

EVALUATION REPORT OF THE UNIT

EPILAB - Épigénétique des infections virales et des maladies inflammatoires

UNDER THE SUPERVISION OF THE
FOLLOWING ESTABLISHMENTS AND
ORGANISMS:

Université de Franche-Comté - UFC

EVALUATION CAMPAIGN 2022-2023
GROUP C

Report published on July, 10 2023



In the name of the expert committee¹ :

Christine Goffinet, Chairwoman 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: Ms Christine Goffinet, Charité - Universitätsmedizin Berlin, Institute of Virology, Germany

Experts : Mr Matteo Iannacone, San Raffaele Scientific Institute & University, Italy

HCÉRES REPRESENTATIVE

Mr Jacques Dutrieux

CHARACTERISATION OF THE UNIT

- Name: Épigénétique des infections virales et des maladies inflammatoires
- Acronym: EPILAB
- Label and number: UR4266
- Composition of the executive team: Mr Georges Herbein

SCIENTIFIC PANELS OF THE UNIT

SVE4 Immunité, infection et immunothérapie

THEMES OF THE UNIT

The research of the EPILAB unit is multidisciplinary with researchers specialized in virology, hepatology and rheumatology. The unit comprises seven professors, one lecturer and several PhD students. The research topics cover the pathogenesis of viral infections (HIV, cytomegalovirus), epigenetics of viral infection and inflammation and the role of cytomegalovirus in cancer. The central research theme of the last funding period of this research unit is in line with priorities set by Université de Franche-Comté. The focus is on analysis of the role of CMV as potentially oncogenic virus. The plan to join Inserm 1098 UMR might broaden the scientific interests and productivity of the unit.

HISTORIC AND GEOGRAPHICAL LOCATION OF THE UNIT

EPILAB is a research team labelled EA4266 at the Université de Franche-Comté. It started in 2012 with researchers with expertise in microbes (viruses and bacteria), inflammation and cancer. The research laboratories are in Besançon (UFR Santé et UFR ST). EPILAB is part of the Fédération Hospitalo-Universitaire (FHU) INCREASE (« INtegrated Center for REsearch in inflammatory diseASEs»). Starting in 2024, EPILAB team will join and be part of the UMR 1098 RIGHT (Inserm/UFC/EFS) team at Besançon.

RESEARCH ENVIRONMENT OF THE UNIT

The main contribution of the EPILAB laboratory is in the fields of viruses, inflammation and cancer. More specifically a main focus of EPILAB is to study the role of cytomegalovirus in cancer and epigenetics in inflammatory processes. The EPILAB Laboratory was part of the I-Site and is actively involved in collaboration with the UMR 1098 RIGHT on the inflammatory process and in immunotherapy. Part of the EPILAB team is also involved in the continuum between basic science and clinical care especially in the field of inflammation and cancer. At 31/12/2021, EPILAB team included 15 members including 5 HDR, 6 professors, 1 lecturer and several postdoctoral students and PhD students.

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

Permanent personnel in active employment	
Professors and associate professors	6
Lecturer and associate lecturer	1
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)	0
Subtotal permanent personnel in active employment	7
Non-permanent teacher-researchers, researchers and associates	0
Non-permanent research supporting personnel (PAR)	0
Post-docs	0

PhD Students	0
Subtotal non-permanent personnel	0
Total	7

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

Employer	EC	C	PAR
Université de Franche-Comté	7	0	0
Total	7	0	0

UNIT BUDGET

Recurrent budget excluding wage bill allocated by parent institutions (total over 6 years)	202
Own resources obtained from regional calls for projects (total over 6 years of sums obtained from AAP idex, i-site, CPER, territorial authorities, etc.)	105
Own resources obtained from national calls for projects (total over 6 years of sums obtained on AAP ONR, PIA, ANR, FRM, INCa, etc.)	20
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.)	0
Total in euros (k €)	327

GLOBAL ASSESSMENT

EPILAB is a multidisciplinary research unit at the Université de Franche-Comté that specializes in virology, hepatology, and rheumatology. Overall, its main research topics and expertise include viral infections, epigenetics, inflammation, and the role of cytomegalovirus in cancer. The EPILAB team is part of the FHU INCREASE and collaborates with UMR 1098 RIGHT on the inflammatory process and immunotherapy. They collaborate with partners at the university, CHU Besançon, and Inserm UMR 1098 CNRS Chrono-environnement. The director of the unit, Georges Herbein, is a Fellow of the Royal Society of Medicine and an Alumni of Oxford University. The unit will join Inserm 1098 UMR for the next contract. The unit has 15 members, including 5 professors, 5 HDR, and several postdoctoral and PhD students, and has access to 140 m² lab space and 30 m² office space. EPILAB mainly focuses on the analysis of the role of CMV as an oncogenic virus. It has a good academic reputation and is involved in the career development of female scientists. The team members present their research results at international conferences and PIs meet regularly with PhD students and postdocs to discuss research progress. Unit-wide meetings take place on a weekly basis, and all criteria to work in a BSL3 lab including a medical examination for the unit staff are fulfilled. However, the unit lacks robust national and international funding and has not been very competitive for attracting European funding during the evaluated period. Therefore, the EPILAB relies on a major extent on funding from the parental institution and has only attracted funding from local funding sources. EPILAB has a good reputation among local clinicians and a reasonable academic reputation. The unit complies with non-discriminatory principles in training, career advancement, and internal and external mobility. The EPILAB unit collaborates with small biotech companies in Franche-Comté to develop biological tools, treatments, and vaccines for viral infections such as Covid-19, HIV, and cytomegalovirus. This partnership has resulted in several patents and scientific publications. The EPILAB team provides continuing education to small tech companies in the area. They prioritize protecting their intellectual property and have launched a start-up called Apex Biosolutions to assess anti-microbial activities of industrial products. The EPILAB team disseminates its results under non-disclosure agreements and provides expertise and recommendations to public institutions, patients, and citizens. They have also conducted awareness-raising actions against HIV infection, Covid-19 pandemic, and virus-induced cancers for young people through events in schools. Therefore, the inclusion of the unit's research in society is excellent.

DETAILED EVALUATION OF THE UNIT

A - CONSIDERATION OF THE RECOMMENDATIONS IN THE PREVIOUS REPORT

The following recommendations were provided in the previous evaluation, which were addressed by the unit to different extents.

- 1) "The team has to re-evaluate the balance between tasks and manpower, probably by defining more precisely the projects of high priority and associating available staff scientists and post-doctoral fellows with these projects." This recommendation was followed, the unit focused on the role of CMV in cancer.
- 2) "PIs should make a priority out of the recruitment of scientists with permanent positions and students, to increase the feasibility of the projects." This recommendation was partially followed by recruitment of PhD students.
- 3) "Members have to be more pro-active in fundraising." This recommendation was followed and resulted in acquisition of local and national grants, and one EU grant.
- 4) "The unit should target more generalist journals." This recommendation was followed.
- 5) "The new name "Epigenetics of Viral infection and inflammatory diseases" may not serve the unit well, as its strength is not in "epigenetics", but rather in infection and inflammation. The committee recommends choosing a name not mentioning "Epigenetics". This recommendation was not followed.

B - EVALUATION AREAS

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

Assessment on the unit's resources

The assessment of the unit's resources is good. Most of the unit's resources from the last six years stem from the parental institution (€202K), and to a minor extent from regional calls (€105K). €20K have been acquired via national calls.

Assessment on the scientific objectives of the unit

The scientific objectives of EPILAB are very good and are centered on the pathogenesis of viral infections, inflammation and cancer, especially at the level of epigenetic regulation.

Assessment on the functioning of the unit

The assessment of the functioning of the unit is good. This small unit is composed of seven permanent researchers (6 professors and one lecturer and three PhD students). The unit has access to 140 m² lab space and 30 m² office space. The unit focusses on the analysis of the role of CMV as an oncogenic virus.

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

Strengths and possibilities linked to the context

The small size of the unit facilitates a good communication and organization. The EPILAB team is part of the FHU INCREASE and collaborates with UMR 1098 RIGHT on the inflammatory process and immunotherapy. They collaborate with partners at the university, CHU Besançon, and Inserm UMR 1098 CNRS Chronoenvironment. The central research theme of the last funding period of this research unit is in line with priorities set by Université de Franche-Comté. The plan to join Inserm 1098 UMR might broaden the scientific interests and productivity of the unit. The EPILAB unit collaborates with small biotech companies in Franche-Comté to develop biological tools, treatments, and vaccines for viral infections such as Covid-19, HIV, and cytomegalovirus. The EPILAB team provides continuing education to small tech companies in the area.

Weaknesses and risks linked to the context

The unit has not acquired substantial national and international funding and is heavily relying on the funding of the parental institution.

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

Strengths and possibilities linked to the context

In agreement with the previous recommendation, the unit has focused its efforts on the role of CMV in cancer. It collaborates with partners at Université de Franche-Comté, CHU Besançon, EPST (Inserm UMR 1098, CNRS Chronoenvironment). The unit's topics are a good fit to the life science objectives of the Université de Franche-Comté. The unit will join Inserm 1098 UMR in the next funding term.

Weaknesses and risks linked to the context

The role of CMV as an oncogenic virus is a relatively limited area of research. A lot of expertise of the unit's researchers (hepatocellular carcinoma, viral hepatitis, rheumatology) may be left unused.

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

The EPILAB unit supports the career development of female scientists. It complies with non-discriminatory principles in training, career advancement and internal and external mobility. It is involved in the good working conditions of its staff (physical and mental state). Unit-wide meetings take place on a weekly basis. All criteria to work in a P3 lab including a medical examination for the unit staff are fulfilled. IT protection systems are in place. The unit applies measures to comply with environmental protection and sustainability.

Weaknesses and risks linked to the context

The university support could be too limited in regard to its administrative support.

EVALUATION AREA 2: ATTRACTIVENESS

Assessment on the attractiveness of the unit

EPILAB has a reasonable attractive scientific reputation because of its research in the field of virus and cancer.

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

The unit has a reasonable academic reputation and a very good reputation among local clinicians.

The team members present their data at least once a year at an international conference and several times per year in France at virology, hepatology and inflammation meetings.

The director of the unit Georges Herbein sits on the Editorial Board of several scientific journals such as *Clinical Epigenetics* (Section Editor), *Frontiers*, *Scientific Reports* (NPG) and *PLoS One*.

All the PIs of the unit participate in steering or scientific committees at national and European level in the field of hepatology and virology.

Georges Herbein has been elected a Fellow of the Royal Society of Medicine (London) and he is an Alumni of Oxford University.

Georges Herbein received prizes and awards as follows: New York Philippe Foundation Award (1997), World AIDS Conference Award (1998), American Foundation for AIDS Research (AmFAR) Award (1999), Joachim Kuhlmann AIDS Award (2001), Clinical Science Award of the German Society for Immunotherapy (2004), Fellow of the Royal Society of Medicine (2021).

Some PhD students and postdocs have been recruited from abroad (Lebanon) which demonstrates the attractiveness of the unit.

Weaknesses and risks linked to the context

The unit relies on national funding and has not been competitive for attracting European funding during the evaluated period.

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

Strengths and possibilities linked to the context

All the PIs of the EPILAB meet regularly with PhD students and postdocs to discuss research in progress, to assess the obtained results and to support the young staff at the beginning of their career.

The EPILAB unit attracts foreign PhD students and postdocs (Lebanon).

The unit implements its operational strategy on research integrity to all its members especially on the young researchers (PhD and postdoctoral students). All the efforts are in place to publish in open-access journal.

Weaknesses and risks linked to the context

Unfortunately, no tenured researcher has been hired. No prominent guest scientist has been hosted.

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 EPILAB unit has been successful in European calls through a FP7 Grant (*FP7-HIVERA 2013 ERANET project on Innovative strategies for an HIV cure – Advanced research on reservoirs and cure*) during the previous evaluated period. However, no further European grants have been obtained since.

The EPILAB unit was successful as partner in one ANR call (*ANR-Plan de Relance Régional de Sortie de Crise*) and secured a national grant at LNCC (*role of cytomegalovirus in breast cancer*). In addition, they successfully applied to 2 regional calls from the region BFC (*project CMVAX about a candidate vaccine towards CMV and CURECOVID about antiviral molecules against SARS-CoV-2*).

The EPILAB unit was able to fund one post-doctoral researcher and one technician. In addition several foreign PhD students with their own grant are recruited to the EPILAB unit.

Weaknesses and risks linked to the context

The capacity of the unit to attract funding (particularly through competitive European grants) has been declining.

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

Strengths and possibilities linked to the context

The EPILAB unit opens its platforms (particularly the BSL3 high security laboratory) and technical expertise to biotech companies such as Apex Biosolutions to find new treatments against Covid-19.

To optimize the management of its equipment and technical staff, the EPILAB unit relies on the support of the University of Franche-Comté for the training of the technical personnel.

Weaknesses and risks linked to the context

No weakness was identified.

EVALUATION AREA 3: SCIENTIFIC PRODUCTION

Assessment on the scientific production of the unit

The scientific production of the unit on the period is good. In the six-year funding period, the unit has published 17 original articles, 10 reviews and 3 book chapters.

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

Strengths and possibilities linked to the context

The scientific production of the team focusses on the role of CMV as an oncogenic virus, a novel and specified topic. The unit has published 17 articles, 10 reviews and 3 book chapters. Amongst these, it has published results in high visibility journals including *Oncogene*, *EBioMedicine*, *Molecular Therapy Oncology*, *Frontiers in Immunology*, *Frontiers in Oncology*, *Scientific Reports*.

Weaknesses and risks linked to the context

The unit mentions hurdles imposed by the reluctance of collaboration by merely competing groups on this topic.

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

High quality of the research is valued. Both permanent staff and non-permanent (PhD students and postdoctoral fellows) publish original research. The ratio of papers per researcher is good (30 papers (including reviews and book chapters) per 15 researchers).

Weaknesses and risks linked to the context

The overall scientific production of the unit is limited by the small size of the unit, the relatively low degree of external funding and also limited by the relatively narrow definition of the research foci.

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 adheres to the rule of honest and scientific rigor with reproducibility of experiments, right controls, open communication. The unit has installed lab notebooks, anti-plagiarism software and they publish only in recognized and preferably open-access journals. The contribution of co-authorship is recognized in all published data. Regarding human biomaterial, written informed consent for participation is obtained from all patients and authorizations by local ethical committees are in place.

Weaknesses and risks linked to the context

No weakness was identified.

EVALUATION AREA 4: CONTRIBUTION OF RESEARCH ACTIVITIES TO SOCIETY

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

The inclusion of the unit's research in society is excellent.

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

Strengths and possibilities linked to the context

The EPILAB unit has contract with non-academic actors such as small companies from Franche-Comté. The collaborative partnership between EPILAB and biotech industry resulted in several patents and collaborative scientific publications.

The EPILAB unit collaborates with small biotech industry in three major fields: the development of biological tools to detect viral infections, the development of new anti-viral treatments especially against Covid-19 and HIV, and the development of vaccines especially against cytomegalovirus.

The challenges addressed by the collaborative partnerships with the private company should led to better diagnosis and treatment of viral infections including HIV and cytomegalovirus infections.

Since several years doctoral and postdoctoral fellows are doing research at the interface between the EPILAB unit and small biotech companies leading to a fruitful partnership.

The EPILAB team hosts doctoral and postdoctoral students financed by private small tech companies especially for the development of new treatment to fight HIV and the coronavirus infections including Covid-19.

The EPILAB team provide since several years continuing education to private small tech companies in the Besançon area.

The EPILAB unit is involved in citizen science activities such for example for the 200 years ceremony celebrating the birth of Louis Pasteur and interaction with citizen to explain the viral diseases, the cancer mechanisms and vaccination.

Weaknesses and risks linked to the context

No weakness was identified.

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

Strengths and possibilities linked to the context

Since several years one of the priorities of the EPILAB unit was to protect the intellectual property and to file patents. Four patents were filed, non were licensed so far.

The EPILAB team has launched the start-up Apex Biosolutions which assesses the anti-microbial activities of industrial products.

The EPILAB team is disseminating its results under non-disclosure agreement mostly during partnerships with small biotech companies of Franche-Comté.

The EPILAB unit is not involved directly in the drafting of norms, standards, procedures or recommendations, but rather through the counselling of small biotech companies.

The EPILAB team has provided expertise and recommendation to public institutions such university of Franche-Comté, but also to patients and citizen especially during the Covid-19 pandemic.

Weaknesses and risks linked to the context

No weakness was 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 EPILAB team has provided its scientific know-how at the service of the general public on the following topics: HIV prevention, Covid-19 pandemic, importance of vaccination against viral diseases in shows, radio broadcasts, and schools.

Awareness-raising actions against HIV infection, Covid-19 pandemic and virus-induced cancers have been organized for young people through events in schools.

Weaknesses and risks linked to the context

No weakness was identified.

C - RECOMMENDATIONS TO THE UNIT

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

Not applicable due to the termination of the unit.

Recommendations regarding the Evaluation Area 2: Attractiveness

Not applicable due to the termination of the unit.

Recommendations regarding Evaluation Area 3: Scientific Production

Not applicable due to the termination of the unit.

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

Not applicable due to the termination of the unit.

CONDUCT OF THE INTERVIEWS

Date(s)

Start:

End:

PARTICULAR POINT TO BE MENTIONNED

Due to the termination of the unit, no interview was conducted and the evaluation was performed only on the files produced by the unit.

GENERAL OBSERVATIONS OF THE SUPERVISORS

Besançon, le 6 juin 2023

Dossier suivi par :
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Madame, Monsieur,
Chère collègue, Cher collègue,

L'université de Franche-Comté n'a pas d'observation de portée générale à formuler, en relation avec le rapport d'évaluation d'EPILAB.

Je vous prie d'agréer, Madame, Monsieur, l'expression de ma considération distinguée.

Pour la présidente de l'Université de Franche-Comté, Marie-Christine Woronoff, et par délégation

Le Vice-Président Recherche et Valorisation

Hugues Daussy



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