (UGSF) has an unusually long history as a research institution specialising in glycan structure and function.

After the former director Mr Jean Claude Michalski had joined the direction team of the Life Science Department of the Head Quarter of CNRS in 2013, Mr Christophe D'Hulst was elected as the acting director for the period 1st March 2013 to 31st December 2014 and then appointed as the director on 1st January 2015.

The UGSF is a mixed joint unit (UMR) under the supervision of Université de Lille and the CNRS. The 'traditional' UGSF teams are located in one building (C9) in the campus of University Lille 1, Sciences and Technologies located in Villeneuve d'Ascq. Four teams joined the unit during the evaluated contract: one integrated the C9 building, while the three others stayed either in the former IRI building on the "Campus CNRS de la Haute Borne" (CCHB) or in the SN3 building on the campus "Cité Scientifique" of the University of Lille. The former IRI building is now managed and used by the UGSF, which overall increased the space and made the meaningful relocation of teams and personnel between the C9 and CCHB building possible. Because the 900 MHz NMR spectrometer is located in the CCHB the move of the "RMN et Interactions Moléculaires" team in 2016 to the CCHB site was a logic step.

MANAGEMENT TEAM

The present mandate of Mr Christophe D'Hulst will end on December 31st, 2019. The direction of the unit is proposed to be taken by Mr Yann Guérardel, already acting as a deputy director since January 2014.

HCÉRES NOMENCLATURE

SVE2_1; SVE2_3; SVE1_1; SVE1_2; SVE5_1.

SCIENTIFIC DOMAIN

Research in the "Unité de Glycobiologie Structurale et Fonctionnelle" is driven by the mission to understand the structural and functional complexity of glycans and to identify ways to exploit these natural systems for the benefit of major socioeconomic challenges, e.g. the maintenance of food security, the optimal exploitation of natural resources, the development of innovative bio-based materials, of novel diagnostics and health treatment options and, certainly not least, to gain a better understanding on how eukaryotic life has evolved.

UNIT WORKFORCE

	Unit workforce	
	Laboratory of Structural and Functional Glycobiology	
Active staff	Number 30/06/2018	Number 01/01/2020
Full professors and similar positions	17	15
Assistant professors and similar positions	41	34
Full time research directors (Directeurs de recherche) and similar positions	12	13

Full time research associates (Chargés de recherche) and similar positions	12	7
Other scientists ("Conservateurs, cadres scientifiques des EPIC, fondations, industries, etc.")	0	0
High school teachers	0	0
Supporting personnel (ITAs, BIATSSs and others, notably of EPICs)	38	15
Permanent staff	120	84
Non-permanent professors and associate professors, including emeritus	1	
Non-permanent full time scientists, including emeritus, post-docs	8	
PhD Students	36	
Non-permanent supporting personnel	9	
Non-permanent staff	54	
Total	174	

GLOBAL ASSESSMENT OF THE UNIT

Glycans are the most abundant biomolecules on earth and essential components of every living cell. Logically deciphering their enormous information content and transforming this knowledge into novel diagnostics and therapeutics in medicine as well as into innovative resources for biotechnological applications (from material sciences to energy supply) needs specialized and multi-disciplinary expertise. There are only few research centers worldwide that provide in one location the comprehensive expertise that allows integrated glycoscience approaches. UGSF is one of these excellent research locations and in Europe remains the largest and unparalleled with respect to the scope of disciplines and the study of model organisms *i.e.* bacteria, plants and animals and, with the advent of a new team, also medical relevant fungi. Other structural measures that started in 2014 have equipped UGSF with teams providing modern platform technologies of indispensable nature to guarantee the consequent progress of the interdisciplinary unit. Indeed it is the exploitation of interdisciplinary knowledge that has made possible the publication of fundamental studies in prestigious journals. For instance, the role of the O-GlcNAcylation in the epigenetic imprinting of behavioural patterns has been published in *Journal Neuroscience*; by combining analytics and chemical biology publications in *Nature Communication* and *Angewandte Chemie (Int Ed Engl.)* have been produced and studies into rare glycosylation disorders were published in the *American Journal Human Genetics*, *PNAS* and *Journal Experimental Medicine*. Certainly not less important the research into starch biosynthesis machineries in pro- and eukaryotes published in *Science*, *PLoS Biology*, *Journal Biological Chemistry* and plant fibre biosynthesis and degradation published in *Plant Cell*, *Molecular and Cellular Proteomics*, *Angewandte Chemie (Int Ed Engl.)*. Concordant with their track records, these teams endow the unit with an international visibility, attracting major grants and cooperate in European networks and via virtual centres. It is without doubt that life sciences will never be comprehensive in the absence of glycomic information. However, the number of researchers with profound expertise in glycosciences is small and thus a major hurdle for the rapid progress of the field. The need for training is obvious and UGSF contributes exquisitely with respect to both basic teaching and training through research. Applied science at UGSF is significant, yet there is room for improvement with respect to data valorisation and collaborative fund raising initiatives in particular in teams addressing medical related research questions. The scientific strategy is built around the core scientific theme of the unit, with glycobiological research topics becoming central in all teams, including the recently integrated teams, with highly interdisciplinary contacts creating a unique and competitive situation. UGSF governance structures are efficient and suited to meet the needs of a unit of this size.

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