

Research evaluation

EVALUATION REPORT OF THE UNIT LBPA – Laboratoire de biologie et pharmacologie appliquée

UNDER THE SUPERVISION OF THE FOLLOWING ESTABLISHMENTS AND ORGANISMS:

École normale supérieure Paris-Saclay / Université Paris Saclay,

Centre national de la recherche scientifique - CNRS

EVALUATION CAMPAIGN 2024-2025 GROUP E

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In the name of the expert committee :

Marie-Line Andreola, chairwoman of the committee

For the Hcéres :

Coralie Chevalier, president

In accordance with articles R. 114-15 and R. 114-10 of the Research Code, the evaluation reports drawn up by the expert committees are signed by the chairmen of these committees and countersigned by the president of Hcéres.



To make the document easier to read, the names used in this report to designate functions, professions or responsibilities (expert, researcher, teacher-researcher, professor, lecturer, engineer, technician, director, doctoral student, etc.) are used in a generic sense and have a neutral value.

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 Marie-Line Andreola, Centre national de la recherche scientifique – CNRS, Bordeaux
	Ms Sandrine Chabas, Institut national de la santé et de la recherche médicale – Inserm, Bordeaux (representative of the supporting personnel)
Experts:	Mr Jean-Michel Jault, CNRS, Lyon
	Ms Andreea Pasc, université de Lorraine (representative of the CNU64)
	Mr Alexis Verger, CNRS, Villeneuve d'Ascq (representative of CoNRS20)

HCÉRES REPRESENTATIVE

Ms Catherine Etchebest

REPRESENTATIVES OF SUPERVISING INSTITUTIONS AND BODIES

Mr Hugues Lortat-Jacob, CNRS, CNRS Biologie Mr Philippe Maitre, ENS-Saclay



CHARACTERISATION OF THE UNIT

- Name: Laboratoire de Biologie et Pharmacologie Appliquée
- Acronym: LBPA
- Label and number: UMR 8113
- Composition of the executive team: Mr. Eric Deprez, director of the laboratory

SCIENTIFIC PANELS OF THE UNIT

SVE Sciences du vivant et environnement

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

The research of LBPA aimed at understanding the mechanisms of molecular interactions (protein-nucleic acids, protein-protein, protein ligands...) and their dysfunction at molecular and cellular level in numerous pathologies, mainly infectious and cancer, and primarily from a fundamental point of view. Yet, the members of the unit are often involved in more applied studies in the field of therapeutics and diagnostics.

HISTORIC AND GEOGRAPHICAL LOCATION OF THE UNIT

Between 1957 and 1960, the LBPA was a pharmacology laboratory. Then the laboratory became a CNRS associate laboratory in 1970, joined by an Inserm unit in 1974. The laboratory became a 'unité de recherche associée' au CNRS (URA147) before being transformed in 1998 in a 'unite mixte de recherche' CNRS/University Paris XI/ENS Cachan (UMR1772 then UMR8532). In 2002, the unit became the Laboratorie de Biologie et de Pharmacologie appliquée (UMR8532 CNRS/ENS Cachan) then UMR8113 in 2003. The unit gradually moved to the Cachan campus between 1998 and 2007. In 2002, the LBPA and three other ENS laboratories formed a research federation, the Institut d'Alembert. In 2020, the LBPA and the entire ENS Cachan, then named ENS Paris-Saclay, moved from Cachan to Gif-sur-Yvette at the University Paris-Saclay.

During the running period, the unit was composed of four research teams and managed three platforms and a shared services of laundry/autoclave and stock room.

RESEARCH ENVIRONMENT OF THE UNIT

The research of LBPA aimed at understanding the mechanisms of molecular interactions (protein-nucleic acids, protein-protein, protein ligands...) and their dysfunction at molecular and cellular level in numerous pathologies, mainly infectious and cancer, and primarily from a fundamental point of view. Yet, the members of the unit are often involved in more applied studies in the field of therapeutics and diagnostics. The LBPA forms with three other ENS laboratories a research federation, the Institut d'Alembert, and is located at Gif-sur-Yvette at the University Paris-Saclay.

Their aim is to conduct basic and applied research in nano (bio) photonics, non-linear optics and imaging, plasmonics, microfluidics and design of functional materials and nanomaterials. Most of the LBPA teams have benefited from seed projects between at least 2 teams from different laboratories. Two thesis co-directions and one postdoc were shared in this context.

LBPA is associated with the teaching department of biology of ENS Paris-Saclay. E. Deprez is the deputy director of the teaching-research department (DERbio). Members of the laboratory are involved in an international master programme MonaBiphot at the ENS, where several members are responsible from UE.

LBPA is a member of two disciplinary graduate schools of the Paris-Saclay University: Life Sciences and Health (LSH) and Health and Drug Sciences (HeaDS). LBPA was also a member of two labEx: NanoSaclay and LERMIT. LBPA has several collaborations with the Institute of Integrative Biology of the Cell (I2BC) for fundamental research and the 'Pôle Biologie – Pharmacie – Chimie' (BPC), for more applicative researches in the pharmacological field; with Micalis Institute (INRAE, Jouy-en-Josas), with Gustave Roussy, with Paris-Saclay cancer cluster. LBPA teams are members of 6 interdisciplinary programmes, called OI ('Objets interdisciplinaires') designed to coordinate research, education and innovation activities between several of the University's graduate schools. LBPA is a member of two 'École doctorale'.

Two LBPA members have been awarded for the GLISS project, maturation grant from the SATT Paris Saclay.

National interactions: LBPA members are part of the FRISBI national infrastructure and several research groups (GDR): Or Nano, ImaBio, RNA and ADN (Architecture et Dynamique Nucléaires). Two teams are particularly involved in Prometheus IHU (Institut Hospitalo Universitaire) recently selected as part of France 2030. All LBPA teams have national collaborations: Pasteur Institute, Curie, Bichat-Claude-Bernard, Pitié Salpetriere, Bordeaux University, Strasbourg University



Several CNRS researchers of LBPA are involved in courses outside the Paris-Saclay perimeter: Rennes, Sorbonne University, CNRS formation enterprises.

International interactions: LBPA has several international collaborations, three international collaborations take place within a IRP framework, International Research Project, former LIA.

Catégories de personnel	Effectifs	
Professeurs et assimilés	2	
Maîtres de conférences et assimilés	4	
Directeurs de recherche et assimilés	9	
Chargés de recherche et assimilés	4	
Personnels d'appui à la recherche	5	
Sous-total personnels permanents en activité	24	
Enseignants-chercheurs et chercheurs non permanents et assimilés	4	
Personnels d'appui non permanents	0	
Post-doctorants	0	
Doctorants	5	
Sous-total personnels non permanents en activité	9	
Total personnels	33	

UNIT WORKFORCE: in physical persons at 31/12/2023

DISTRIBUTION OF THE UNIT'S PERMANENTS BY EMPLOYER: in physical persons at 31/12/2023. Non-tutorship employers are grouped under the heading 'others'.

Nom de l'employeur	EC	С	PAR
CNRS	0	13	3
ENS PARIS-SACLAY	6	0	2
Total personnels	6	13	5

GLOBAL ASSESSMENT

The research carried out by LBPA teams is in line with the missions of CNRS and ENS Paris Saclay. Scientific output is very good overall, and research promotion activities are strong. The members published in peer-review journals, some of them in widely read journals (e.g. Nature Comm., Nature Chem. Biol, EMBO Reports) or more specialised ones (NAR, Journal of Virology). Some difficulties (e.g. occasional drop in production or own resources) may have arisen during the past period, but appear to be temporary and probably linked to the laboratory's move to Saclay and the pandemic. This move brought a number of advantages, such as access to nearby technological resources and opportunities for collaboration. However, it has been accompanied by a number of departures, notably of ITA staff, which have been partially offset thanks to the efforts of the various players, but the unit still needs to consolidate its group of technical support staff. Given the number of regular staff, the number of students is adequate, and their work and the quality of their supervision lead to first-author publications for each of them.



DETAILED EVALUATION OF THE UNIT

A - CONSIDERATION OF THE RECOMMENDATIONS IN THE PREVIOUS REPORT

The director has been attentive to the recommendation of the previous committee to avoid the dispersion of the subjects. Special attention has been paid to reduce the dispersion of projects. The main themes are now around two major areas of cancer and infectious diseases, with applications mainly in diagnostic field. The existing lines of research have been reinforced by the arrival of new researchers (infectious diseases and antimicrobial resistance) and the creation of a new team. In parallel successes in the various calls for projects have increased significantly in 2023 and are being maintained in 2024.

The previous committee recommended that internal collaborations need to be strengthened to increase interteam cohesion, and membership of the IDA, where LBPA is the only life sciences unit, should create more synergies with the physics and chemistry of the federation's other units. The unit disagreed with this statement, and had pointed out that thirteen out of eighteen financial projects involved one LBPA team, and five teams were involved in projects with IDA. For the current period, LBPA highlights five IDA projects, six recently accepted in 2024, two co-directed theses and one funded postdoc. Also, three IDA-LBPA projects, not funded by IDA, and one ANR project is also involving collaboration between IDA and LBPA.

The team's leaders are willing to increase inter-team cohesion. If initiated projects have not yet led to joined publications, some are in preparation.

The previous report mentioned that the unit should encourage its partners to take advantage of the Cifre scheme. According to the unit, the Cifre plan was not justified as few activities have led to a long-term partnership with an industrial company. Yet, the unit has initiated a discussion with Servier.

B- L'unité gagnerait dans ses activités de recherche en attirant d'autres équipes ou d'autres chercheurs et enseignants-chercheurs pour atteindre une masse critique.

All current LBPA teams have been strengthened by the arrival of new researchers or associate professors. Discussions are currently underway to welcome an associate professor from the Paris-Saclay University into A. Nawrotek's new team. A senior scientist has joined the unit in 2024 to create a new team. Two young researchers applied for ATIP-Avenir CNRS program.

Several LBPA ITAs have left without being replaced. The director successfully prioritised the replacement of an administrative assistant. The person in charge of the laundry was replaced by an ITA from another team, but the replacement for the L3 manager is still missing.

The recommendations concerning the ERL Inserm are null and void as the ERL was not created as planned. Concerning the dissemination of information, the director reports that 'laboratory council reports are widely circulated at laboratory level, and meetings with team leaders are more frequent. Some information is widely circulated at laboratory level, while others are relayed by team leaders to their team members.'

B - EVALUATION AREAS

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

Assessment on the scientific objectives of the unit

The unit conducts fundamental multidisciplinary projects, integrating molecular and cellular approaches to elucidate mechanisms of biomolecules interactions. The unit aims to play a major role in the field of health in the service of the society, particularly in cancer or in infectious diseases. In this aim, the unit develops diagnostic tools or therapeutics tools, with an excellent capacity of valorisation.



Assessment on the unit's resources

State subsidies remained stable during the period, and own resources obtained in 2023 ensure the teams' financial resources. In this respect, the unit is excellent. The unit benefits from regular funding from the supervising bodies. The unit was successful in obtaining grants (3.2 M€ on the period) from competitive national (ANRS, ANR, INCA, plan cancer Inserm, Sidaction, FRM, maladies rares) and international agencies (international research project with China) that support the unit scientific objectives. Overall, the unit's resources are adapted to the scientific objectives.

Assessment on the functioning of the unit

The unit is well organised, with a laboratory council, team leader meetings and team meetings. The unit has organised some non-scientific events. Information and cohesion between students need to be reinforced, and efforts to consolidate interactions between teams should be pursued.

1/ The unit has set itself relevant scientific objectives.

Strengths and possibilities linked to the context

The research developed by the LBPA teams are in line with the mission of the CNRS and of ENS Paris Saclay. Indeed, they conduct fundamental multidisciplinary projects in the field of health in the service of the society. They strengthen the interdisciplinarity inside the unit and with external groups, and the applied and valorisation aspects were reinforced. In this aim, they worked to recruit new teams and staff with the help of a SAB. They have strengthened collaborative projects with ENS Paris Saclay, and developed interdisciplinary projects with IDA and with other ENS laboratories, with researchers of other disciplines at Paris Saclay University. The participation in the Prometheus program should be a favourable context to develop collaborations.

They also develop biomedical applications, with the contribution of the SATT Paris Saclay, leading to the creation of the Kimialys start up. They developed several contracts with BPI, DARRI Pasteur institute Carnot, Biotem company. They are strongly involved in teaching, and share knowledge with the public.

Weaknesses and risks linked to the context

The planned recruitment, in the context of team(s) ATIP are supposed to be part of the drive to refocus the themes. However, they will not necessarily reinforce existing themes, but rather add new ones.

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

Strengths and possibilities linked to the context

New permanent researchers and associate professors have joined several teams. A new team has been recruited in January 2024.

One administrator and three technical staff departures are to be deplored just before or since the move to Saclay. A new administrator has been recruited. Discussions are underway with CNRS to hire a person (CDD/around summer 2024) for the laundry/autoclave service.

The LBPA's financial resources are divided between recurrent allocations from the two supervisory authorities (CNRS and ENS Paris-Saclay) and own resources, which represent the contracts of the four teams. SE are used for repair, maintenance, common expenses, and a part is given to the teams. The technical platforms are free of charge for lab members. The majority of the resources comes from funding agencies (ANR, ANRS, INCA) and others from foundations and valorisation. The diversity of the origins of funding should avoid the lack of resources for the unit.

Recurrent allocations were stable, the 'external' resources have strongly decreased between 2018 and 2022. The tendency was reversed in 2023, ensuring 80% of the financial resources of the teams in 2023.



Several causes were proposed: the Covid crisis and/or the move to Paris Saclay campus. The LBPA research is mainly fundamental. Yet, the unit succeeded in several applications with societal impact in the field of bio-health.

The research of LBPA benefits from the new geographical location of LBPA.

LBPA benefits from a stimulating environment with the proximity of physicist and chemist colleagues that allows the development of interdisciplinary projects.

In addition, the unit members have access to cutting-edge technologies (Soleil synchrotron, ISMO for correlative/multimodal confocal microscopy), due to the proximity with Paris-Saclay site. LBPA is partner of some proposal (as an example Sesame), to update NMR instruments and contribute financially to the maintenance of equipment, which allows access to the platform for LBPA members.

Weaknesses and risks linked to the context

The number of technical support staff is low, with some teams having none at all. Several emeritus researchers have joined the teams, but there is no mention of how long their subjects will be pursued, or for those who have left during the period, how or whether their subjects have been taken over by others.

3/ The unit's practices comply with the rules and directives laid down by its supervisory bodies in terms of human resources management, safety, environment, ethical protocols and protection of data and scientific heritage.

Strengths and possibilities linked to the context

The priority order to replacement is decided during lab meeting between team leaders followed by validation by the laboratory council. The unit is accompanied by a SAB. While the main criterion for recruitment is excellence, it appears that there is no significant bias in the gender distribution, except for the group of directors and professors where the women are minoritarian.

Several procedures are assessed to protect the scientific assets and information systems as part of the 'rules of procedure of the lab'. As a soon-to-became ZRR, LBPA has been part of an audit to eventually reinforce digital security. The unit has applied measures to protect the environment: limit the air travel, set up of pooled orders and a common stock room.

Weaknesses and risks linked to the context

The laboratory's workforce has decreased since the last evaluation, but efforts are made to set up recruitment. Concerning the platforms and the laundry/autoclave service, the responsibilities have been redistributed among several researchers and support functions. Replacing the engineers remains a high priority for the laboratory. Efforts should be made to encourage women to apply for positions as DR or professor.

EVALUATION AREA 2: ATTRACTIVENESS

Assessment on the attractiveness of the unit

The attractiveness of the unit is excellent. The unit offers expertise in nationally and internationally recognised fields, which contributes to its visibility and attractiveness. It hosts or has access to the technological platforms essential to its various projects, making it an attractive place to host visiting professors or new teams. Members of the unit are heavily involved in various boards, conference organisation and editorial responsibilities, all of which contribute to the unit's reputation. The unit worked to recruit new teams and staff with the help of a SAB.



Strengths and possibilities linked to the context

1/ The unit has an attractive scientific reputation and is part of the European research area.

At ENS level, several members have been involved in the scientific and administrative council; They are part of juries (PhD track jury, recruitment jury). Two were director and deputy director of DERbio and director of Institut d'Alembert.

LBPA members are strongly involved at the university level (part of research/local/scientific councils), and at the CNRS level (member of the national committee, chargé de mission for the CNRS biologie, ...).

They belong to several scientific organisations and assessment bodies, learned societies.

LBPA members are regularly invited to conferences (23 including 16 international) and involved in organising committees of national and international conferences (10). Four members of LBPA have editorial responsibilities (associate editors, review editors), others were guest editors of special issues.

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

Integration of new entrant is performed at the unit level, (booklet, training for sensitive rooms, security, practical informations) and at the team level. The LBPA has welcome several international visiting professors and postdocs/docs funded either from their countries or from ENS Paris Saclay.

3/ The unit is attractive through its success in competitive calls for projects.

While the financial resources had decreased in the previous period, now the resources have increased in 2023 2024 with a higher number of laboratory staff. The teams had success in competitive call for projects: three teams have an international collaboration within an international research project (IRP), another one has an international ANR.

Most of the contracts come from national projects (ANRS, ANR, INCA, plan cancer Inserm, Sidaction, FRM, maladies rares). The unit has also obtained several valorisation contracts, and around fifteen local projects (labex, IDA, DIM, Idex paris saclay..)

It is important to mention that several personnel have been funded on national and local contracts (5 PhD, 12 post doc, 7 technical staff).

Small equipment of teams, accessible to all laboratory members, are acquired on these contracts (less than 50 k). The SE subvention d'état can finance small common equipment (less than 25k). For costing equipment, request is addressed to supervisory authorities. Particularly, the ENS has created the Foster fund, supporting the laboratories. LBPA can be cofinancing some equipment, and participate in the maintenance of the equipment, ensuring this way the access of the teams to the equipment/platform. The maintenance and repair are carried out by the SE. The ENS makes available an intervention fund in case of an unpredictable repair.

They are also involved in two national investment programs (PIA). Prometheus IHU funding equipment and engineers/postdoc, and the Luma PEPR, funding PhD students or postdoc if they succeed.

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

The team members present several expertise in wide area which are nationally and internationally recognised (structural biology, imaging virology...). This participates in the visibility and attractiveness of the unit. In addition, the unit host three platforms which are essential for the different research projects of the teams.

(i) L2-L3 laboratories for cell culture, (ii) Biophotonics and cell imaging and (iii) Crystallisation.

The L3 is equipped for virus production and replication and has access to qPCR equipment, L2 cell culture.

The second platform is divided in two parts, one with a strong expertise in time resolved fluorescence measurements, and the second related to cell optical imaging (several microscopes including two confocal microscopes).

The third platform is for crystallisation of biological macromolecules. It allows self-service access to equipment for projects of crystallography (screening, analysis, optimisation of conditions), linked to the expertise of the lab in Xray crystallography. The proximity of Synchroton Soleil is an advantage.

All LBPA platforms are free of charge for all its members and are open to the whole local/national community, in most cases in the form of collaborations.

All platforms are under the scientific and technical responsibility of one member of the laboratory.

Weaknesses and risks linked to the context for the four references above

The low number of permanent technical staff constitutes a major risk. Replacing the platforms engineers and laundry technicians remains a high priority for the laboratory.



Assessment on the scientific production of the unit

The unit productivity ranges from very good to excellent, depending to the subjects covered and despite a period of moving to a new site. All are published in peer-review journals, some of them in widely read journals (e.g. Nature Comm., Nature Chem. Biol, EMBO Reports) or more specialised ones (NAR, Journal of Virology). Unit members hold leading positions as the first or last author in 79 articles. 108 over 172 publications were produced with at least one international partner.

Strengths and possibilities linked to the context

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

The total number of publications has remained constant between 2018 and 2023 with 172 publications. The average annual production per permanent staff also remains constant (considering that the period is 6 years versus 5 for the previous one) with a light increase on the global period normalised by the number of permanent. 46.5% of the publications (79 over 172) show a member of LBPA in first, last or corresponding position. 63% were produced with an international partner, with a collaboration with China particularly fruitful. Some are published in widely read journals (Nature Comm., Nature Chem. Biol, EMBO Reports...) while others are published in well-regarded, more specialised journals (NAR, J. Virol.).

2/ The unit's scientific production is proportionate to its research potential and properly shared out between its personnel.

Information exchange is done regularly through team leader meetings, lab council, and annual general meeting. Internal seminars gave the priority to young researchers and PhD students. Two CNRS and two associate professors have been recruited during the period, all joined a team first, then two formed a team. Two defended their HDR, two others are in preparation. All PhD students have a publication as the first author (or in preparation) at their thesis defence. In some cases, technical staff may be involved as authors. For example, in the team with the highest percentage, technical staff are associated twelve times out of 29 publications, often in works where team members hold a leading position. However, this does not take into account publications where staff could be thanked. In addition, not all teams have support staff.

Internal seminars altern with external seminars where guest researcher is invited by the laboratory.

3/ The scientific production of the unit complies with the principles of research integrity, ethics and open science. It complies with the directives applicable in this field.

To guarantee the traceability of the results, laboratory notebooks are supplied. A register is kept in the office of the administrative manager to write the name and number of the notebook. The direct supervisor signs the notebook for the non-permanent staff. The notebooks remain in the laboratory in case of a member departure. The team leaders are responsible for the scientific integrity and honesty. In case of doubt, the unit director, or even a mediator at the ENS Paris Saclay can be approached. This was not happening during the period. To consider the contributions, this is discussed at the team level. Publications are uploaded in HAL.

Strengths and possibilities linked to the context for the three references above

The scientific production of LBPA was very good during the period, despite a period of moving to the new site.

Weaknesses and risks linked to the context for the three references above

The total number of publications corresponding to the present members has decreased in 2023 (due to Covid-19, moving to Saclay or decreased in resources (2018-2022). Inter-team projects are undergoing but have not been published yet. This should be a focus/special attention in the lab.



EVALUATION AREA 4: CONTRIBUTION OF RESEARCH ACTIVITIES TO SOCIETY

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

The LBPA has organised several events sharing knowledge in partnership with CNRS and ENS Paris Saclay. The evaluation is very good to excellent with participation to Sidaction day, year of the biology, summer school, fete de la science. With the creation of a startup, maturation/prematuration contracts, patents, development of systems for the diagnostics, the unit has successfully participated in the contribution of research activities to society. The unit encourages the PI to develop applications. The evaluation for this reference is very good (for registered patents) to excellent (strat up creation, licenced patents).

Strengths and possibilities linked to the context

The main research domain of the unit is fundamental research. Yet the teams develop collaborations with nonacademic world, mainly in diagnostic domain, that derives from their fundamental research.

1/ The unit stands out for the quality and the number of its interactions with the non-academic world.

Some unit teams have developed collaboration with industry. In the biomedical field and mainly in the field of diagnostics, some applications are in the continuum of the research of the teams. They appear as collaborative contracts with companies, payment of salary, and have led to the deposit of patents. They represent products for the economic and social world. In addition, LBPA is also involved in education courses with ENS Paris Saclay and CNRS formation enterprises.

2/ The unit develops products for the cultural, economic and social world.

The unit has developed applications in diagnostic and therapeutic field. As mentioned in the Self-Analysis document, it is the fundamental approach that guides the research, and the resulting applications are guided by this research.

In the diagnostic field, based on a strong expertise in surface chemistry and diagnostics, the GLISS project, developed in LBPA, led to the creation of the start-up company Kimialys created in 2020 after obtaining a maturation grant for the GLISS project (and ongoing collaboration with LBPA financed by BPI).

Several teams developed assays for the detection of microorganisms in relation with health (SARS-CoV-2, antibiotic susceptibility test, two patents) and in collaboration with private company, hospital and CNR.

Regarding the development of therapeutic compounds, the unit develops several anticancer and antiviral/antimicrobial compounds (several patents).

Nine patents have been registered since 2019, four concerning the development of detection systems for the diagnostics and five for the development of therapeutic compounds in virology, bacteriology, cancerology. These fields constitute the main application areas of the unit.

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

The LBPAs is active in interaction with the public and debates in society. On the occasion of the Sidaction days, LBPA regularly organizes popularised scientific conferences, thematic roundtables and workshops on HIV/AIDS, led by recognised experts in their field. The third edition of the conference was held in March 2019 with the winner of the 2008 Nobel Prize for Medicine and President of Sidaction, who gave a plenary lecture to provide an update on AIDS research.

The LBPA took part of 'the year of the biology' by organising an event attended by thirty secondary school teachers. Lectures, visit of the LBPA, meeting with the teams...

In July 2023, the LBPA in the context of the ENS Paris Saclay participated in the summer school by supervising high school students for one week.

Finally, LBPA regularly takes part to the 'Fete de la Science'. In 2022 and 2023 LBPA ran an atelier where students were immersed in a forensic science scenario.

During the Covid-19 crisis, an associate professor has posted a video explaining the Covid screening tests.

Weaknesses and risks linked to the context for the three references above

No weakness has been identified.



ANALYSIS OF THE UNIT'S TRAJECTORY

To develop its research, the unit will be organised around a director and 5 teams. Three will globally continue their previous orientations and themes, one of them having its current team leader retired during the next period, who will be replaced by an identified new team leader.

A fourth team in agreement with the laboratory director and the two supervisory institutions will show significant changes as a newly created team (since the 1st of september 2023), with the permanent members of the former team Cherfils around a new team leader, Agata Nawrotek, already in place.

In January 2024, a new senior scientist (Meriam El Karoui) has joined the unit and developed her new research project.

The unit reaffirms in its trajectory a dual position between the fundamental study of molecular mechanisms involved in pathologies and applications for diagnosis. Main applications are in microbiology (pathogenic bacteria, virology), cancerology (drug delivery, diagnosis...), pharmacology (focus on novel targets, drug mechanism), and resistance mechanisms to drugs.

Team Delelis. The team will continue to study viral production from unintegrated DNA, anti-drug resistance for integrase, and characterisation of antiviral compounds. Collaborations with two teams from the unit are reported.

Team Mauffret. The current team leader will retire halfway and will be replaced by an identified team leader, Dominique Fourmy, with a concomitant change of team name: "Structural Analysis of Nucleic Acids Interactions and Pharmacological Applications". The team will focus on the study of the interactions of D(R)NA with proteins (viral nucleocapsid proteins, nucleosome) or ligands (antibiotic-RNA interaction), and studies of pharmacological agents mainly in the field of infectious diseases;

Team Heddi. Continue the characterisation of DNA G-quadruplexes (G4) and other non-conventional (non-B) DNA structures, with extension to cellular context. This team will continue successful applicative G4-related projects such as the photo-controlled intracellular release of ASOs using plasmonic gold nanoparticles (anti-cancer approach), the ultrasensitive detection of pathogens (collaborations with Inrae and the Kimialys start-up) and DNA origami (collaboration with the NTU, Singapore, in the context of a recently accepted IRP program)

Team Cherfils. The team is closed since September 2023

Team Navrotek: (Created in September 2023) All permanent members of the former 'Structural biology of small GTPases' team, but one, have expressed their wish to join the newly created team, headed by Agata Nawrotek named 'Membrane Interfaces and Associated Pathologies' The main project of this team aims to study the dynamics of molecular interactions in multi-protein systems occurring at the membrane-cytosol interface and regulating cellular processes like cell division, migration and trafficking. In particular, this team will seek to understand the molecular mechanism and the temporal involvement of multi-protein systems that alternate between cytosol and membrane to control cellular processes like cell division, migration and trafficking. They will study, on the one hand, the membrane peripheral protein BCR and its contribution to Philadelphia Chromosome-related leukaemia and, on the other hand, the IQSEC-mediated signalling pathways and its role in different pathologies, i.e. tumour metastasis and X-linked intellectual disability

Team El Karoui: This new team, named "Bacterial Systems Biology and AntiMicrobial Resistance" arrived in January 2024. It focuses on antibiotic resistance using an interdisciplinary approach for studying the DNA damage response from a single cell to the population.

Demonstrating a willingness to forge links with the non-academic world, research projects have led to invention declarations, patent filings and the creation of a start-up company, and the unit will continue in this direction.

The teams have established national and international collaborations that they believe should be consolidated (new teams have arrived to consolidate certain collaborations, membership of the IHU, etc.). Scientific output has benefited from some of these collaborations, which have led to joined publications and funding. The different teams have secured financial supports for several years. The unit has supervised theses, most of which have led to several publications.

The unit's aim is to develop a strong existing structural expertise, with different aspects, as well as high-resolution cellular imaging. Extending the studies to the tissue level and 3D models is one of the directions the unit would like to develop. The unit maintains the excellent in-house technical facilities required for its activities. The unit benefits from surrounding structures for methodological aspects: Soleil, CryoEm, Titan etc. Generally speaking, the unit is involved in the environmental context, whether in terms of teaching, which gives it access to students,



or participation in local networks providing access to cutting-edge infrastructure, all of which are provided by the environment, and necessary to support the unit's themes. The unit has taken part in outreach and cultural events.



RECOMMENDATIONS TO THE UNIT

Recommendations regarding the Evaluation Area 1: Profile, Resources and Organisation of the Unit

Special attention will be paid to the presence of the unit in the local scientific context, reinforce existing collaborations, develop new ones between teams, and consolidate the national and international collaborations. Visibility could be enhanced, beyond the IRP, through the submission of European projects. In particular, young teams should be encouraged to apply for ERCs.

The unit could consider perpetuating the L3 by strengthening virology with a collaborative and mutualising vision. The site's resources could enable the virology cluster to consolidate its projects.

The number of personnel involved in technical support is weak and should be increased in taking advantage of the external funding or being supported by the supervising bodies.

Recommendations regarding the Evaluation Area 2: Attractiveness

The unit will continue to recruit additional teams/researchers and would like to develop studies combining artificial intelligence and molecular dynamics. The lab is multidisciplinary, and has a good environment and collaboration with evolutionary biologists and applied mathematicians. However, the unit must ensure that it can provide the necessary support for these new arrivals in terms of premises, fixed-term contracts, etc. The unit must ensure that the themes of new teams reinforce existing themes, to avoid dispersion.

Recommendations regarding Evaluation Area 3: Scientific Production

The unit's ambition is to become an internationally referenced world leader life science laboratory at ENS Paris-Saclay. The teams of LBPA are concerned by the thematic and methodological developments, which would also reinforce the strong interdisciplinary identity of the laboratory, with several international collaborations. Collaborations between teams already exist. The different teams of the lab also have several local, national and international collaborations, existing or just starting. The unit should ensure that these interactions are strengthened by the new teams that will lead to new international collaborations. Particular attention should be paid to the publications of newly created teams, so that their own publications take precedence over those obtained through collaboration.

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

The unit will continue the interactions with nonacademic world and valorisation (Satt Paris Saclay). The unit should be encouraged to persevere in this area, where they have been active in the past, with very nice successes.



TEAM-BY-TEA.M. OR THEME ASSESSMENT

Team 1:

Fundamental Virology and Pharmacology of Infectious pathologies

Name of the supervisor: Mr. Olivier Delelis

THEMES OF THE TEAM

The team's research focuses on understanding biomolecular interactions, with particular emphasis on protein-DNA or protein-ligand interactions (HIV-1 integrase and helicases). The first area aims to understand, from a functional point of view, the mechanisms of resistance of HIV integrase to the various anti-integrases. The second, more fundamental, area aims to understand the role of non-integrated molecules in the HIV-1 replication cycle. The final, more methodological, area has led to the development of an innovative test for the sensitive and rapid detection of Covid.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The previous committee had noted the low level of participation by members of the team in conferences and the low level of exploitation of its patents. There were perhaps too many projects in progress for the size of the team, and thought should be given to attracting more interest from the international community. In collaboration with a private company, Biotem, the team developed a new sensitive and reliable methodology to detect specifically the SarsCov-2 virus. The team's leader was regularly invited in conferences (national and international invitations).

Catégories de personnel	Effectifs
Professeurs et assimilés	1
Maîtres de conférences et assimilés	1
Directeurs de recherche et assimilés	3
Chargés de recherche et assimilés	0
Personnels d'appui à la recherche	2
Sous-total personnels permanents en activité	7
Enseignants-chercheurs et chercheurs non permanents et assimilés	1
Personnels d'appui non permanents	0
Post-doctorants	0
Doctorants	2
Sous-total personnels non permanents en activité	3
Total personnels	10

WORKFORCE OF THE TEAM: IN PHYSICAL PERSONS AT 31/12/2023



EVALUATION

Overall assessment of the team

The team is recognised for its expertise in developing methodologies for detecting and quantifying viral nucleic acids. It holds several patents related to these methodologies. Over the evaluation period, the team published 29 articles, with a team member as the last or corresponding author on eight of them. Additionally, five patents were filed, two of which were developed by team members. The team successfully secured fifteen grants, with eleven led by a team member as the principal investigator, including two ANR contracts. Overall, this is very good to excellent.

Strengths and possibilities linked to the context

Given the relevance of the team's work in viral DNA and resistance mechanisms, there is potential to attract industry partnerships, particularly with pharmaceutical companies interested in antiviral therapies. With a shift toward HIV-related research involving photoactivatable molecules, the team can tap into a growing area of interest in virology.

Weaknesses and risks linked to the context

The head of the L3 laboratory has retired in April 2023. His replacement is a high priority.

Analysis of the team's trajectory

The team will continue to develop its current projects.

RECOMMENDATIONS TO THE TEAM

Discussions should be held with the other laboratories on campus that may need an L3 in order to find a joint solution for recruiting an engineer to be in charge of the L3.

The team need to recruit more PhD students.

Inter-team collaboration with Team Heddi and the potential link between G4 and 3' Polypurine tract need to be developed.



Team 2 :	Structures and interactions of nucleic acids
Name of the supervisor:	Mr. Olivier Mauffret

THEMES OF THE TEAM

The team specialises in the study of nucleic acid-nucleic acid and nucleic acid-protein interactions using biophysical, structural and molecular modelling methods. The topics are all related to the structure of nucleic acids (guanine tetrads) and their interactions with proteins (viral nucleocapsids, helicases, RNA polymerase, nucleosomes) or ligands of various kinds (antibiotics, antivirals), with the objective of developing pharmacological agents.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The previous committee noted the low participation of team members in conferences, the low number of invitations and the team's difficulty in attracting graduate students and postdoctoral fellows. Increasing the visibility of certain groups and cohesion between groups, little contact with industry (no patents filed), difficulty in funding HIV projects.

The team has hosted five PhD students and one postdoc. The involvement of the team in the IHU Prometheus should open new recruitment perspectives (2 postdoc/engineers). The cohesion of the team, given the number of permanent researchers (5DR, 1 MC, 1CR), is still not evident. The team still has not been able to obtain significant funding on the HIV nucleocapsid project. The team has filed four patents over the 2018-2023 period, a clear improvement.

Catégories de personnel	Effectifs
Professeurs et assimilés	0
Maîtres de conférences et assimilés	1
Directeurs de recherche et assimilés	5
Chargés de recherche et assimilés	1
Personnels d'appui à la recherche	2
Sous-total personnels permanents en activité	9
Enseignants-chercheurs et chercheurs non permanents et assimilés	2
Personnels d'appui non permanents	0
Post-doctorants	0
Doctorants	0
Sous-total personnels non permanents en activité	2
Total personnels	11

WORKFORCE OF THE TEAM: IN PHYSICAL PERSONS AT 31/12/2023



Overall assessment of the team

The team includes nine permanent staff with strong expertise and methodological developments. The team has developed excellent collaborations, maintaining an outstanding level of production (79 articles) with a good visibility. The team has obtained substantial funding via the IHU Prometheus, but will need to obtain more to secure its future. The non-academic activity of the team is excellent to outstanding with four patents filed and the creation of the start-up Kimialys. Overall, the team has an excellent scientific output, developing new methods while addressing important biological questions.

Strengths and possibilities linked to the context

This is a well-established team with nine permanent members (5DR, 1CR, 1 MC, 1IR, 1TCS) and two DR emeritus. The scientific production of the team is excellent to outstanding with 79 articles (42 as main contributors) including 40 articles from the Franco-Chinese IRP/LIA, in very good to excellent journals (Nucleic Acids Research, Journal of Molecular Biology, Journal of chemical theory and computation). The visibility of the team is good to very good. Many collaborations have been established as attested by the number of collaborative publications.

Weaknesses and risks linked to the context

The team has little involvement in teaching activities, which could hamper its access to future PhD students. Low self-financing in relation to the number of permanent staff, which could also hinder individual development. The complementarity of the team projects with those of a new team must be ensured. The difficulty of the team to secure funding for HIV nucleocapsid project raises the question of the future of this topic in the medium term. Regarding the publications of the five doctoral students, two PhD students do not appear to have published any first author papers, probably on hold due to the patent application.

Analysis of the team's trajectory

The team will continue to develop its current projects. The future retirement of the PI has been well prepared with Dominique FOURMY as the future team leader

RECOMMENDATIONS TO THE TEAM

To maintain the current dynamic, the team will need to secure more funding, particularly from ANR (only one obtained in the previous period).



Team 3:

Structure, function and bioengineering of non-conventional nucleic acids

Name of the supervisor: Mr. Brahim Heddi

THEMES OF THE TEAM

The team studies the structure and dynamics of non-canonical nucleic and how this can impact biological processes. In addition, it uses non-canonical structures of nucleic acid to develop nanotechnology applications.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

This is a new team, created in 2022.

WORKFORCE OF THE TEAM: IN PHYSICAL PERSONS AT 31/12/2023

Catégories de personnel	Effectifs
Professeurs et assimilés	0
Maîtres de conférences et assimilés	1
Directeurs de recherche et assimilés	0
Chargés de recherche et assimilés	1
Personnels d'appui à la recherche	0
Sous-total personnels permanents en activité	2
Enseignants-chercheurs et chercheurs non permanents et assimilés	1
Personnels d'appui non permanents	0
Post-doctorants	0
Doctorants	2
Sous-total personnels non permanents en activité	3
Total personnels	5

EVALUATION

Overall assessment of the team

This is a newly created team which shows great promises for the future with an excellent network of collaborations including an international research project (IRP) supported by CNRS.

Strengths and possibilities linked to the context

The team seeks to understand how a G4 fold with a left-handed twist, and is present in an aptamer with antiproliferative activity. They also study G4 structure where a vacant G site is replaced by water molecules and how these structures can interact with dinucleotides or cyclic dinucleotides, potentially leading to self-assembly of G4 named Gwires. They develop a fluorescent Guanosine analogue tool to study RNA G4 structures and their dynamics. The team also seeks to unravel the role of G4 structure in protein-nucleic acid recognition and they notably identify a G4 recognition motif in the human helicase RHAU or a new ankyrin binding motif. The team is also interested in the role of gold nanoparticles, as carriers for antisense therapy oligonucleotides, and whose dissociation is controlled by laser illumination. Aptamers are also developed in the team as reporting



devices to detect pathogens, e.g. S. aureus in the milk. A collaboration with the start-up Kimialys to develop a diagnostic test for the presence of pathogens based on nucleic acid amplification Lateral Flow Assay technique is underway. The team published eight papers in a highly reputed journal, e.g.; Angewante or JACS and the PI was

invited twice to international workshops. Regarding the attractiveness, a new assistant professor (ENS Paris-Saclay) recently joined the team (January 2023). It hosted two PhD students and one postdoc Several grants were obtained including two ANR, one IRP with Singapore, and a grant from Bpifrance (24k€) for the collaboration with Kimialys.

Weaknesses and risks linked to the context

The PI pursues its collaboration with its former lab where he was a postdoc. This is a productive collaboration (now in the frame of an IRP grant) but this creates a certain unbalance in the publication list where almost all the publications are co-signed by the two labs.

Analysis of the team's trajectory

The team plans to pursue, or even extend its current projects.

RECOMMENDATIONS TO THE TEAM

Regarding the projects and given the relatively small size of the team, it might be wise to restrict its effort on few selected items. Other projects could potentially be addressed in the future if the size of the team becomes larger.



Team 4: Structural biology of small GTPases Name of the supervisor:

Ms. Jacqueline Cherfils

THEMES OF THE TEAM

This team focuses its research on small GTPases focused on three main areas: (i) exploring the structure-function mechanisms that regulate the activity of human GTPases implicated in different diseases (ii) contributing to advancements in chemical biology and therapeutic development, and (iii) characterising the mode of action of bacterial GTPases.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

There was a recommendation regarding the arrival of a new team to create an INSEM ERL ('Équipe de Recherche Labellisée') but this team finally moved to a different unit.

WORKFORCE OF THE TEAM: IN PHYSICAL PERSONS AT 31/12/2023

Catégories de personnel	Effectifs
Professeurs et assimilés	0
Maîtres de conférences et assimilés	0
Directeurs de recherche et assimilés	0
Chargés de recherche et assimilés	0
Personnels d'appui à la recherche	0
Sous-total personnels permanents en activité	0
Enseignants-chercheurs et chercheurs non permanents et assimilés	0
Personnels d'appui non permanents	0
Post-doctorants	0
Doctorants	0
Sous-total personnels non permanents en activité	0
Total personnels	0

EVALUATION

Overall assessment of the team

This team has pioneered the field of small GTPase and benefits from an outstanding reputation. The scientific contribution of the team is outstanding too with many key discoveries on GTPases and how one can modulate their activity.

Strengths and possibilities linked to the context

The team work is primarily cantered on uncovering the structural and biochemical principles that govern small GTPases, with particular attention to their modulation by activators (GEFs), inhibitors (GAPs), bacterial effectors, and enzymes involved in post-translational modifications. They notably focused on the largely unexplored role of membranes in GTPase signalling through the development of artificial membranes to reveal how the binding to the membranes affects the balance between 'on and off' states of GTPases. This led in particular to the discovery of how the bragsin inhibitor, initially discovered by a chemical screen in yeast, affects the



Arfgef BRAG2 by an unprecedented mode of inhibition of protein-membrane interaction. Based on the huge potential of this result, they revisited small molecule inhibitors and investigated new ones with major impacts in cell biology, notably in plants or in parasites.

Building on their expertise in chemical biology and the GEF proteins, they identified new inhibitors of different GEF that might lead to new treatments against osteoporosis, cancer or even heart failure. The team also addresses the role of bacterial GTPases, or the small host GTPases that are targeted by toxins from pathogens. They notably unravelled the 3D structure the AnkX protein Legionella, a toxin that grafts a phosphocholine moiety to host Rab GTPases to perturb vesicular traffic and the counteracting mechanism of the Lem3 effector. The scientific production of the team is outstanding with eighteen publications in highly reputed journals including, as corresponding authors, three Nat. Comm. and one Nat. Chem. Biol. (2019) and one review in Febs Lett (2023) where the PI was a guest editor, plus one patent.

Over the period, the team has recruited one CR at the CNRS and the PI won two prices: one from the 'French Académie des Sciences' (2019) and one from the 'Collège des Sociétés savantes académiques de France' (2023) and she was elected in 2021 as a member of the EMBO society. Several team members participated, or are still involved, in different scientific committees: (i), ENS Paris-Saclay (i.e. in the Scientific Council or in the PhD track jury); (ii) Univ. Paris-Saclay (Local Council of the Pascal Institute and the Steering Committee of MD/PharmD-PhD program, Labex Lermit Laboratory Council and Research Council of the Faculty of Pharmacy). The PI is a member of the Executive Committee of the European Biophysical Societies Association and of the Executive Board of the French Biophysics Society.

The attractiveness and appeal are excellent to outstanding.

The team has been extremely successful in raising funds with five locals, eight National (ANR, INCA) and three grants from foundations (2 FRM + 1 Maladies rares). The team is also involved in international collaborations, notably through an IRP (International Research Projects) grant with the laboratory at Yale University, USA. They also got a CNRS prematuration grant and the grants totalling ~ 2.9 M€.

The team hosted three PhD students, eight postdocs and six engineers.

Overall, the attractiveness and appeal of the team are excellent to outstanding.

Weaknesses and risks linked to the context

There was some uncertainty about the outcome of this team for a while, and, unfortunately, this led to the departure of the team leader.

Analysis of the team's trajectory

N/A : the team was closed on September 1st 2023 by a decision of the supervising bodies

RECOMMENDATIONS TO THE TEAM

The committee hopes that the former team leader will find a new lab to pursue her exceptional carer.



New Teams Trajectory:

Team Navrotek: Membrane Interfaces and Associated Pathologies

The team includes 5 permanent (2 full-time researchers, 1 professor, 1 assistant-professor, 1 engineer).

The main project of this team aims to study the dynamics of molecular interactions in multi-protein systems occurring at the membrane-cytosol interface and regulating cellular processes like cell division, migration and trafficking. In particular, this team will seek to understand the molecular mechanism and the temporal involvement of multi-protein systems that alternate between cytosol and membrane to control cellular processes like cell division, migration and trafficking. They will study, on the one hand, the membrane peripheral protein BCR and its contribution to Philadelphia Chromosome-related leukaemia and, on the other hand, the IQSEC-mediated signalling pathways and its role in different pathologies, i.e. tumour metastasis and X-linked intellectual disability

Regarding the future of the other team members, given the very high level of expertise acquired by team members so far, the committee is confident that the new PI and team members will continue to maintain their scientific achievements at an excellent level.

Team El Karoui: Bacterial systems biology and antimicrobial resistance

No human resource has been provided



CONDUCT OF THE INTERVIEWS

DATE

- **Start:** 28 novembre 2024 à 08h00
- **End:** 28 novembre 2024 à 19h00

Online

INTERVIEW SCHEDULE

NOTE: No obse	erver during the	e private sessions (in red below)
9:00 AM	9:15 AM	Preliminary meeting of the expert committee (closed hearing) , (Private Link 1)
9:15 AM	9:30 AM	Presentation of the Hcéres evaluation to the unit (SO/SVE3) (Public link)
9:30 AM	10:03 AM	Unit main outcomes (18'+ 15' Q/A) (Unit Director: E. Deprez), (all unit members present) (Public link)
10:03 AM	10:30 AM	Unit trajectory (12'+ 15' Q/A) (Unit Director: E. Deprez) (all unit members present) (Public link)
		TEAMS PRESENTATION
10:30 AM	11:05 AM	Team Delelis 'Fundamental Virology and Pharmacology of Infectious pathologies '(15'+ 15' Q/A+ <mark>5' PI Alone</mark>) (Public link)
11:05 AM	11:25 AM	Short Committee Debriefing (Private Link)
		TEAMS PRESENTATION
11:25 AM	12:00 PM	Team Mauffret' Structures and interactions of nucleic acids) (15'+ 15' Q/A+5' PI Alone) (Public link)
12:00 PM	12:35 PM	Team Heddi 'Structure, function and bioengineering of non- conventional nucleic acids' (15'+15' Q/A+5' Pl Alone) (Public link)
12:35 PM	12:50 PM	Short Committee debriefing (Private Link)
12:50 PM	1:35 PM	Lunch
		TEAMS PRESENTATION
1:35 PM	2:00 PM	
		New Team M. El Karoui ; Bacterial Systems Biology & Antimicrobial resistance (10'+ 10' Q/A + <mark>5' Pl alone</mark>)
2:00 PM	2:25 PM	New Team A. Navrotek: Membrane Interfaces & Associated Pathologies (10'+ 10' Q/A + <mark>5' Pl alone</mark>) (Public Link)



2:25 PM	2:35 PM	Short Committee Debriefing
2:35 AM	3:05 AM	Meeting with technical and administrative staff (in French), No PI, No observer (Private link 3)
3:05 AM	3:35 AM	Meeting with PhD students and postdocs (No PI, No observer) (Private link 3)
3:35 AM	4:05 AM	Meeting with researchers and teaching-researchers (No PI, No observer) (Private link 3)
4:05 AM	4:35 AM	Meeting with supervising bodies (Private link)
4:35 AM	5:05 AM	Break/Short Debriefing (Private Link 1)
5:05 AM	5:35 AM	Meeting with the head of the unit/deputy director (Public Link, UD only)
5:35 AM	6:35 AM	Committee meeting/final debrief: overview of all teams, Unit Trajectory update of the reports etc

PARTICULAR POINT TO BE MENTIONED

N/A



GENERAL OBSERVATIONS OF THE SUPERVISORS



Nathalie CARRASCO Présidente de l'ENS Paris-Saclay

4 avenue des Sciences 91190 Gif-sur-Yvette +33 (0)1 81 87 48 04 presidence@ens-paris-saclay.fr Haut conseil de l'évaluation de la recherche et de l'enseignement supérieure A l'attention de Monsieur le Président 2 Rue Albert Einstein 75013 Paris

Gif-sur-Yvette, le 11 mars 2025

Objet : Observations de portée générale sur le rapport d'évaluation, DER-PUR260025193 - LBPA - Laboratoire de biologie et pharmacologie appliquée.

L'ENS Normale Supérieure Paris-Saclay a pris connaissance du rapport d'évaluation du Laboratoire de biologie et pharmacologie appliquée (LBPA) et remercie vivement le comité d'évaluation pour le travail d'analyse et les recommandations faites.

L'ENS Normale Supérieure Paris-Saclay s'est engagée, avec le CNRS, dans un processus de recrutement de nouvelles équipes au LBPA. L'ENS Normale Supérieure Paris-Saclay poursuit ces actions de soutien à la restructuration du laboratoire, dans le contexte du nouvel écosystème du site Paris-Saclay. Nous portons également une attention particulière aux interactions entre disciplines sur le site de l'ENS, et soutenons le projet de création d'une chaire biologie-mathématiques.

Je vous prie d'agréer, Monsieur le Président, l'expression de mes salutations les plus cordiales.

Philippe Maître Vice-président recherche ENS Paris-Saclay

ENS Paris-Saclav



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