

EVALUATION REPORT OF THE UNIT

VBP - Virulence Bactérienne Précoce : fonctions cellulaires impliquées et contrôle de l'infection aiguë et subaiguë

UNDER THE SUPERVISION OF THE
FOLLOWING ESTABLISHMENTS AND
ORGANISMS:

Université de Strasbourg

EVALUATION CAMPAIGN 2022-2023
GROUP C

Rapport publié le 12/07/2023



In the name of the expert committee¹ :

Patrick Linder, Chairman of the committee

For the Hcéres² :

Thierry Coulhon, President

Under the decree n° 2021-1536 of 29th November 2021:

¹ The evaluation reports "are signed by the chairperson of the expert committee". (Article 11, paragraph 2);

² The president of the Hcéres "countersigns the evaluation reports established by the expert committee and signed by their chairperson." (Article 8, paragraph 5).

This report is the result of the unit's evaluation by the expert committee, the composition of which is specified below. The appreciations it contains are the expression of the independent and collegial deliberation of this committee. The numbers in this report are the certified exact data extracted from the deposited files by the supervising body on behalf of the unit.

MEMBERS OF THE EXPERT COMMITTEE

Chairperson: Mr Patrick Linder, Université de Genève, Suisse

Mr Frédéric Auvray, École Nationale Vétérinaire, Toulouse (supporting personnel)

Experts : Mr Jean-Louis Herrmann, Université de Versailles Saint-Quentin-en-Yvelines (representative of CNU)

Ms Suzana Salcedo, Inserm, Lyon

HCÉRES REPRESENTATIVE

Ms Muriel Mercier-Bonin

CHARACTERISATION OF THE UNIT

- Name: Virulence Bactérienne Précoce : fonctions cellulaires impliquées et contrôle de l'infection aiguë et subaiguë
- Acronym: VBP
- Label and number: UR7290
- Composition of the executive team: Mr Gilles Prevost

SCIENTIFIC PANELS OF THE UNIT

SVE4 : Immunité, infection et immunothérapie

SVE7 : Prévention, diagnostic et traitement des maladies humaines

SVE1 : Biologie environnementale fondamentale et appliquée, évolution

SVE3 : Molécules du vivant, biologie intégrative (des gènes et génomes aux systèmes), biologie cellulaire et du développement pour la science animale

THEMES OF THE UNIT

UR7290 comprises 14 members of whom 5 have a HDR and 4 technical staff (Biatss). The unit has a strong clinical activity, which confers clear advantages but also represents a strong burden. Two main activities are developed in the unit: the first research topic deals with infections transmitted by ticks with a major emphasis on *Borrelia*. Members of the unit are part of the "Centre National de Référence" (CNR) "*Borrelia*" and the recently developed CNR "Maladies vectorielles". The second research topic concerns toxins and virulence factors of coagulase negative Staphylococci. This research topic is currently replaced by a recently introduced activity aiming at developing new antibacterial molecules.

HISTORIC AND GEOGRAPHICAL LOCATION OF THE UNIT

The unit, as it exists today, was created in 2013. It is situated in the institute of bacteriology of the University Hospital (CHU).

RESEARCH ENVIRONMENT OF THE UNIT

UR7290 is part of the "Fédération de Médecine Translationnelle de Strasbourg, FMTS", which is strongly linked to the medical faculty of the University of Strasbourg. Members of the unit are part of the CNR *Borrelia* at the CHRU Strasbourg. Other scientific partners include the proteomic platform IBISA (LMSBO, IPHC, UMR7178) as well as other units (UPR9002 {interaction of aminoglycosides with RNA}, UMR7177 {synthesis of antimicrobial molecules}, UMR7200 {modelling of antibacterial molecules}, UMR7199 {development of photoactivated antibacterial molecules}). It also has collaborations with the metabolomic platform RMN-HRMAS (UMR7257), the platform for structural biology at the IGBMC (UMR7104/UMR-S1258), and the platform for spectrofluorometry (UMR7021). Members of the unit also have access to the imaging platform (UMS38) in Strasbourg.

UNIT WORKFORCE: in physical persons at 31/12/2021

Permanent personnel in active employment	
Professors and associate professors	3
Lecturer and associate lecturer	6
Senior scientist (Directeur de recherche, DR) and associate	0
Scientist (Chargé de recherche, CR) and associate	0
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	5
Subtotal permanent personnel in active employment	14
Non-permanent teacher-researchers, researchers and associates	1

Non-permanent research supporting personnel (PAR)	0
Post-docs	0
PhD Students	2
Subtotal non-permanent personnel	3
Total	17

DISTRIBUTION OF THE UNIT'S PERMANENTS BY EMPLOYER: NON-TUTORSHIP EMPLOYERS ARE GROUPED UNDER THE HEADING "OTHERS".

Employer	EC	C	PAR
Université de Strasbourg	9	0	4
CHU Strasbourg	0	0	1
Total	9	0	5

UNIT BUDGET

Recurrent budget excluding wage bill allocated by parent institutions (total over 6 years)	249
Own resources obtained from regional calls for projects (total over 6 years of sums obtained from AAP index, i-site, CPER, territorial authorities, etc.)	53
Own resources obtained from national calls for projects (total over 6 years of sums obtained on AAP ONR, PIA, ANR, FRM, INCa, etc.)	467
Own resources obtained from international call for projects (total over 6 years of sums obtained)	0
Own resources issued from the valorisation, transfer and industrial collaboration (total over 6 years of sums obtained through contracts, patents, service activities, services, etc.)	164
Total in euros (k€)	933

GLOBAL ASSESSMENT

Overall, the unit UR7290 ("Virulence Bactérienne Précoce : fonctions cellulaires impliquées et contrôle de l'infection aiguë et subaiguë") has a very good research activity. The research topics are in accordance with important medical problems, e.g., tick-mediated infectious diseases with emphasis on *Borrelia* (Lyme disease), virulence of staphylococcal infections, and more recently the development of antibacterial molecules. Most of the members of the unit have also hospital-associated duties. The unit is missing full-time researchers who could push further fundamental research projects.

The unit is well structured, with regular meetings and good support of the staff. The unit has very active interactions with other research units and socio-economic partners.

The funding situation is very good, but junior researchers should be encouraged and helped to take more responsibilities in fundraising.

It is planned that the unit UR7290 will merge with UR7292 (Dynamics of host-pathogen interactions -DIHP) to build a unit studying the interactions of pathogens, arthropods, and hosts (Pathogens Host Arthropod Vectors Interfaces (PHAVI) unit). The new unit will host three "Centre National de Référence" (CNR) entities on Borreliosis, vector-mediated diseases, and toxoplasma. This merger will give the new unit more visibility and strengthen its research. It will be very important to prepare this merger, and to follow and guide members of the unit (including the future leaders of the research axes) through this next step.

DETAILED EVALUATION OF THE UNIT

A - CONSIDERATION OF THE RECOMMENDATIONS IN THE PREVIOUS REPORT

The unit made efforts to follow the recommendations of the last evaluation campaign (2016-2017). Although the fundraising was positive, the pandemic affected severely the efforts since members of the unit were very much engaged in clinical duties.

Recommendation: The expert committee recommends reinforcing the international collaborations to apply to European programs.

The unit has not obtained competitive European or international funding.

Recommendation: The expert committee recommends to increase the involvement and visibility of clinicians associated to this research activity that includes a significant part of clinical work.

The visibility of clinicians associated to their research activity needs to be increased further.

Recommendation: The expert committee recommends to increase the frequency of lab meetings.

People involved in the projects related to tick-mediated diseases meet once a week to discuss data or present papers. The unit's members working on staphylococci meet regularly. The meetings are sometimes in French, sometimes in English.

Recommendation: The expert committee recommends to increase the impact factors of published articles by accumulating more data AND the expert committee recommends to increase the publication impact in order to enhance the international visibility of the unit and its national reputation.

The unit has a good publication record, where publications in the clinical field are in very good journals (e.g., *Lancet Infectious diseases, Clinical Microbiology and Infection*).

Recommendation: The committee suggests reducing the number of projects in order to federate the strengths of the unit on a more limited set of projects with a high scientific output. Common projects will be important within the five next years. AND the expert committee encourages reinforcing bridges between the two projects in order to synergize the approaches.

A reduction of the number of projects to increase the scientific output has not been fully achieved and the interactions between the two research axes have not been totally accomplished.

Recommendation: The expert committee also recommends favouring the recruitment of postdocs and, if possible, of permanent researcher-s in order to give to the research projects a more solid fundamental basis.

The recruitment of post-docs to strengthen the basic research was not reinforced, also because of the Covid pandemic.

Recommendation: The committee suggests to increase strength in bioinformatics (not limited to an expert clinician) for both topics because of the importance of this expertise for the future research.

Although one member of the unit received some training through a 3-day course, an increase in bioinformatics support and skills is still required.

Recommendation: The expert committee recommends maintaining the research activity of great clinical relevance in bacterial infection (particularly for the Lyme disease due to its social impact and to the absence of other research groups in France on this topic).

The unit has maintained the research activity of clinical relevance.

B - EVALUATION AREAS

EVALUATION AREA 1: PROFILE, RESOURCES AND ORGANISATION OF THE UNIT

Assessment on the unit's resources

The unit's overall resources are very good. There is a lack of European/international funding, including in the form of post-doctoral fellowships. Regarding personnel, the unit lacks full-time researchers and the permanent technical staff has to spend a lot of time on administrative tasks.

Assessment on the scientific objectives of the unit

The unit's scientific objectives are excellent. The research projects are extremely relevant in the context of infectious diseases, and tightly connected to clinical activities.

Assessment on the functioning of the unit

The functioning of the unit is very good. It is well structured, with regular meetings and good support of the staff. It complies with all safety rules. However, there is a lack of internal, but also external, seminars to promote interactions.

1/ The unit has resources that are suited to its activity profile and research environment.

Strengths and possibilities linked to the context

On 31/1/2021, the unit comprises 14 members (among 5 HDR), including 9 teacher-researchers, 5 engineers/technicians. Despite the small size and the clinical responsibilities of most of the staff, the unit attracts a significant number of young researchers (13 PhD students defended their thesis, 1 ongoing).

The unit is situated in an excellent environment with access to state-of-the-art platforms, in close proximity to the University and CHU of Strasbourg, industrial partners, and other scientific collaborators.

A very good capacity to mobilize these local resources was shown, highlighted by the unit's participation in PIA-idex "Institut Thématique Interdisciplinaire Vectorisation de molécules innovantes" (ITI InnoVec) and other collaborative networks and the intrinsic participation in the National Reference Centers for *Borrelia* and tick-borne diseases.

The unit takes benefit from excellent opportunities to perform research with significant clinical outcomes and impact.

Weaknesses and risks linked to the context

The unit lacks full-time researchers (associated with a decrease in the number of teacher-researchers from 16 to 10 in 2024) and there is a risk of lack of HDR members in the near future (3 out of 5 HDRs are over 60 years old).

There is a lack of European/international funding, including in the form of post-doctoral fellowships (e.g., Marie Skłodowska-Curie fellowships).

The permanent technical staff has to dedicate too much time to administrative tasks due to a lack of secretarial support for the unit.

All funding was obtained by only two of the researchers either as coordinator or as partner.

The maintenance of buildings is sometimes not sufficient.

2/ The unit has set itself scientific objectives, including the forward-looking aspect of its policy.

Strengths and possibilities linked to the context

The objectives of the unit are ambitious but highly relevant in its field.

The unit has two main research projects:

- (i) For tick-borne diseases, in addition to studying the mechanisms enabling host infection, this project aims to translate its findings by developing new diagnostic tools and an animal vaccine. The study of the

pathogenesis of tick-borne diseases is extremely important and will continue to be the case, especially with the constant evolution of the geographical distribution of these infections. There is an urgent need for improved diagnosis, mitigation and treatment strategies. In this topic, the unit possesses a unique set of scientific and clinical expertise, highly relevant to France;

- (ii) Regarding the *Staphylococcus* project, the study of the virulence factors of different *Staphylococcus* species has been successfully concluded during this period, and a new orientation has emerged on antimicrobial development, which is also extremely relevant.

The development of innovative research tightly connected to clinical activities (i.e., role of skin in *Borrelia* transmission, new antibacterial molecules against Staphylococci) is attractive for young researchers.

The unit has shown an excellent ability to participate to French academic networks (Idex, InnoVec) and establish industrial partnerships ("Société d'Accélération du Transfert de Technologies" (SATT)-Conectus for collaboration with VIRBAC, BiofilmControl/BiofilmPharma, Novartis, etc.). The translational research developed is impressive, resulting in one patent, two novel diagnostic approaches, one vaccine candidate and potentially new inhibitory molecules for therapeutics.

Weaknesses and risks linked to the context

The scientific objectives are pretty ambitious for the resources available (financial and personnel). Although the presence of clinicians and teacher-researchers is excellent, there are no full-time researchers who could help propel specific projects.

The co-existence of the two different research themes/axes seems completely independent, without much collaboration.

3/ The functioning of the unit complies with the regulations on human resources management, safety, the environment and the protection of scientific assets.

Strengths and possibilities linked to the context

Appropriate plans for protecting the well-being and safety of the personnel seem to be in place. The unit ensures human resources management with special attention to improving the careers of its personnel and assisting with promotions when possible.

Very good resources are allocated to the unit's staff (workspace, training possibilities).

The unit has taken some steps to improve the environmental impact of its research (such as heat retention, reduction of paper use, low energy lighting, and virtual meetings).

Scientific assets are well protected (secured access to premises and lab books) and the informatics systems are secured by the university, with multiple copies of the data being stored independently.

Procedures are in compliance with safety regulations (experimentation with pathogens, processing of chemical and biological waste). A member of the unit is responsible for lab safety (as prevention assistant, AP) and new members are trained at their arrival.

Weaknesses and risks linked to the context

Parity at senior levels needs to continue to improve (currently at approximately 25% when including all permanent staff).

There are relatively limited measures for reducing the environmental impact of the research projects.

There is not sufficient organization of internal and external seminars to promote potential interactions.

The researchers in charge of supervising the two research axes will retire and step down, respectively. There is no clear plan for the follow-up.

EVALUATION AREA 2: ATTRACTIVENESS

Assessment on the attractiveness of the unit

The attractiveness is excellent with timely research topics, a highly positive funding situation, and many national and international communications.

1/ The unit has an attractive scientific reputation and contributes to the construction of the European research area.

Strengths and possibilities linked to the context

In respect to the size of the unit and the particular situation of the Covid pandemic, this is a high-level activity.

The participation of unit's members to the CNR *Borrelia* is a major asset for research activities and national visibility.

Overall, the unit lists a high number of presentations. The group working on diseases transmitted by ticks presented its work or knowledge 34 times at national events and 13 times at international events (e.g., Invited: Northtick meeting, Orenas Castle, Sweden; Workshop, NIH, Rockville, USA Skin immunology and arthropod vectors; Development of proteomics for the direct diagnosis of Lyme Borreliosis. Keynote, International Symposium on Tick-Borne Pathogens and Disease 2019, Vienna, Austria).

A book at Academic Press on "Skin and Arthropod Vectors" was edited by one member of the unit.

The group working on coagulase negative Staphylococci had 14 national and 7 international communications (e.g., invited: Staphylococcal bi-component leukotoxins, pore-forming and leukotoxins or not only? VetSuisse Faculty, Bern University, Bern, Switzerland).

Members of the unit have also participated in organizing or are part of scientific committees of international meetings: the European Workshop on Bacterial Protein Toxins ETOX18, ECCMID and a virtual Keystone Symposium in 2020.

Senior members participate regularly at evaluation for funding agencies and peer-reviewing process (e.g., *International Journal of Medical Microbiology*, *BMC Microbiology*, *Clinical and Microbiology and Infection*, *eLife*, *Toxicon*, *Nature Medicine*, *FASEB Journal*, *Biochemical Journal*, *European Journal for Clinical Microbiology and Infectious Diseases*).

Weaknesses and risks linked to the context

The book edited on "Skin and Arthropod Vectors" is a very nice collection of articles, but it is mainly written by people working in France, not sufficiently reflecting an international visibility.

The general unit's visibility in terms of scientific activity is not ensured by a sufficiently informative website.

2/ The unit is attractive for the quality of its staff hosting policy.

Strengths and possibilities linked to the context

28 master M2 students, 38 master M1 students, and 8 interns were hosted by the unit. Funded by various grant sources (doctoral contract, Cifre convention, foreign funding, industrial contract, etc.), 13 graduate students defended their thesis, one is ongoing and one abandoned.

The director of the unit is responsible for the master "Biologie-Santé" and co-responsible for the cursus "Recherche en biomédecine".

The unit has clearly defined rules of procedures. The importance of laboratory notebooks is recognized.

Weaknesses and risks linked to the context

Except for a post-doc who was hosted for 15 months, no other researcher coming from France or abroad was recruited during the present contract.

3/ The unit is attractive because of the recognition gained through its success in competitive calls for projects.

Strengths and possibilities linked to the context

The unit has demonstrated a very good capacity to raise external funding, obtaining several national, regional and local grants. These include 2 ANR projects (project *Borrelia* until 2021 as coordinator and one ongoing project as partner for the development of antibacterial agents), support from ITI InnoVec and from clinical programs 2016-2021 "Programme Hospitalier de Recherche Clinique" (PHRC, interregional) for *Borrelia*-related topics, a project Grand Est "Maladies infectieuses" (2018-2022), a CNRS project 2020-2021 "Observatoire Homme Milieu" (partner), idex 2021-2022, a project "Zone Atelier Argonne" (CNRS, 2021), a project idex consolidation 2019.

Overall, the funding situation is highly positive.

Weaknesses and risks linked to the context

The ANR project *Borrelia* ended in 2021 and so far no other competitive funding exists (except as partner in an ANR project).

No European or international funding has been obtained.

4/ The unit is attractive for the quality of its major equipment and technological skills.

Strengths and possibilities linked to the context

The unit collaborates with several core facilities in its local environment (e.g. proteomic platform IBISA (LMSBO, IPHC, UMR7178), metabolomic platform RMN-HRMAS (UMR7257), platform for structural biology at the IGBMC (UMR7104/UMR-S1258), platform for spectrofluorometry (UMR7021), imaging platform (UMS38) in Strasbourg).

A well-equipped cell culture room, which is also available for the members of another unit, is present.

A protein purification system and a measuring device for antigens belong to the unit and are made available to members of other units.

The unit takes care of facing the replacement of costly instruments in time.

Weaknesses and risks linked to the context

None identified.

EVALUATION AREA 3: SCIENTIFIC PRODUCTION

Assessment on the scientific production of the unit

The unit has a very good productivity considering its size and current composition and an excellent output of translational research of clinical interest.

1/ *The scientific production of the unit meets quality criteria.*

Strengths and possibilities linked to the context

Considering the unit's small size and the presence of mostly clinicians and teacher-researchers, it has a very good overall productivity with 165 publications, including 65 research articles (34 first and 34 last authored publications), 50 clinical articles (12 first and 23 last authored publications) and 50 reviews (14 in French, 36 in English).

The research has a strong clinical orientation and has generated publications in important specialty journals (*Journal of Clinical Microbiology*, *Clinical Microbiology and Infection*) as well as in more generalist journals (e.g., *FASEB Journal*, *Scientific Reports*), and collaborative publications in top medical journals (*Lancet*, *Emerging Infectious Diseases*, *Blood*).

The group working on tick-transmitted diseases and the group working on Staphylococcal toxins made important and original findings. This is illustrated by the discovery of the immuno-modulatory properties of the tick saliva and how it contributes to *Borrelia* infection, the mechanisms of toxicity of the Pantone-Valentine leukocidin of *Staphylococcus aureus* internalized by polymorphonuclear leukocytes and glial cells and the identification of a new virulence factor of *Staphylococcus lugdunensis*.

Weaknesses and risks linked to the context

There is a tendency for smaller, less in-depth publications (e.g., *MDPI journals*, *PLOS One*) for some fundamental research projects, reducing their overall potential impact.

2/ *Scientific production is proportionate to the research potential of the unit and shared out between its personnel.*

Strengths and possibilities linked to the context

A total of 165 publications has been produced, with balanced distribution between the two research themes (21 and 19 publications directly linked to the tick-mediated diseases and Staphylococci, respectively). The unit has produced 33 book chapters for scientists and clinicians. All permanent staff has published articles and all students have, at least, one publication as first author.

Weaknesses and risks linked to the context

The lack of post-doctoral researchers reduces the possibility of more in-depth fundamental research, for example into the mechanisms of bacterial pathogenesis and/or physiopathology of the infections.

3/ *The scientific production of the unit complies with the principles of research integrity, ethics and open science.*

Strengths and possibilities linked to the context

The unit has measures in place to ensure scientific integrity and ethical work, including data storage, reproducing results, and highly qualified personnel for training and data management procedures. Open discussion of authorship and manuscript contents is undertaken for each project.

The unit has an excellent policy for respect of animal welfare and its implementation in research projects.

Publications are often in Open Access journals and all publications are deposited in UNIVOAK.

Weaknesses and risks linked to the context

Due to financial restraints and to the choice of higher impact journals in the clinical field, not all publications are in Gold Open Access.

EVALUATION AREA 4: CONTRIBUTION OF RESEARCH ACTIVITIES TO SOCIETY

Assessment on the inclusion of the unit's research in society

The interactions of the unit with the non-academic world, economy, society, political instances and the general public are excellent to outstanding when considering the *Borrelia* CNR activities.

1/ *The unit stands out by the quality of its non-academic interactions.*

Strengths and possibilities linked to the context

In both research axes, the continuum between the research activities of the unit and the non-academic actors is excellent.

Patients are also regularly recruited in research programmes for validation of diagnostic methods.

The unit's activities also include interactions with hunters, foresters and politicians, for an evaluation of human practices on tick-borne diseases.

The unit is actively involved in expertise and support to public policies activities. The presence of clinicians is an asset for the transfer of acquired knowledge to recommendations towards health authorities. The unit has participated to the production of many expertise reports for national or international authorities, e.g., "Agence nationale de sécurité du médicament" (ANSM), "Haute autorité de santé" (HAS), "Santé publique France" (SPF), European center for diseases prevention and control (ECDC), "Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail" (Anses), and "Haut conseil de santé publique" (HCSP).

Substantial clinical and vectorial epidemiology studies are underway on *Borrelia* and other tick-borne emerging diseases with the "Centre National de Référence" (CNR), which is a real strength for the unit.

Weaknesses and risks linked to the context

None identified.

2/ *The unit develops products for the socio-economic world.*

Strengths and possibilities linked to the context

The unit has successfully translated the results of its research activities into the development of novel technologies.

The *Borrelia* project led to the development of a veterinary vaccine against Lyme disease, which was supported by the SATT-Conectus and the pharmaceutical company VIRBAC. A mass spectrometry-based diagnostic method of Lyme disease (at early and late phases) was developed and 1 patent filed. These innovations will undoubtedly contribute to the prevention of Lyme disease in the veterinary sector, and to a better diagnostic of Lyme and other tick-borne diseases, for a better care of infected patients.

The *Staphylococcus* project led to the development of a mass spectrometry-based bacterial identification method that received support from the SATT-Conectus and the agro-company "Laiterie du Clumont", which was useful for the characterization of yoghurt bacterial starters. A partnership with the pharmaceutical company BiofilmControl/BiofilmPharma reinforced the value of an instrument dedicated to biofilm analysis, which is commercialized by this company. The work on staphylococcal eye infections received support from the private company Novartis. The recently initiated work on antibiotherapy also has a high potential for translation into the socio-economic world, and a collaboration with the pharmaceutical company has already been established to this aim (1 patent envisaged).

Weaknesses and risks linked to the context

None identified.

3/ *The unit shares its knowledge with the general public and takes part in debates in society.*

Strengths and possibilities linked to the context

The unit plays an excellent role in providing expertise and recommendations on public health issues.

Members of the unit informed the general public through 13 general conferences, 2 documentaries, 1 multimedia support, 3 articles, and 26 other interventions in the format of interviews, press releases, and scientific debates. One member interacted 12 times with media (television, radio, websites "The conversation" and "Défi écologique", written press).

Members of the unit took part in interactions with the Parliament in the frame of the "Plan Lyme 2016".

Members of the unit participated to training sessions for French physicians and pharmacists for a better care of patients infected with tick-borne diseases. They also raised awareness of high school students about research activity, tick and tick-borne diseases.

Weaknesses and risks linked to the context

The transfer of knowledge to the general public and participation to debates with the society were performed by a limited number of members of the unit.

C - RECOMMENDATIONS TO THE UNIT

Recommendations regarding the Evaluation Area 1: Profile, resources and organisation of the unit

The unit should maintain the development of innovative and translational research tightly connected to clinical activities.

The number of HDRs should be increased to anticipate departure of senior members in the future.

Internal and external interactions should be improved through seminars. A possibility would be to encourage the students to invite speakers to one seminar each year. External seminars might allow external recruitments of post-doctoral fellows or full-time researchers.

The unit should encourage internal presentation of research data or presentation of literature studies to be in English.

The unit should encourage training and valorization of staff members (e.g., bioinformatics).

The senior leaders should emphasize the support of junior members to search for financial resources including competitive grants (e.g., ANR).

The succession of the two leaders of the two research axes has to be carefully prepared.

It is important to provide the necessary information to the personnel concerning the future merger with the unit of parasitology.

The transition of leadership for the two research axes has to be accompanied by providing support to the future leaders.

The unit should improve the gender parity.

Recommendations regarding the Evaluation Area 2: Attractiveness

The unit should recruit post-doctoral researchers to propel specific projects and involve more members in the acquisition of external funding (including European/international funding).

The direction should consider an opening towards emerging vector-transmitted diseases in the context of climate change through interactions at the local scale.

Recommendations regarding Evaluation Area 3: Scientific Production

The unit should improve the overall impact of the publications of some of the projects by more in-depth fundamental research, for example into the mechanisms of pathogenesis.

The unit should reinforce the understanding of the physiopathology of infection, particularly for Lyme disease, by the use of the collections of biological samples from patients. This will favor the development of diagnostic and therapeutic tools.

Recommendations regarding Evaluation Area 4: Contribution of Research Activities to Society

The unit is encouraged to maintain the excellent level of interactions with the non-academic world, economy, society, political instances and the general public.

The unit should involve more members of the unit in communication actions intended to the general public.

CONDUCT OF THE INTERVIEWS

Date

Start: October 27th 2022 à 8.30 am

End: October 27th 2022 à 6.30 pm

Interview conducted online

INTERVIEW SCHEDULE

8:30-9:00	Hcéres committee meeting <i>Closed-door meeting</i>
9:00-9:05	Hcéres rules and procedures by Mr Mercier-Bonin <i>Public session (all unit members)</i>
9:05-10:05	Scientific and administrative presentation of the unit 20 min. Overall presentation of the unit Mr Gilles Prévost 8 min. Presentation of major results Mr Gilles Prévost 12 min. Presentation of major results Ms Nathalie Boulanger 20 min. Discussion <i>Public session (all unit members)</i>
10:05-10:30	Committee debriefing and break <i>Closed-door meeting</i>
10:30-10:50	Meeting with ITA <i>In the absence of any managing staff</i>
11:00-11:20	Meeting with researchers <i>In the absence of any managing staff</i>
11:30-11:50	Meeting with post-docs and students <i>In the absence of any managing staff</i>
11:50-13:00	Lunch break
13:00-13:40	Meeting with institution representative: University of Strasbourg <i>Closed-door meeting</i>
13:40-14:15	Committee debriefing <i>Closed-door meeting</i>
14:15-14:30	Break
14:30-15:00	Meeting with the director of the unit <i>Closed-door meeting</i>
15:00-15:15	Break
15:15-18:30	Redaction of the final report <i>Closed-door meeting</i>
18:30	End of the interview

GENERAL OBSERVATIONS OF THE SUPERVISORS

Université

de Strasbourg

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Directeur du Département d'évaluation de la recherche
HCERES - Haut conseil de l'évaluation de la recherche et
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Strasbourg, le 19 juin 2023

Objet : Rapport d'évaluation DER-PUR230023385 - VPB - Virulence bactérienne précoce : fonctions cellulaires impliquées et contrôle de l'infection aiguë et subaiguë

Réf. : RB/FF/ 2023-373

Rémi Barillon

Vice-Président Recherche,
Formation doctorale et Science
ouverte

Cher Collègue,

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L'université de Strasbourg vous remercie ainsi que tous les membres du comité HCERES pour le travail d'expertise réalisé sur l'unité de recherche « Virulence bactérienne précoce : fonctions cellulaires impliquées et contrôle de l'infection aiguë et subaiguë » (VBP – UR 7290).

Vous trouverez ci-après les observations formulées par l'unité sur le rapport d'évaluation transmis.

Je vous prie d'agréer, Cher Collègue, l'expression de mes cordiales salutations.

Rémi Barillon



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UR 7290- Virulence bactérienne

précoce : fonctions cellulaires impliquées et contrôle dans l'infection aiguë et subaiguë

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Ecole doctorale Vie et Santé-414
Université de Strasbourg

Objet: Answers to the HCERES evaluation of the UR7290 - Université de Strasbourg

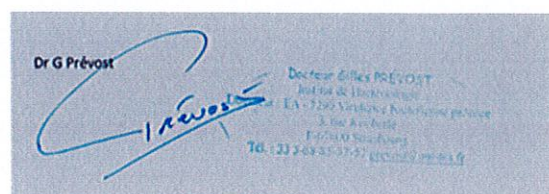
I, undersigned, PREVOST Gilles Directeur of the UR7290, produced the following answers to HCERES Committee after evaluation of the UR7290.

- First, I wish to thank the HCERES Committee and representative (Muriel Mercier-Bonnin) and the chairperson (Patrick Linder) for their organization and the evaluation report on the UR7290. This report is judged meticulous, granular report that took into account some aspects that were presented orally. This research unit director does agree with main remarks, whatever quite complicate was the concerned period. I will have the following answers:
- the elapsed period saw the departure of three of our Colleagues (Sylvie de Martino, Philippe Riegel, François Jehl), while 3 other young Colleagues progressively joined the unit, were trained and pushed out to get a valuable and validated profile for recruitment at the CNU 45-01 section. Afterwards, these young and full Colleagues had to manage both a tricky clinical activity and install themselves in their own teaching missions.
- Any of them currently have one contractual collaborator to allow research going on.

- Hence, we will most probably present 2 of them, at least, for a Hdr title in the next 3 years
- With the impulse of Pr Jaulhac, the Borrelia team will get opportunity to integrate 2 European research programs (Northtick as an Interreg program, and an Expression of Interest to a Horizon EC Program dealing with post-Lyme persisting symptoms).
- Of course, and considering the triple mission as clinical biologists, teaching, and research missions, we would much appreciate to welcome 1 or 2 full researchers - as we got that chance in the past - but this appeared quite complicated in the elapsed period and the context of Strasbourg. The opportunities constituted by European programs may open such new perspectives.
- I would like to precise that for several past years, both my Colleagues Nathalie Boulanger and Benoit Jaulhac responded to auditions at the French Assemblée Nationale and the French Sénat on the public health problem of ticks and borrelioses; and they also are in connection with ANSES. In this context, many leaflets present in forest to alert about ticks and tick risks originate from conjoined work of this research unit and public concerned authorities
- Bioinformatics: the actual unit have the opportunity now for the next installation of a DNA sequencing apparatus and a bioinformatic suit. The diverse projects in DNA sequencing and DNA analysis of 2 to 3 teams in the next research unit let us hope that this will support the application for a bioinformatic BIATSS-ITA post recruitment.

Je vous prie d'agréer, Madame la Directrice, Monsieur le Directeur, Cher.e.s Collègues, l'expression de mes salutations distinguées.

Yours sincerely,



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