

EVALUATION REPORT OF THE UNIT

BFA – Unité de biologie fonctionnelle et adaptative

UNDER THE SUPERVISION OF THE FOLLOWING ESTABLISHMENTS AND ORGANISMS :

Université Paris Cité,

Centre national de la recherche scientifique – CNRS,

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

EVALUATION CAMPAIGN 2023-2024
GROUP D



In the name of the expert committee¹ :

Béatrice Morio-Liondore Présidente du comité

For the Hcéres² :

Stéphane Le Bouler, président par intérim

Pursuant to Articles R. 114-15 and R. 114-10 of the French Research Code, evaluation reports drawn up by expert committees are signed by the chairmen of these committees and countersigned by the President of Hcéres.

Pour faciliter la lecture du document, les noms employés dans ce rapport pour désigner des fonctions, des métiers ou des responsabilités (expert, chercheur, enseignant-chercheur, professeur, maître de conférences, ingénieur, technicien, directeur, doctorant, etc.) le sont au sens générique et ont une valeur neutre.

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

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Mme Soazig Le Lay - Peron Institut national de la santé et de la recherche médicale - INSERM

M. Thierry Oster Université de Lorraine (CNU64)

Mme Magalie Ravier Institut de Génomique Fonctionnelle

Mme Misbah Razzaq Institut national de recherche pour l'agriculture, l'alimentation et l'environnement - INRAE

Mme Stéphanie Venteo Institut National de la Santé et de la Recherche Médicale INSERM (PAR)

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Mme Sophie Ezine

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Mme Pauline Andreu, Faculté des Sciences d'Université Paris Cité

M. Yvan De Launoit et Carina Prip-Buus, CNRS

Mme Claire de Marguerie, Inserm

M. Raymond Bazin, IT PMN

CHARACTERISATION OF THE UNIT

- Nom : Unité de biologie fonctionnelle et adaptative
- Acronyme : BFA
- Label et numéro : UMR 8251
- Nombre d'équipes : 8
- Composition de l'équipe de direction : Jean-Marie Dupret (director), Joëlle Cohen-Tannoudji (deputy director)

SCIENTIFIC PANELS OF THE UNIT

SVE Sciences du vivant et environnement
SVE6 Physiologie et physiopathologie humaine, vieillissement

THEMES OF THE UNIT

Since its creation in 2009, the Functional and Adaptive Biology (BFA) unit's scientific objective has been to understand how the organism adapts to environmental (i.e. nutritional determinants and xenobiotic exposure) and endogenous (i.e. of endocrine and genetic origin) constraints in order to continue to function properly. The mechanisms underlying the organism's adaptations are analysed in physiological and pathological contexts, as well as during age-related functional alterations.

BFA currently comprises eight research teams, two of which make up the Labelled Research Team (ERL) Inserm team (teams 3 and 8, Inserm U1133). Since 2014, its research has focused on four main themes:

- Nutrition, which involves three teams:
 - o team 1 (B2PE: Biology and pathology of the endocrine pancreas) investigates the pancreatic component of diabetes pathogenesis,
 - o team 2 (REGLYS: Regulation of glycemia by the central nervous system) studies the functioning of three major sites of nutrient detection – olfactory bulb, hypothalamus, islets of Langerhans – that contribute to the regulation of glucose homeostasis,
 - o team 5 (C2OFFEE: Central control of eating behaviour and energy expenditure) deciphers the dialogue between the brain and peripheral organs that contribute to the regulation of energy metabolism.
- Degenerative pathologies and aging, which involves two teams:
 - o team 4 (basic and translational myology) carries out basic and clinical research on inherited muscle disorders as well as on other types of muscle dysfunction – sarcopenia, cachexia, etc.,
 - o team 7 (DPSA: Degenerative processes, stress and aging) explores molecular processes, biomarkers and therapeutic strategies to modulate aging, specifically in neurodegenerative and cardiac diseases,
- Reproduction handled by team 3 (PAG: Physiology of the gonadotrope axis) which carries out basic and clinical research on fertility.
- Toxicology, handled by team 6 (RMCX: Molecular and cellular responses to xenobiotics) which conducts basic research into the effects of anthropogenic xenobiotics on inflammatory respiratory diseases and cancers.

In 2019, the unit has been enriched by a fifth theme:

- Computational modelling handled by team 8 (CMPLI: Computational modelling of protein-ligand interactions) which focuses on in-silico profiling of small drug candidate compounds and the modelling of peptide-peptide interactions.

The specificity of the BFA unit is to carry out integrative research, covering in silico, omics, molecular and cellular biology and physiology, but not focusing on the ecosystem scale.

HISTORIC AND GEOGRAPHICAL LOCATION OF THE UNIT

In 2009, the BFA unit was set up as an Equipe d'Accueil Conventionnée (EAC4413), affiliated to Université Paris Diderot-Paris 7 (UFR Sciences du Vivant) and CNRS (Institut National des Sciences Biologiques/INSB). The seven initial BFA teams came from laboratories affiliated to both the CNRS and/or the University (Paris 6 or Paris 7). An emerging ATIP CNRS team, created in 2007, was also part of BFA.

In 2014, BFA became a Unité Mixte de Recherche (UMR 8251) of Université Paris Diderot and CNRS. Meanwhile, team 3 working on Reproduction was accredited by Inserm as ERL U1133.

In 2019, BFA integrated the new team 8 working in the field of computational modelling, which joined ERL U1133. BFA is one of the research units located on UPCité's Grands Moulins campus and is affiliated to the Faculty of Science. The laboratory is housed in the Buffon (three floors, 1400 m²), Lamarck A (one and a half floors, 550 m²) and Lamarck B (a half floor, 360 m²) buildings.

RESEARCH ENVIRONMENT OF THE UNIT

The BFA unit is one of the 50 research units of the Faculty of Sciences of Université Paris Cité, which has been awarded the IDEX label. It is located on Université Paris Cité's Grands Moulins campus in Paris Rive Gauche district (13th arrondissement).

BFA is part of the Life Sciences UFR (Sciences du Vivant). Among the university support systems for research and development, the BFA unit interacts in particular with the scientific council of the UFR Sciences du Vivant, as well as with the Pôles Recherche et Partenariats Industriels – Innovation – Entrepreneuriat of the Faculty of Sciences. BFA is also closely linked to the CNRS, through the National Institute of Biological Sciences (INSB), Section 24 (Physiology, physiopathology, biology of cancer). The ERL Inserm U1133 (teams 3 and 8 of BFA) is under secondary supervision of Inserm, specialised scientific commissions CSS3 – Physiology and pathophysiology of large systems and CSS1 – Cellular, molecular and structural biology.

The BFA unit hosts the Structural Bioinformatics Platform (RPBS), a Metabolism Platform and two technical facilities (Cell imaging and cytometry facility (head: Cécile Tourrel-Cuzin, MCF UPC); Imaging (head: Florence Delort, IGR UPC)).

The Structural bioinformatics platform RPBS (Parisian Resource in Structural Bioinformatics; head: Pierre Tufféry (DR Inserm) and Julien Rey (IGR UPC)) is IBISA-certified and member of the Institut Français de Bioinformatique (IFB) and the ChemBioFrance research infrastructure. It is also a member of the recently set up iPOP-UP cluster for omics analysis. RPBS collaborates at an international level.

The Metabolism platform (coordinator: Jean-Marie Dupret (PR UPC)) is composed of three interplaying technical resources: Functional and Physiological Exploration (head: Serge Luquet (DR CNRS) and Julien Castel (AI CNRS)); FlexStation (head: Eloïse Airaud (IGE UPC)); Bioprofiler (head: Jean-Marie Dupret (PR UPC), Fernando Rodrigues-Lima (PR UPC) and Linh-Chi Bui (IGE UPC)). The Metabolism platform collaborates at a regional level.

UNIT WORKFORCE: in physical persons at 31/12/2022

Catégories de personnel	Effectifs
Professeurs et assimilés	14
Maîtres de conférences et assimilés	19
Directeurs de recherche et assimilés	4
Chargés de recherche et assimilés	8
Personnels d'appui à la recherche	25
Sous-total personnels permanents en activité	70
Enseignants-chercheurs et chercheurs non permanents et assimilés	4
Personnels d'appui non permanents	9
Post-doctorants	6
Doctorants	26
Sous-total personnels non permanents en activité	45
Total personnels	115

DISTRIBUTION OF THE UNIT'S PERMANENTS BY EMPLOYER: in physical persons at 31/12/2022. Non-tutorship employers are grouped under the heading 'autres'.

Nom de l'employeur	EC	C	PAR
UNIVERSITÉ PARIS-CITÉ	33	0	18
CNRS	0	8	6
INSERM	0	4	1
AUTRES	1	0	3
Total personnels	34	12	28

GLOBAL ASSESSMENT

The BFA (Biologie Fonctionnelle et Adaptative) unit comprises eight research teams located on the Grands Moulins campus of the UP Cité in Paris. Two of these teams make up the Équipe de Recherche Labellisée (ERL) Inserm (Inserm U1133). The laboratory carries out original and innovative research to understand how the organism adapts to environmental constraints (i.e. nutritional determinants and exposure to xenobiotics) and endogenous constraints (i.e. endocrine and genetic origin) in order to continue to function properly. An obvious strength is the development of original and innovative approaches in basic and translational/clinical research to answer questions linked to scientific objectives. Integrative approaches covered by the teams include *in silico*, omics, molecular and cellular biology and physiology. The BFA unit also hosts two platforms: a structural bioinformatics platform (RBPS) certified IBISA and a metabolism platform. As at 31/12/2022, the BFA's human resources are excellent, comprising 70 permanent staff, 4 clinicians and 45 contract staff.

Concerning scientific production, the unit published 322 original articles (including 145 as first or last authors, mainly in specialised journals), with very good to outstanding quality ratings (e.g. *Annals of Oncology*, *Cell Metabolism*, *Circulation*, *Aging and Disease*, *Cell Death & Differentiation*, *Diabetologia*, *eLife*, *Cell Reports*, *Molecular Metabolism*). The number of articles co-authored per student is overall excellent (n= 1.7 as first author and n=3.9 as total publications). Among other achievements, BFA highlighted 1) a new concept that brain circuits controlling reward-dependent processes are directly controlled by circulating lipids, offering new insight into how obesity and high-fat diet can deregulate eating behaviour and lead to compulsive eating; 2) the importance of astrocytes in controlling neuronal activity and, consequently, in modulating metabolism and food intake; 3) the role of transcriptional co-integrator ASC-1 as a novel regulator of the cell cycle and proliferation (in pre-differentiated cells) and growth of myogenic cells, whose gene mutations cause a new congenital muscle disease (ASC-1-related myopathy).

About attractiveness, research activities were supported by excellent fund-raising, from local to international levels, both in competitive calls and in economic/private partnerships. Over the period, BFA members have secured an average annual external funding of 1.6 million euros. Overall, 73% of these funds are provided by European and international funds (25%), ANR (30%) and foundations/associations (18%). Twenty-seven percent are provided by local authorities (8%), PIA (6%), industry (11%) and services (2%). During the assessment period, the unit was a leader in 9 ANR (e.g. Fat4Brain, Betadiamark, HERO, AstrObesity, PIF21, REPROFUN, NUTRIPATHOS, KINHIB-DIAB...) and eleven national (e.g. Fondation de France, CNRS IRP, ANSES...) projects, 6 European (Eurostars, Innovative Medicines Initiative, Marie Skłodowska Curie...) and 6 international (Modern Diet and Physiology Research Center-research grant-Project, Allen Foundation Inc., Cure CMD, NIH R01) projects. The unit is particularly proactive in setting up national, European (e.g. Ireland, Germany, Spain) and international (e.g. Canada, Chili, China, Japan, USA) research networks.

BFA members benefit excellent national and international visibility, as illustrated by the FRM accreditation of one team, the award of four academic distinctions including a Légion d'honneur, participation in fourteen learned societies (e.g. Société Francophone du Diabète, Société Française de Nutrition, Société Française d'Endocrinologie, Association Française pour la Recherche sur la Trisomie 21, association vaincre la mucoviscidose...), the organisation of fourteen congresses and workshops (e.g. International Congress of Neuroendocrinologie, 2018; International Congress on Neuromuscular Diseases 2020 & 2022;), 9 invitations abroad as a visiting professor and the welcoming of 9 foreign PhD and fifteen postdoctoral fellows. Research training activity is very good: fifteen postdoctoral fellows and 58 doctoral students (32 PhD defences during the term of office, with 37 holding an HDR at the end of the term) were welcomed. BFA unit is also co-heading of a European master and an Erasmus Mundus Joint Master.

Concerning valorisation, the strengths of the unit's activities vary on three fronts: economic/private partnership (mainly involving 5 teams out of 8), clinical research (mainly involving 4 teams) and societal outreach (mainly involving 4 teams). The unit has filed two joint patents (one European, both not licensed) during the mandate. One previously filed patent in 2014 has supported the creation of the biopharmaceutical company THAC (The Healthy Aging Company based in Florida and in France), one BFA member being cofounder of the company. The unit has obtained fourteen contracts with private companies (e.g. Aenetis, Boehringer Ingelheim, Bariatek Medical, Novo Nordisk, Infinitus Society, Gefluc...). Public outreach is excellent. Members participate every year in the national 'Fête de la Science' events, and regularly speak on various media including television channels, radios and press, interventions within associations or via the creation of a blog on website.

Among all the teams, the committee identified one outstanding team and one excellent to outstanding team.

DETAILED EVALUATION OF THE UNIT

A – CONSIDERATION OF THE RECOMMENDATIONS IN THE PREVIOUS REPORT

The unit has fully responded to the efforts requested.

A – Recommendations on scientific production and activities

- Increase publication in the best journals in its disciplinary fields: The number of publications in top-quartile journals (Q1) has increased significantly since the last contract (~90% vs. ~75%).
- International collaborations and corresponding fund-raising have been maintained at their previous high level (contribution of 26% to BFA's total funding).
- Increase recruitment of foreign postdocs: the percentage of foreign postdocs has risen to 10/18 (56%) during the current contract, compared with 7/18 (39%) during the previous contract.
- PhD students follow up: BFA follows the PhD monitoring rules established by the doctoral schools, and ensures that PhD students take part in at least one national or international conference.

B – Recommendations on the unit's organisation and life

- Enhanced inter-team collaboration is illustrated by the higher number of inter-team publications compared to the previous contract (45 vs. 31).
- Enhanced interaction between members: Communication has been facilitated by the set-up of an intranet network end of 2017. Social events (staff lunch breaks, assemblée générale) are held yearly. Digital meetings were maintained during Covid pandemic.
- Pooling resources with new labs settled on the campus: The integration of modelling team 8 in 2019 has enabled the BFA unit to be a driving force in setting up the iPOP-UP cluster (funded by IDEX Univ. Paris Cité), which aims to federate bioinformatics/omics analyses at UPCité via an integrative approach from the single cell to animal models.
- A dedicated meeting room has been created to organise internal seminars that involve PhD students and postdocs. Three scientific days were organised within BFA between 2017 and 2022.
- Building maintenance and organisation: A significant improvement in the safety storage of hazardous chemicals was achieved. Workplace security has been improved with the implementation of an access badge system in 2018. The premise occupation has been rationalised so that each team is now present on a single floor.

C – Recommendations on scientific strategy and projects

- Strengthening the strategy for a unit project: BFA maintained the unit project proposed in 2016, but took advantage of the integration of the new team 8 Modelling to improve its multi-scale approach.

B — EVALUATION AREAS

Consigne de rédaction pour tous les domaines d'évaluation (1, 2, 3 et 4) : En considérant les références définies dans le référentiel d'évaluation des UR, le comité veille à distinguer les éléments remarquables, qui se rapportent à des points forts ou à des points faibles. Chacun des points est étayé par des faits observables notamment à partir des éléments déposés dans le portfolio. Le comité apprécie si le bilan de l'unité est en cohérence avec son profil d'activités.

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

Assessment on the scientific objectives of the unit

BFA's scientific objectives are highly relevant. The scientific strategy answers to societal challenges in the field of fertility, endocrine disruptors, myology and non-communicable chronic diseases. Research outcomes have a significant basic and clinical impact.

Assessment on the unit's resources

The BFA unit has excellent resources. Allocations from the three supervisory bodies average 450,000 euros per year. Human resources have remained balanced over the term thanks to the arrival of a team in 2019, since the unit has seen the departure of five researchers and six PAR. The unit's activity profile is in line with its missions and the possibilities offered by the human resources made available to it by its supervisory bodies. There is a very good match between the unit's scientific objectives and the premises, infrastructures and platforms available (i.e. RPBS and Metabolism platforms).

Assessment on the functioning of the unit

The BFA unit offers a good, relatively appropriate working environment, albeit very compartmentalised. Interaction and cohesion between BFA members are not optimal. The BFA relies on the resources and tools made available by the supervisory authorities. The eight teams are assisted by a dedicated management team of nine people since 2019 (1 administrative manager, 4 financial managers, three laundry workers, one technician in charge of the IT network). Management has implemented specific and relevant actions to operate in compliance with the rules and directives defined by its supervisory bodies. However, the identification of representatives responsible for RPS is still lacking.

1 / The unit has set itself relevant scientific objectives.

Strengths and possibilities linked to the context

BFA scientific strategy meets the objectives of the supervising organisations. It is evaluated by CNRS – INSB – section 24 committee. In addition, the strategy of ERL Inserm U1133 (teams 3 and 8 of BFA) is evaluated by the specialised scientific commissions CSS3 – Physiology and pathophysiology of large systems and CSS1 – Cellular, molecular and structural biology.

The BFA unit's strategy is in line with the general objectives set by the UPCité's Life Sciences UFR and Science Faculty, which aim to develop an integrative, multidisciplinary research, from *in silico* to the organism. This strategy is complementary to those developed on other UPCité campuses, which are more focused on themes such as microbiology, medical genetics, etc. The scientific objectives of the BFA unit benefit from the skills and experimental methods specific to the campus's Physics and Chemistry units. The integration of the computational modelling team 8 in 2019 has stimulated the development of new integrative approaches.

Weaknesses and risks linked to the context

The multidisciplinary organisation of scientific strategy results in a juxtaposition of teams whose themes may be poorly interconnected. Given the challenges of achieving excellence in both basic and translational research, this situation can be associated with a loss of efficiency.

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

BFA institutional funding is provided by the supervisory bodies, University (41%), CNRS (35%) and INSERM (24%). It has increased by 29.6% from 373 k€ in 2017 to 482 k€ in 2022. Contribution from INSERM has increased from 47 k€ to 115 k€ in 2019 since the ERL has evolved from one to two teams. Having three supervisory bodies helps maintain stable the number of researchers, technicians and administrative permanent staff.

Indeed, the total number of permanent staff in the unit has remained stable from 2017 (72 permanent staff excluding emeritus) to 2022 (74 permanent staff excluding emeritus). The number of CNRS researchers fell by 31% (13 to 8) due to several retirements, while the number of technical staff remained constant. On the other hand, the number of teaching researchers increased by 32% (33 vs. 25), while the number of BIATSS remained virtually stable (18 vs. 20). Finally, INSERM personnel remained stable, with five researchers and one technical staff. The staffing table includes the personnel of the teams but also the members of the unit assigned to full-time transverse missions (9 persons since 2019: 1 administrative manager, 4 managers, 3 laundry staff, 1 technician in charge of computer network). BFA successfully provides personal support for career development and mobility. Staff promotions for advancement in grade were very good for all three supervisory bodies. The number of staff arrivals and departures is balanced.

Concerning building resources, each team occupies a laboratory surface proportional to the number of its permanent staff, PhD students and postdoctoral fellows. Yet, wet labs are located in Buffon building (3 floors, 1400m²) and Lamarck B (half a floor, 360m²). Computational modelling team 8 is located in Lamarck A building (one and a half floor, 550m²). In addition to these surfaces, there are premises shared by several teams (culture rooms, shared equipment...) and others that are dedicated to BFA platforms, which are located close to the teams they support. BFA also has a meeting room located in the Lamarck B building.

The BFA's momentum is supported by platforms and facilities that are well positioned in terms of activity, complementarity and visibility. Besides two technical facilities (cell imaging and cytometry, imaging) that support internal functioning, the BFA unit contributes to UPCité's shared technology offering through two technology platforms: the IBiSA RPBS platform and the metabolism platform. These platforms complement the other resources available on the Grands Moulins campus (Buffon Animal Facility, imaging, genomics and proteomics platforms of UMR 7592-Jacques Monod Institute and epigenomics platforms of UMR7216-Epigenetics and Cellular Fate). The activities of both platforms generate a technological offering dedicated to scientific collaborations or services for academic or private partners.

Weaknesses and risks linked to the context

The number of permanent staff per team is unbalanced in terms of researchers and technicians, as is the relative contribution of each supervisory body. In particular, the institutional allocation for each team is calculated according to the number and affiliation of team members, which means that teams made up mainly of ECs receive less institutional allocation than those made up of INSERM or CNRS researchers.

Although grade promotions have been successful, changes of body remain limited, particularly for BIATSS/IT and CNRS/INSERM researchers. Only one technician in charge of computer network may not be enough to efficiently assist the entire BFA unit. The RPBS platform is undergoing a major transformation in terms of organisation and management, requiring careful monitoring. The Metabolism platform needs an in-depth audit to refocus its activities and ensure its long-term viability. In particular, the merger with the LCBPT unit (Saints Pères Campus) to support the acquisition of a high-resolution Mass Spectrometer raises questions about the BFA's ability to support the Physiological Functional Exploration axis. Scientific and technological collaborations or services with private partners are limited. Finally, there is a shortage of meeting and social rooms. This contributes to a lack of interaction, which is exacerbated by the fact that teams are spread over several buildings.

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 organisation of prevention and safety is effective. As far as possible, it respects parity in training and career development, and successfully provides personal support for career development and mobility. A data

protection system has been stabilised through the UPCité supervisory body. It is well organised in terms of safety and security, given its activities involving biological, chemical, radioactive, nanoparticle and liquid nitrogen risks. The unit has initiated a process of reflection and action for sustainable development.

The unit operates in compliance with rules and directives defined by its supervisory bodies. It is well organised in terms of unit organisation, human resources, health and safety at work, and security of information and information systems. A plan for the continuity of research activities (PCA) was established during the COVID-19 crisis. The organisation of prevention, safety and monitoring of psychosocial risks is effective. It involves a safety and security board composed of 4 safety and security assistants, one of them being also the competent person in radioactivity. The safety and security board should be reinforced with 4 new assistants of prevention in 2023. It board assists BFA executive team with proposals of new occupational safety and security orientations and with monitoring of updates in regulatory dispositions in these fields (contained use of biological material, genetically modified organisms, new chemical regulation, radioactive regulation, psychosocial risks, Document unique d'évaluation des risques/single document of risk assessment (DUER) etc.). Training courses on major risk management are provided monthly to BFA members in particular newcomers.

Regarding the premises, they include 7 confined-use laboratories with L2 biosafety level certification. For confined use, all in vitro experiments are performed in 21 class 2 biosafety hoods (PSM2), which are serviced under an annual service contract (ADM Labo Services Company). Teams working with genetically modified organisms (maximum pathogenicity level of group 2) hold certifications (renewed in 2021) issued by the French Ministry of Research/Department of Regulated Research Practices – GMO Unit, on the advice of the French High Council for Biotechnology. GMOs and the resulting waste are evacuated as DASRI via specific containers complying with standard NFX 30–505, which are themselves processed by a specialised company (SITA Île de France). All waste is then collected by UPCité's collection/transport services provider PROSERVE, and incinerated by CGECP.

With regard to chemical risk, fourteen fume hoods are available and their compliance is checked annually (UPCité). Since 2018, the unit has been equipped with 6 safety cabinets with integrated filtering ventilation.

For radioactive risk, in most cases, chromogenic substrate-based detection systems are used. The laboratory is authorised to hold and use sealed and unsealed sources for research purposes (currently: radionuclides 3H, 14C, 125I). Two Radiation Protection Officers from the BFA unit are responsible for radiation protection safety and ASN authorisation renewal. Four dedicated rooms and benches and the equipment used are clearly identified. An individual dosimeter, analysed quarterly by IRSN, must be worn when handling 125I, 14C and 3H. There is a β -particle counter and a γ -particle counter, maintained by Perkin Elmer. In addition, laboratories using β and γ -ionising radiation are equipped with isotope detectors. The nanoparticles used by Team 6 (notably TiO₂, Ag, Fe, Zn, SiO₂, carbon nanotubes and carbon black) and to a lesser extent by Team 3 (carbon nanoparticles) are available in dry powder form. These nanoparticles are handled in a dedicated room with a ductless filtration hood (Captair Chem Powermidcap) under negative pressure and fitted with a Hepa H14 filter. The person (team 6) in charge of this room and six other team members are responsible for handling the nanoparticles.

A storage facility for liquid nitrogen containers is located in the basement of the Buffon building. Three additional containers (60L) were acquired by BFA in 2022 for installation on its premises.

Low- and medium-speed centrifuges, ultracentrifuges and autoclaves are checked annually (by CSLM and STEAM respectively) in line with regulatory requirements. Each autoclave is under the responsibility of an authorised operator (trained to handle autoclaves), and a full list of authorised operators is posted nearby.

Rooms presenting specific risks (biological, chemical or radiological) are not subject to general cleaning by a specialised external company.

Regarding animal experimentation, most team members are qualified to work with animals, and have received experimental training appropriate to their level of practice (2, 1, surgery). UPCité's Buffon CEEA 040 animal experimentation ethics committee gives its opinion on projects proposed by BFA teams. Cécile Cruciani-Guglielmacci is a member of the BFA unit (team 2), currently chairs the Buffon animal experimentation ethics committee. Serge Luquet is also the Bureau d'Éthique Animal referent for the CNRS Délégation IDF-Villejuif.

Since April 2021, the BFA unit has set up a 'sustainable development' working group with a person in charge and about 6 members. It provided good practices guidelines to 'Reduce energy expenditure', 'Reduce consumption', 'Reuse instead of throwing away' and 'Sort waste by type for recycling'. Joint actions have been settled with the university competent services to optimise the management of waste. Actions have also been undertaken to increase the energy efficiency of the laboratory (maintenance and adjustment of freezers in particular).

Weaknesses and risks linked to the context

The retirement of the Information System Security officer in 2022 may have destabilised the unit's data protection management, particularly with regard to securing the system for the rapid implementation of the electronic logbook. Monitoring of psychosocial risks is not effective. The RPS referents have not been identified and trained appropriately.

EVALUATION AREA 2: ATTRACTIVENESS

Assessment on the attractiveness of the unit

The attractiveness of the BFA unit is excellent. The unit won 7 major international contracts (6/7 carried out by BFA members) and twelve major European contracts (6/12 carried out by BFA members), as well as 24 ANR projects (9 carried out by BFA members) and eleven national projects (5 carried out by BFA members). It welcomed 9 foreign students, mainly from China, 58 doctoral students (32 defended during the term of office and 37 with an HDR at the end of the term), fifteen postdoctoral students, as well as numerous visiting researchers. It hosts an outstanding RPBS platform and a highly recognised Metabolism platform.

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

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

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

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

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

The BFA unit has international visibility, in training (co-direction of a European master's degree and a joint Erasmus Mundus master's degree and coordination of Cost Action EUTOPIA training activities) and research. BFA members have received 75 invitations to international conferences/seminars, have been involved in fourteen international congresses (co) organisations and 6 web conferences, and have been members of committees for European funding applications.

International exchanges are active, with ten outgoing mobility for BFA researchers and nineteen foreign PhD students and postdoctoral fellows at BFA. In preparation for the next contract, following two calls for applications, the BFA unit will welcome eleven new researchers from various backgrounds to strengthen five teams (1 DR and 1 CR CNRS, 2 DR Inserm, 4 PU, 2 MCU, 1 MCU-PH).

BFA members are involved in nineteen international contracts as principal investigators (among which 12 European) and secured an average annual external funding of 1.6 million euros. Overall, BFA is highly successful in getting external funding, 73% of these funds are provided by international funds (25%), ANR (30%) and foundations/associations (18%). Twenty-seven percent are provided by public funding (8%), PIA (6%), industry (11%) and services (2%). BFA financial resources fluctuate from year to year, with an upward trend. The administration of funds is clearly explained and fair for the teams and units.

Furthermore, BFA members have chaired three Special Interest Groups or learned societies and have been members of scientific committees (3 CNRS sections, 3 CSS INSERM and INRAE, 3 CNU). Four academic awards including one Légion d'honneur and fifteen PEDR/5 RIPEC were received.

BFA has developed two technology platforms and two technical facilities. The IBISA structural bioinformatics platform (RPBS) joined the unit in 2019 with the integration of team 8, and continues to expand, giving birth to two departments headed by Samuel Murail and Gautier Moroy respectively, and attached to the national infrastructures Institut Français de Bioinformatique (IFB) and ChemBioFrance, respectively. It is involved in teaching activities and meets 70,000 worldwide demands for bioinformatics and omics analyses. The expansion of its analytical services is supported by the IdEx Université de Paris.

The Metabolism platform hosts two facilities (Physiological Functional Exploration, GC and LC Bioprofiler) to meet the demands of both academia and industry. It is cited in 46 publications and involved in teaching activities.

The technical facilities (cell imaging & cytometry, imaging) are more dedicated to internal uses. Overall, these installations offer a wide range of technical skills enabling a broad spectrum of approaches, from a single cell in silico and omics development, biochemistry, cell and molecular biology, to translational research.

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

Weaknesses were mainly identified in the operation of the platforms: The RPBS platform faced changes in its management and organisation. It has been split into two departments, now attached to distinct national

infrastructures. In addition, Sjoerd de Vries, former co-head of RPBS, has left. These transformations need to be closely accompanied to maintain the platform's competitiveness and visibility. The Metabolism platform is in deficit and faces difficulties to upgrade its equipment.

Few other weaknesses can be highlighted: Regarding the hosting policy of the Unit, opportunities for PhD and postdoctoral students to take up university teaching assignments (monitorat, ATER) or even to be recruited as teacher-researchers seem relatively moderate. Collaboration of the unit with clinical teams seems moderate. However, one clinician (MCU-PH) will join the unit.

While the unit has obtained international, European and national funding for human resources/research/equipments, it has not successfully responded to international and European calls for projects associated with more substantial funding (ERC, Fondation Leduca). In addition, success in tenders (project) varies greatly from one team to another and from one year to the next.

EVALUATION AREA 3: SCIENTIFIC PRODUCTION

Assessment on the scientific production of the unit

The scientific output of the BFA unit is quantitatively (n=322 original articles including 145 as first or last authors published mainly in specialist journals) and qualitatively ranking from very good to outstanding, but relatively unbalanced among the different teams (team 5 in the top best). The unit publishes numerous original or review articles in the best specialised journals in its fields of expertise. However, the number of articles coordinated by BFA researchers and published in prestigious generalist journals, as well as the number of invitations to international conferences are modest for some teams. In contrast, the number of articles co-authored per student is overall excellent.

- 1/ The scientific production of the unit meets quality criteria.
- 2/ The unit's scientific production is proportionate to its research potential and properly shared out between its personnel.
- 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.

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

The BFA unit includes thirteen researchers (CR/DR/DREM), 37 MCU/PR/PREM/MCU-PH/PU-PH and 3 PH. These last 6 years, the BFA unit realised major contributions in the field of nutrition, degenerative pathologies and aging, reproduction, toxicology and computational modelling through multidisciplinary (basic, pathophysiological and translational/therapeutic) researches by using a combination of clinical, animal, molecular, cellular, pharmacological and *in silico* approaches. Some results led to the creation of a new company (The Healthy Aging Company) and the development of a clinical trial (evaluation of epigallocatechin-3-gallate to treat patients with Down syndrome) and an application (Covidanosmie) that have all direct implications for the improvement of the patients' health. In the last 6 years, examples of major contributions published in prestigious journals are 1. The role of GSK3b isoform in the diabetogenic effects of glucocorticoids in beta cells (Cell Death Dis. 2021) 2. The role of lipids in the nervous control of glucose homeostasis (Diabetologia 2018, Mol Metab 2018) and the one of hypothalamic lipoprotein lipase in the body weight gain control and glucose homeostasis (Diabetologia 2017) 3. A new concept about brain circuit controlling reward dependent processes controlled by circulating lipids (Cell Metab, 2020) and the key role of astrocytes in the control of energy metabolism (Cell Metab, 2022). 4. The first birth using vitrification of *in vitro* matured oocytes (Annals in Oncology, 2020) and the role of estradiol in the cell survival of granulosa cell tumours (J of Pathology, 2022). 5. The transcriptional co-integrator ASC-1 as a novel regulator for muscle growth (Annals of Neurology, 2020). 6. The modelization of human degenerative diseases in *Drosophila* (Hum Mol Genet, 2020). 7. The development of *in vitro* 3D cellular models to measure the toxicity of air pollutants (Scientific Reports, 2021), and 8. The development of a system pharmacology network integrating drug-target-pathway-disease relationships (J Chemoinform, 2021).

The BFA unit's scientific output between 2017–2022 is quantitatively very good to outstanding with 388 publications in international peer-review articles. These included 322 original articles and 66 reviews. There were

also 89 clinical articles. Members of the unit were PI (first or last author) in 45% of original articles. The quality of publications appears excellent since 90% of original articles are in the excellent journals of the discipline. The committee also underlines the scientific impact of publications in journals with a generalist readership such as: Cell Metabolism (n=3), Molecular Metabolism, J Pathol or speciality journals such as Cell Death Dis, Annals in Oncology, Annals of Neurology, J Cheminform, Cell Death and Differentiation, Hum Mol Genet, Frontiers in Cell and Developmental Biology. The BFA scientists also co-published with European and international collaborators including teams from German Aerospace Research Center (DLR/ESA campus, Cologne) and the University of Erlangen (Circulation, 2020). Members of the unit were also co-authors of other articles published in high quality journals including one Circulation, one Nature Com, one Cell Rep, one Endocrine Reviews. Other publications of BFA unit include 23 book chapters. Members of the unit realised 382 communications (199 in international conferences including 75 on invitation and 183 in national conferences including 78 on invitation) showing that the BFA unit has a very good national/international recognition. The number of publications per researcher (PR, MCF, DR and CR) is more than 1.5 articles per year, which is very good. Each team published at least two articles with another team in the unit. Despite the BFA unit's wide range of themes, inter-team publications represent 11.6% (45/388) of total production, which is also very good. The BFA unit does not hesitate to involve technical staff in publications, including as first authors. The participation of PhD students in the team's work and its promotion was attested by a notable number of articles co-authored by students (3.9 publications per fellow on average, including 1.7 as first author). The BFA unit recruited seventeen postdoctoral fellows for a mean duration of 27 months that is good.

The BFA unit has an internal regulation in which includes the policy of confidentiality, publication and intellectual property applicable to the results for each member including non-permanent persons. In each team, regular meetings are organised to discuss the techniques and results. The unit sets up actions for the reliability and traceability of data (laboratory notebooks paper version with a reflection for an electronic notebook). The BFA unit encourages staff to follow training courses on scientific ethics offered by the institutions. Regarding publications, researchers are invited to publish their results in agreement with their team director, by integrating the platforms if concerned and the funder(s), and by respecting the authors' signature rules.

The BFA unit is involved in animal welfare issues. Two members of the unit are involved in the local ethics committee. One agent is the chairman of the ethics committee (Buffon CEEA 040) and another is the referent of the animal ethics office for the IDF Villejuif delegation of the CNRS. All experimenters undergo initial training before any intervention and complete their skills booklet. Studies on human samples are carried out in, according to official rules (Loi Jardé). CODECOH declaration is regularly updated. The BFA unit is also particularly aware of open science and the publications are mainly published in open-access journals.

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

The committee notes that the rate of publication in generalist journals remains fairly low. The percentage of original articles by lead authors (first or last author) varies widely between the eight teams, ranging from 29% to 67%. During the 2017–2022 period, the BFA unit was the author of two international patents filed by two of the eight teams, which is relatively low given the potential clinical impact of the thematic addressed by the various teams. In addition, these two patents are not licensed.

Scientific production is relatively unbalanced within the various teams of the BFA unit (for example, the number of scientific articles per researcher per year during the period varied from 1 to 5 among the 8 teams). Moreover, the percentage of inter-team publications varies considerably from one team to another. The number of articles published in high impact journals is still limited, particularly in PDC, given the total number of technical staff (although this varies widely from team to team), the number of PhDs and postdoc students, and the number of research contracts. The BFA unit's researchers including 37 with HDR (with 8 defended during the period), supervised 32 students who defended their thesis (including 1 co-supervision) during the evaluation period, which is low. Moreover, this number is unbalanced between the different teams. The mean duration of the PhD thesis is 41 months that is more than 36 months. Two fellows stopped their PhD thesis. The mean number of publications per postdoctoral fellow is 2.6 but only 0.7 in PDC that is low.

The BFA unit is involved in aspects of scientific rigor and ethics, but electronic laboratory notebooks that would allow better traceability of raw data, analysis and results are not in place. There is no reference person for the data management and the unit has no specific procedure dedicated to the sustainability of data and software applications.

EVALUATION AREA 4: CONTRIBUTION OF RESEARCH ACTIVITIES TO SOCIETY

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

Depending on the team, the strengths of the unit's activities vary on three fronts: economic/private partnership (teams 1, 2, 5, 7 and 8), clinical research (teams 2, 3, 4 and 7) and societal outreach (teams 2, 4, 5 and 6). The unit has filed two joint patents (not licensed) during the mandate, one previously filed through Team 2 has supported the creation of the biopharmaceutical company THAC during the mandate, one BFA member being cofounder of the company.

- 1/ The unit stands out for the quality and the amount of its interactions with the non-academic world.
- 2/ The unit develops products for the cultural, economic and social world.
- 3/ The unit shares its knowledge with the general public and takes part in debates in society.

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

Its research outcomes have a very good socio-economic impact, particularly in the field of health.

The unit has a number of non-academic interactions. First, the unit has developed translational research projects with different health care centers including Lariboisière, Bichat, HEGP-Georges Pompidou, Pitié-Salpêtrière, Antoine-Béclère and Jean Verdier Hospitals. The goal being the characterisation of biomarkers of clinical interest, of cellular models allowing the development of new therapies and finally the testing of new drugs on potential targets. Second, the unit has regular industrial contracts (14 in total) with international companies (Novo Nordisk, Truffle Capital, Infinitus, Metabrain Research, Roquette...). In addition, the unit was able to fund doctoral students with CIFRE contracts (Bayer, Sisley).

The unit also developed products for the economic world by having been at the origin of the creation of two patents during the last period. A patent for slimming cosmetic compositions was filed in 2020 with the creation in 2021 of a slimming treatment called 'Le Sculpteur' in collaboration with Sisley Laboratories. A second patent describing new inhibitors of Irfk2/pp1 interaction was filed in 2020. Importantly, the unit participated in the creation of the biopharmaceutical spin-off THAC (The Health Aging Company) through team 2 (the group leader of team 2 being the co-founder of THAC) in 2018. Part of THAC's business is based on a previous patent of which two members of BFA team 2 are co-inventors. The objective of THAC is to develop a first-in-class drug candidate to type 2 diabetes mellitus and its severe complications. In line, the unit welcomed several members of THAC within the framework of the implementation of common research programs.

Another company created by a newcomer of the Unit (recruited via the 2020 call), that presently develops a peptide for the treatment of advanced solid tumours, will be linked to the unit during the next contact.

More generally, the dissemination of research to socio-economic and cultural actors is done through the classical means of scientific communication and, in addition, via learned societies and international cooperation networks.

Concerning interaction with public and society, the unit welcomes each year, pairs of students from the third year of secondary school (collège) and the second year of high school (lycée) for observation or as part of the 'Apprentice researchers' program organised by the 'Arbre des connaissances' association. Moreover, the unit participates every year in the national 'Fête de la Science' events. Finally, members of the unit also regularly speak on various media including television channels, radios and press, interventions within associations or via the creation of blog on website.

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

There is no obvious weaknesses concerning non-academic and economic interactions. Maybe the fact that only part of the teams is actively participating could be considered as a weakness, as this points to unbalanced economical activities between teams and evidences that external funding from the private sector could be reinforced (11% of external funding). Furthermore, the two recent patents are still not licensed. Finally, the number of PhDs in CIFRE contracts remains modest.

ANALYSIS OF THE UNIT'S TRAJECTORY

BFA's organisation and scientific policy will remain in line with the strategy put in place since 2019 for the years 2023–2024. The platforms will be strengthened with new equipment. In particular, a collaboration between the Bioprofiler axis of the Metabolism platform and the LCBP unit (Saints Pères Campus) is being built to acquire a high-resolution MS for targeted metabolomics. A plan has been put forward to replace positions left vacant by retirements, notably for the administrative manager. Hence during 2023, three recruitment (to replace two retirements and one outgoing mobility) and three incoming mobility moves were expected to be in place. Meanwhile, on suggestion of the Dean of the Faculté des Sciences, BFA has initiated a reflection to create a federation with the T3S Inserm-UPCité unit headed by Robert Barouki which shares similar thematic key words.

The 2025–2029 unit project is clearly presented. It is in line with the 'Strategy of Excellence (StratEx)' defined by the UPC, particularly with a view to establishing the UPC as a 'research-intensive, multidisciplinary university with links to the socio-economic world and a strong societal impact'. The project also responds to the missions of the three supervisory bodies (University, CNRS, INSERM) in both the academic and socio-economic worlds. It is characterised by the following significant changes:

- Change in the management team: Christophe Magnan and Pierre Tufféry have been approved to become the new head and deputy head, respectively.
- The BFA's scientific strategy will revolve around three key words (Environment, Physiology, Health) which are more global but in line with the previous strategy. To achieve the health goal, translational projects will be encouraged through participation in 'Instituts hors murs', e.g. three teams are participating in the 'Institut du Diabète'.
- The unit will welcome five Inserm staff (1 CR, 3 DR, 1 AI) and wish to request a co-labelling CNRS-INSERM or an increase in the number of teams in the ERL.
- The unit will be structured into 7 teams, instead of eight, to which will be associated with the platforms and technical platforms as well as the administrative services. Four teams will not be significantly modified, except that two will have new leaders (current Team 7 (new Team 4) will be co-headed by S Birman and V Monnier, current Team 6 (new Team 5) will be headed by F Rodrigues-Lima). The most important changes are the following:
 - o Current Team 4 will not be renewed, staff redeployment is underway.
 - o Current Teams 1 and 3 will merged into Team 3 (EnDF) that will be headed by J Movassat. It will aim at understanding the interrelationships between the endocrine systems involved in glucose homeostasis and the reproductive functions. The interaction is already underway. Common animal models such as GK rats are used.
 - o Current Team 8 will be split into two separate teams with similar overall objectives but different methodologies. Team 6 (IsPP) will be headed by AC Camproux and Team 7 (TPM2PI) by Pierre Tufféry.
 - o Team 6 (IsPP) will explore the therapeutic potential of targets and design potential new drugs in the context of drug discovery by integrating different sources of chemical biology information. Team 7 (TPM2PI) will develop bi-functional peptides targeting specific protein/protein interactions as candidates for drug developments. Team 7 will welcome Angelita Rebollo, co-founder of the PEP-therapy company and will host the two heads of the RPBS new departments (Samuel Murail and Gautier Moroy). Ensuring the proper functioning of this team (e.g. with a codirection) will be particularly crucial, given the age of the team leader at the time of renewal and his involvement as deputy director of the BFA.

BFA strategy with the academic world

To increase its scientific collaboration and visibility at the local level, the BFA unit is actively involved in promoting scientific and technological interactions with laboratories present on the Grands Moulins campus (e.g. Jacques Monod Institute, the 'Epigénétique et Destin Cellulaire' unit and the 'Le Laboratoire Interdisciplinaire des Energies de Demain'). In addition, as it shares key words such as nutrition and environment with the T3S unit (Saint Germain-des-Près campus), discussions have been initiated with the Faculty of Science to develop interactions and increase their visibility as well as that of the UPC in the field of environment and health. Strengthening the links and visibility of the two units at local and national level could involve the creation of a federation (the framework remains to be defined).

With regard to supervisory bodies, the BFA is considering requesting co-labellisation with INSERM or an increase in the number of teams within the ERL. Its translational research strategy is in line with the INSERM 2025 strategic plan, and the unit will welcome five INSERM staff (4 researchers (1 CR and 3 DR) and one engineering assistant) over the 2025–2029 period.

RECOMMENDATIONS TO THE UNIT

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

The BFA unit needs more support to 1) guarantee completion of administrative, financial and HR formalities in due time, 2) speed up the renovation of the faculty building (including a common room to foster interactions between members), and 3) fix health and security issues (dysfunctional air conditioners, fume hoods and beta counter, as well as human well-being).

The executive committee should ensure direct and optimal top-to-bottom communication, make its decision-making process more transparent and communicate its decisions to the laboratory councils. It should ensure a rigorous system for announcing agendas and encourage the different categories of staff to meet and discuss before the laboratory board meeting. The BFA unit should implement measures for 1) better integration of new incomers (especially foreigners), 2) acquisition of leadership skills, 3) enhancing interactions between and within team members, and 4) support all staff for career progression, especially through providing up-to-date advice and by systematically taking part in meetings organised by the various supervisory bodies to arbitrate promotions for technical staff.

The unit will have to stabilise and evaluate the current organisation of its teams, and anticipate changes linked to the evolution of themes and planned departures. It is also recommended that the unit pursue its staff renewal strategy, particularly as regards technical staff.

Specific measures should be implemented to prevent gender imbalance at the executive level of the organisation (team leaders, decision-making bodies and direction of BFA).

A defined structure with two reference persons to provide support and guidance in the event of problems linked to psychosocial risks should be implemented.

The BFA unit needs support to ensure the continuity of the computer specialist position.

The Metabolism platform having reached a milestone in its operations, the committee recommends that consideration be given to refocusing the platform's expertise to better position it in local and national competition, and to better meet the demands of universities and industry. An audit could be envisaged.

Recommendations regarding the Evaluation Area 2: Attractiveness

To strengthen its international visibility, the BFA unit is encouraged to continue building upon existing successful internal experience and networks, as well as resources from governing bodies, to help more PIs to apply to European and international calls as carriers. Similar strategy could be applied to enhance the number of national projects carried by BFA members.

The unit could be more proactive in obtaining more CIFRE-funded PhD grants with industrial partners. Scientific and technological collaborations or services with private partners could be strengthened and external funding from private partners reinforced. This objective could be achieved by providing incentives and advices for less well-funded teams. Patent application and industrial valorisation could be increased at the center level by using the experience and success of some teams.

The unit should continue its excellent involvement in the organisation of international conferences, taking care to involve young researchers. All teams should strive for a sustained and regular presence at the best international conferences in their field, to enhance their attractiveness. The BFA unit should pursue its effort to attract young external scientists as well as senior scientists and/or teams.

Recommendations regarding Evaluation Area 3: Scientific Production

The BFA unit is encouraged to continue its dynamic policy of publication, trying to target generalist journals with a strong international reputation to improve the unit visibility. The unit should also continue its efforts to ensure that all its publications are available in open access (which does not simply mean encouraging publication in open access journals).

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

The BFA unit is encouraged to continue maintaining actions towards translating fundamental research into clinical applications, and to pursue public outreach activities. Given the societal importance of the themes addressed by the BFA unit, it is recommended to improve the communication strategy vis-à-vis civil society in order to increase the impact of the messages conveyed. Scientific and technological collaborations or services with private partners could be strengthened and external funding from private partners reinforced. This objective could be achieved by providing incentives and advice to less well-funded teams. The patent application and industrial valorisation could be increased at the center level by using the experience and success of some teams.

TEAM-BY-TEAM OR THEME ASSESSMENT

Team 1: Biologie et pathologie du pancréas endocrine

Name of the supervisor: MOVASSAT Jamileh

THEMES OF THE TEAM

The team 'Biology and pathology of the endocrine pancreas, B2PE' studies the biological pathways involved in plasticity, survival and function (i.e. insulin secretion) in pancreatic β -cells in both physiological and pathological contexts such as type 2 diabetes. The team has investigated the role of several proteins such as GSK3 β , the role of purinergic receptors P2Y and of the nicotinic acetylcholine receptors $\alpha 7$ subtype. Another key aspect developed by the team investigates the impact of the 'environmental inheritance' on the pancreas during the pre-conceptual period, *in utero* period and early postnatal life. The team is now interested in the potential of using pharmacological inhibitors of the DYRK1A kinase as a regenerative therapy for the treatment of diabetes.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

Integrating an international consortium like an EU project and obtaining support from SATT were recommended to increase publication levels, number of PhDs/postdocs and improve transfer of the team's research into new therapeutic strategies. Publications and impacts remained stable compared to the last HCÉRES campaign (26 original articles for 2017–2022 vs 27 listed for 2012–2017; 85% of them being Q1), although this includes 4 publications by B. Uzan (ongoing mobility 09/2020) and two by S. Tolu (recruited 12/2020) with their former laboratory affiliations, and two that cannot be counted as original publications (1 editorial, and 1 review Front Endocrinol 2019).

As coordinator, the team secured European (Eurostars- Horizon 2020) and French (1 ANR) funding fostering new collaborations with French (Perha Pharmaceuticals) and German (Endomedica) companies. No postdocs have been hired, but five PhD students were supervised and one additional member holds an HDR.

The team failed to recruit a full-time researcher as recommended, but an associate professor joined the team in 2020 who benefited of institutional layouts to devote 100% of his time to research (6-months in 2021 and 6-months in 2023).

Finally, the team was advised to finish ongoing works, and to carefully select molecular tools to modulate the relevant pathways. All ongoing projects were completed before starting new ones, and molecular tools (siRNA and shRNAs) are now currently used in the team.

WORKFORCE OF THE TEAM: IN PHYSICAL PERSONS AT 31/12/2022

Catégories de personnel	Effectifs
Professeurs et assimilés	1
Maîtres de conférences et assimilés	3
Directeurs de recherche et assimilés	0
Chargés de recherche et assimilés	0
Personnels d'appui à la recherche	1
Sous-total personnels permanents en activité	5
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	8

EVALUATION

Overall assessment of the team

The scientific production is very good attested by the publication of eighteen original articles in speciality journals as leader (Cell Death Dis., J. Cell Physiol) or collaborator in major journals (Nat Commun).
 The team's attractiveness is excellent as attested by successful ability to raise funds as coordinator from European (Eurostar) and national (1ANR) sources.
 Valorization is very good regarding interactions developed with biotech/pharma companies (2) and private funding obtained from MSDAvenir. No public outreach was reported.

Strengths and possibilities linked to the context

B2PE is composed of five members with tenure positions (1 PR, 3 associate PR, 1 engineer). One associate PR (ingoing mobility) and one engineer (competition) joined the team (2020).

B2PE published eighteen original articles from BFA-affiliated members with 77% of them being Q1 while 44% have B2PE members as first/last authors in speciality journals (Cell Death Dis., J. Cell Physiol; Chemosphere; Biochim Biophys Acta; J. Endocrinol), one book and eight reviews. B2PE contributed to improving the knowledge in the field of β -cell pathophysiology by reporting the role of GSK3 β in pancreatic islet inflammation during diabetes and in the deleterious effects of glucocorticoids (J. Endocrinol 2020, Cell Death Dis. 2021; Portfolio item1). B2PE also identifies P2Y receptor as a potential target to improve insulin secretion in diabetes (J Cell Physiol 2022; Portfolio item2), and the nicotinic acetylcholine receptors $\alpha 7$ as a key regulator of the islet mass (Biomolecules 2020; Portfolio item 4). Studying the impact of 'environmental inheritance' during the *in utero* and early postnatal periods (Portfolio item 4), the team reports a sex-specific impact of the father's nutritional/toxicological environment on male but not female offspring (Chemosphere 2022; Biomolecules 2021a), and that being fed by diabetic mothers alters β -cell mass/function (Biomolecules 2021b). Finally, a new axis is investigating the potential of DYRK1A inhibitors as a regenerative therapy for diabetes through interactions with biotech companies (Perha Pharmaceuticals; Endomedica; Portfolio item3). B2PE has developed a unique original experimental model (GK rats) facilitating collaborations, and a platform dedicated to FACS and TIRF microscopy platform (PIC2). B2PE had several collaborations with other BFA teams which led to 7 publications (including 3 reviews; 27%) and national and international (Luxembourg) collaborations in the frame of competitive funding (InCa-Program, ANR PRCI).

B2PE members are invited to international meetings (SFD and Perha Pharmaceuticals congress), one national conference and three national seminars. They obtained distinctions (RIPEC, Palmes académiques), acted as experts (HCÉRES, Diabetes UK, MRC UK), and are involved in several councils (University and BFA). The team leader is member of Editorial board of 'Nutrients' and Frontiers in Molecular and structural endocrinology'. B2PE was successful in attracting three foreign PhD students.

B2PE obtained funding as coordinator (7) from Europe (Eurostars 2021, 100k€), French agency (ANR PRCE, 342k€), foundations (SFD, Vaincre la mucoviscidose), private companies (MSDAvenir 167 k€, Aemetis) and as partner (2: InCa-Program 60k€, ANR PRCI 100k€).

B2PE was very successful in hosting 6 PhD students, from which 4 have defended their thesis (mean duration 41 months, 3.25 publication/fellow and 1.8 publication in PDC) and are now postdoc (France/abroad). PhD students funding was from MESRI (4), China scholarship Council (1) and region Ile-de France (1). Members of the team have a strong involvement in teaching/responsibilities in PASS/L3/M2/doctoral programs. B2PE has three HDRs, including one obtained in 2020.

Weaknesses and risks linked to the context

One engineer left BFA (2018), one engineer (12/2022) and one CR INSERM (2018) retired. There is still no full-time permanent researcher in B2PE. Whilst the team has access to human tissues through collaborations with clinicians, there is no integration of clinicians in B2PE that would strengthen the clinical application of the team's research. The team's selection of journals has limited impact in the field of diabetes or in general audience. The team research work does not have a strong international visibility. Only two PhD students are currently in the team for three HDR, and no postdocs have been recruited.

The vast majority of PhD supervision (5/6; 83%), grant/financial supports (9/10; 90%) and invitations to conferences (100%) are held by the team leader, while the associate PR of the team have very little visibility despite their scientific output. No reported activities in society.

Analysis of the team's trajectory

For the next contract, B2PE will merge with PAG (physiology of gonadotrope axis;) to create a new team 'Endocrinology of Diabetes and Fertility; EnDF' led by J. Movassat, the former B2PE team leader. Both teams have already a joint publication. Merging will increase critical mass and include both permanent researchers

and clinicians who were lacking in the previous contract. EnDF will be composed of two PR, 4 associate PR, one full-time permanent researcher (INSERM), three clinicians, five engineers (1 INSERM, 1 CNRS).

The organisation of EnDF in two groups one focusing on the pancreas (J. Movassat, Diabetes group) and the other on the gonadotrope axis (J. Cohen-Tannoudji, Fertility group), makes sense to study the links between metabolic disorders and reproduction.

More specifically, EnDF will investigate the impact of diabetes on gonadotrope cell differentiation and activity, and conversely assess the role of sex hormones in pancreatic cell plasticity and sex dimorphic susceptibility to metabolic disorders. Both groups will also continue to work on axes developed in the present contract in the field of diabetes (B2PE) and in the field of reproduction (PAG), which could also constitute a risk of slowing down the success of the merger to work on a joint project. One recommendation might be to give priority to securing funding for the interdisciplinary projects to be developed by EnDF, since both teams have obtained funding for the coming years to work in each group. This will enable to hire postdoctoral fellows, and help EnDF to become an international leader in the study of the links between metabolic disorders and reproduction. Another recommendation would be to collaborate with clinicians of the team to strengthen the clinical application of the team's research.

RECOMMENDATIONS TO THE TEAM

The team should continue its dynamic and successful research. The team leader should encourage associate PR/permanent researchers to apply for national/international funding to contribute to the team's international visibility, which will also increase the impact of publications. The critical mass of the team will increase with merging, but the team should persist in trying to recruit permanent researchers. New PhD students/postdocs should be recruited to work on the interdisciplinary project. Interactions should also be strengthened with clinicians to facilitate the clinical application of the team's basic research.

Considering the financial and human resources of the team, it is recommended to focus the research project on the most advanced part of the proposal in each group, but the priority is to find funding for the interdisciplinary project of the new team EnDF. Discussions for grant construction and applications would fully contribute to strengthening the merged project and define the research priorities for future transversal studies that would integrate 'diabetes and fertility' in a joined project. The team should pursue its strong involvement in teaching responsibilities and responsibilities in Master and doctoral programs, as it is successful to attract students. Participation to public or scholar interventions may help to increase visibility and dissemination of scientific knowledge, considering the burning societal issues underlying these research themes.

Team 2: 'Régulation de la glycémie par le système nerveux central'

Name of the supervisor: MAGNAN Christophe

THEMES OF THE TEAM

The REGLYS team studies the nervous control of glycemia that allows an organism to maintain glucose homeostasis whatever its energetic status. Both the integration of nutrient detection (at the level of the olfactory bulb, the hypothalamus and the islets of Langerhans) and the nervous and hormonal metabolic output signals are studied under physiological and pathological situations using genetic/pharmacological *in vitro* approaches (loss/gain of function) or rodent models of obesity or type 2 diabetes/T2D. A specific interest is also brought to the identification of biomarkers and drug candidates for the treatment of T2D, that has led to the creation of the 'THAC' biopharmaceutical company in 2018 cofounded by the team leader and based on a patent developed by the REGLYS Team.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The previous report highlighted excellent team's life and organisation, underlined the excellent dynamism of REGLYS team in PhD training and recognised the very good quality of its scientific production and external funding.

The team addressed several recommendations from the previous evaluation. The team increased the publication records (58 original articles compared to 43) among which 29% is led by the team and 95% in excellent journals of their categories with three publications with author leadership in highly recognised speciality journals (2x Diabetologia and 1 x Molecular Metabolism).

Scientific recognition of the team and external funding abilities have been, moreover, confirmed by the obtention of highly competitive funding including two European grants (EU-IMI public-private partnership program), national grants (2/5 ANR as PI), numerous charity grants (Fondation de France, Société Francophone du Diabète), funding for innovation programs (SATT, DRIVE UPCité) and private partnership (Boehringer Ingelheim).

The interaction of the team with non-academic world (already noted as excellent) is further reinforced during this contract by the creation of THAC biopharmaceutical company in 2018 cofounded by the team leader, based on previous REGLYS Patent.

As recommended by the previous evaluation, REGLYS team first applies genetic/pharmacological approaches (loss or gain of function) to validate targets of interest *in vitro* or *in vivo* before deciding to develop a transgenic model.

WORKFORCE OF THE TEAM: IN PHYSICAL PERSONS AT 31/12/2022

Catégories de personnel	Effectifs
Professeurs et assimilés	2
Maîtres de conférences et assimilés	1
Directeurs de recherche et assimilés	1
Chargés de recherche et assimilés	0
Personnels d'appui à la recherche	3
Sous-total personnels permanents en activité	7
Enseignants-chercheurs et chercheurs non permanents et assimilés	0
Personnels d'appui non permanents	1
Post-doctorants	1
Doctorants	3
Sous-total personnels non permanents en activité	5
Total personnels	12

EVALUATION

Overall assessment of the team

The scientific production of the team is excellent with seventeen publications in leading position with high scientific impact (including *Cells* 2022, *Metabolism* 2021, *Cell Reports* 2020, *Diabetologia* 2017, 2018, 2020, *Molecular Metabolism* 2017, 2018, 2019).

Attractiveness is excellent with very significant funding including national ANR grants (2/5 as coordinator), EU funding (partner), charities grants (Fondation de France, 2xSFD) as coordinators and university-driven innovative programs. The team displays an international recognised expertise in the field of metabolism and preclinical models of diabetes and obesity and a well-organised gender-balanced structuration.

The valorisation is outstanding. The team has privileged interaction and funding from the private sector (Boehringer Ingelheim, THAC) illustrated by two patents and the creation of the biopharmaceutical company THAC. REGLYS also displays highly valuable activities towards society through active participation to science dissemination.

Strengths and possibilities linked to the context

The team is composed of 4 researchers (2 PR, 1 DR, 1 MCF) and 4 technical staff scientists. One professor left the team for outgoing mobility (12/2017) and a CNRS engineer retired (12/2022).

The team produced 58 original publications with seventeen publications as first- and (co-) last authors and ten reviews in best speciality journals in their categories (*J Nutr* 2022, *Cells* 2022, *Metabolism* 2021, *Obesity* 2020, *Mol Metab* 2017, 2018 & 2019, *Diabetologia* 2017 & 2018). Members of the team are involved in collaboration attested by 41 publications as co-authors.

A main focus of the team was to investigate the role of lipids in the nervous control of glycemia. They evidenced the hypothalamic Lipoprotein Lipase (LPL) as an important regulator of body weight gain and glucose homeostasis (*Diabetologia* 2017, Portfolio item 1) and the key role of hypothalamic ceramide synthesis in central insulin resistance installation (*Mol Metab* 2018, Portfolio item 2). The team also participates to the EU-IMI-program aiming at the identification of novel biomarkers of T2D (Portfolio, item 3). They focus on the fatty acid enzyme Elov2, that they identified through a multi-omics analysis performed in prediabetic mice (*Mol Metab* 2017), and they demonstrate the protective role of Elov2 against glucolipototoxicity-induced beta cell apoptosis (*Diabetologia* 2018). The team also identify circulating lipids as biomarkers of pancreatic beta cell function (*Mol Metab* 2021), or as diabetes susceptibility biomarker candidates as for dihydroceramides (*Cell Report* 2017). Members were also interactive with other BFA teams with 24 collaborative publications (+ 1 review) from the period. REGLYS PIs participated in three book chapters.

The strong involvement of PIs in evaluation, as members of the administrative/scientific board of scientific societies (SFD, SFN), editors of journal issues (*Molecular and Cellular Endocrinology*, *Frontiers in Physiology*), members of scientific advisory boards (Hcéres evaluation committee, SFD work group), public institutional boards (INRAe scientific commission 'Nutox', CNRS section 25, CNRS CID53), national meeting organisation (2), selection committee and/or several councils in the University and in the BFA Unit. Team recognition in their domain is also attested by numerous conference invitations (x4) in European institutes (2x Centre médical universitaire, Genève; Switzerland; Eberhard Karls Universität Tübingen, Germany; University Zurich-Irchel, Switzerland) and regular results presentation to national (37 including 14 invitations: SFD, AFERO, JFN) or international congresses (16 including ADA and EASD).

The interaction of the team with the private sector is excellent, with the deposition of two patents (2020 and 2021), and the creation of the THAC (The Healthy Aging Company), a French and US-based privately owned biopharmaceutical company co-founded by C. Magnan in 2018 (Portfolio, item 4). THAC ambitions to develop first-in-class drug candidates targeting T2D and its complications, among which Reg3a appears as a promising target, with its insulin-sensitive properties operating via a skeletal muscle effect (Helyon, 2022, Portfolio, item 4). THAC has hired 6 people, raised 4 million euros and have close financial partnership with REGLYS (250k€) team2. The team secured other industrial partners (SISLEY, Boehringer Ingelheim) and is granted by innovation programs (SATT Erganeo and DRIVE) that altogether demonstrated active valorisation of REGLYS research.

The REGLYS Team is highly competitive for external funding (2,140 k€ during 2017–2022 period) as (a) coordinators of national grants (2/5 ANR), of innovative programs (SATT, DRIVE UPCité), of charities grants (SFD, Fondation de France), private partnerships (Boehringer Ingelheim, THAC) or (b) partners of EU programs (Innovative Medicines Initiative, 475k€) and national grants (3 ANR).

The team hosted PhD students (8 over the period, mean duration 44 months), with an international representation (50% of foreign fellows) with a 3.2 mean number of publications per fellow (1.6 in PDC) and original articles as first author in speciality journals (Diabetologia 2018, Obesity 2020, Neurophotonics 2019). PhD students are funded by University (4), Europe (1), Région Ile-de France (1), APHP/Inserm (1) and CIFRE with Sisley company (1). The team also supervised 6 Master2 students. Students regularly presented their results to national congresses (ex: SFD, JFN). Most of PhD students further pursue careers in science as postdocs (2 abroad, 1 in France) or in private company (2). The team has a strong involvement in teaching responsibilities, since the team leader is co-director of the graduate school 'Metabolic disorders' and one professor is responsible for the animal physiology module at UPCité since 2013. Five PhD theses were defended/4 HDR.

Finally, REGLYS team members actively participate to science dissemination by communicating their findings and knowledge via public conferences (7), mass media interventions (8 including France 2, France inter, La Chaîne parlementaire, E=M6, Libération) or open public debates (4).

Weaknesses and risks linked to the context

Whilst the team is mainly composed of university researchers, highly involved in university duties and courses, there is only one full-time permanent researcher in the team (DR2). Although the team was very successful in attracting young scientists over the period, only one postdoc is currently hired on a collaborative project funding by AXA, that may be a limit for future recruitment of permanent researchers/associate professors. The expected departure of two CNRS technical staff (1 IE in 2022 and 1 AI in 2027) can fragilize the scientific production of the team and would need to be secured.

Analysis of the team's trajectory

For the next contract, the team proposes an excellent project that is in the continuation of their former work, therefore addressing the understanding how an organism controls its metabolic fluxes to maintain glucose homeostasis by studying both nutrient detection at the levels of the olfactory bulb, hypothalamus, and islets of Langerhans and nervous and hormonal output signals at the periphery.

Of note, the team will be enriched by the arrival of three new PIs: (1) H. Le Stunff (Professor) will focus on the neuronal sphingolipid sensing, (2) D. Gauguier (DR2) who has a longtime expertise in metagenomic data aims to identify antimicrobial peptides with antidiabetic potential and (3) N. Janel (Professor), BFA internal mobility coming from Team 6, will bring expertise of neurodegenerative diseases in REGLYS team.

This new team, which will be headed by C. Magnan, will host professors (4 + 1 Emeritus), associate professor (1), permanent research directors (2 DR), technicians/engineers (3). One engineer, that will be on a 50%-time shared basis with Team CO2FEE, is currently on demand to replace C. Rouch (who retired in 2022).

These human resources reinforcement will fully benefit to the feasibility of the team project, by bringing complementary approaches and expertise for the study of neuronal control of glucose metabolism. This will also contribute to connecting new expertise in the BFA unit which can be potentialized through inter-team collaborative projects. Respective PI research networks and collaborations will, moreover, contribute to the REGLYS team visibility at the international levels and foster the integration of the team in-national/European consortiums.

Whilst REGLYS team already demonstrated high potential of valorisation through patents and the creation of THAC company, this aspect will be reinforced since one PI joining the team is also co-founder of Metabolic Health Inc.

PI proven research activities and scientific production, scientific collaborations and funding guarantee the achievement of proposed goals. Permanent technical staff scientist (3), together with the use of BFA technical platforms, should be appropriate to fully meet the experimental approaches envisaged for the team project.

RECOMMENDATIONS TO THE TEAM

The committee recommends that the team continue their excellent basic research activity and excellent valorisation through patent deposition and company development. Whilst the reinforcement of the team by three newcomers will fully contribute to REGLYS research projects, it also represents a unique opportunity to combine complementary expertise that could foster outstanding publications and promote applications to international competitive grant applications. The dynamic of attracting scientists might be, moreover, pursued by increasing the post-docs number and pave the way towards young scientist recruitment, and by increasing PhD students in agreement with the venue of new PIs (HDR). Although technical scientific staff is currently in adequation with the expected team size, one has to pay attention to maintain technical human resources over the next period by anticipating replacement of expected retirements.

Team 3: Physiologie de l'axe gonadotrope

Name of the supervisor: COHEN-TANNOUJDI Joëlle

THEMES OF THE TEAM

The PAG team carries out basic and clinical researches on the female fertility. Basic research aims to understand the activity and the endocrine interplay of the gonadotrope axis (hypothalamus, pituitary, and ovary). Researches are focused on three main topics of the gonadotrope axis: (1) Ontogenesis by deciphering the epigenetic and molecular mechanisms dictating pituitary gonadotrope lineage differentiation and those underlying transient activation of the gonadotrope axis during minipuberty, (2) Regulation and (3) Vulnerability to endogenous (overnutrition and tumorigenesis) or environmental disorders (endocrine disruptors). PAG team also develops translational researches with its clinicians to improve assisted reproductive technologies and fertility preservation.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The recommendations were 1. to increase the number and the quality of scientific articles by developing more translational projects with clinicians and by integrating international consortia. 2. to maintain its efforts to get public funding 3. to increase its ability to recruit postdocs and PhD students 4. to develop further collaborations with team 8 and with private companies 4. To increase the HDR number.

The PAG team published 30 basic articles (compared to 37 at the last evaluation) and 89 clinical articles (compared to 33). The increase in the number of publications is linked to clinical articles. It published 80% of its basic articles in PDC compared to 60% last time and the number of team's publications in Q1 journals has increased (96% vs. 85%). The team has secured 517 k€ during the 2017–2022 period including two ANR (1 coordinator and 1 partner) and one IdEx. This is similar to the previous contract taking into account the decreased number of researchers. However, the team did not integrate international consortia and did not get private funding. The team supervised 6 PhDs, three defended. These numbers are similar to those of the previous contract (5 PhDs, 4 defended). The team had recruited two postdocs under the previous contract, whereas no recruitment was made between 2017–2022 but the team recruited two permanent engineer positions increasing the workforce. One collaboration with team 8 has been set up (Idex). One additional member defended his HDR during the evaluation period.

WORKFORCE OF THE TEAM: IN PHYSICAL PERSONS AT 31/12/2022

Catégories de personnel	Effectifs
Professeurs et assimilés	2
Maîtres de conférences et assimilés	2
Directeurs de recherche et assimilés	0
Chargés de recherche et assimilés	2
Personnels d'appui à la recherche	3
Sous-total personnels permanents en activité	9
Enseignants-chercheurs et chercheurs non permanents et assimilés	1
Personnels d'appui non permanents	0
Post-doctorants	0
Doctorants	3
Sous-total personnels non permanents en activité	4
Total personnels	13

EVALUATION

Overall assessment of the team

The scientific production is very good with publications in speciality journals and generalist in collaboration (Nat Commun, 2021). However, the number of inter-team papers is low (n=4). The attractiveness is low at the European and international level but it is very good at the national level regarding fund as PI raisings (1 ANR, Emergence Idex, ARC). The team has a very important clinical outreach. Concerning the training, it is limited with three PhD defense for five HDR. The valorisation is very good regarding a strong translational activity (first worldwide birth achieved after fertility preservation using vitrification of in vitro matured oocytes in a woman with breast cancer). However, there are no patent and no partnership with private companies.

Strengths and possibilities linked to the context

The PAG team is composed of 9 scientific researchers including 6 basic researchers (1 PRE UPC, 1 DREM INSERM, 2 CR INSERM and 2 MCF UPC) and three clinicians (1 PUPH Paris-Saclay and 2 PH APHP) and three technical staff (1 AI CNRS, 1 IE INSERM and 1 IGE trainee civil servant). It develops original and innovative basic and clinical researches on the ontogeny, regulation and vulnerability of the gonadotrope axis and human fertility preservation. For basic research, PAG team discovered novel epigenetic mechanisms controlling gonadotrope lineage specification during pituitary development by setting up in the lab several cutting-edge genomics analyses (Portfolio Item 2). It also demonstrated that oestradiol may regulate the human granulosa cell fate by modulating the mRNA expression of estrogen receptor (ER) beta isoforms (Portfolio Item 3). However, in tumor human granulosa cells, PAG team showed that ER alpha but not ER beta isoforms are necessary for the tumor progression (Portfolio Item 5). These data are of great interest to improve clinical treatments of patients with advanced disease. Finally, PAG team observed that high fat diet-induced defects in gonadotrope activity in male rats occurred despite a lack of pituitary inflammation (Portfolio Item 4). For clinical research, PAG team achieved the first birth after vitrification of oocytes matured in vitro in a young woman with breast cancer giving hope of motherhood for cancer patients (Portfolio Item 1). All the results obtained led to a very good publication record (22 original articles, 8 reviews and 89 clinical articles) of very high quality in the speciality field over the evaluation period. Most of the publications are in a dominant position (80% PDC) for original articles and reviews, attesting to the team's leadership in its achievements. The team publishes in the best specialist journals in the field (96% of published articles belong to the first quartile of the discipline, e.g. J. Clin Endocrinol Metab, Endocrinology, Journal of Pathology; Epigenetics Chromatin, Annals of Oncology) and in collaboration in generalist journals (Nature Communications and Endocrine Reviews). The team obtained a significant number of grants (with 517 keuros for the sum of team funding), including a substantial proportion as coordinator (6/7) from various sources, most of them public (ANR, Emergence Idex, ARC, SFE and Gefluc). The participation of PhD students in the team's work and its promotion was attested to by a notable number of articles co-authored by students (5.3 articles per student on average, including 3 as the first author for PhD defended before 2023). The PAG team had a good education activity (one of the PAG member belongs to the Master 2 'ReproDev' committee) and a significant and varied expertise activity (member CSS INRAE, Section 24 CNRS, participation in juries, scientific committees and project expertise committees). Three members of the team organised two international scientific meetings (Special Interest Group Fertility Preservation and 13th International Meeting on the Rapid Responses to steroid Hormones) and three national scientific events (SFE, ReproSciences). In addition, the PAG team was strongly involved in the activities in society (CBS evening news, France 2, The Times, Le Monde, Newsletter SFE...).

Weaknesses and risks linked to the context

The PAG team published few articles in internationally renowned generalist journals (one article in Nature Communications in collaboration) and relatively few articles (3/30) are the fruit of established international collaborations. The PAG team was rarely invited to present their work at international conferences (n=4) during the evaluation period. Clinical articles were published by only two of the three clinicians and the clinicians were rarely associated with the basic scientific original and review articles (3/30). The number of inter-team publications is low (4/30). The PAG team did not coordinate or participate in international or EU-supported projects. The two ANR, including one as leader, were obtained by a member CRCN who left the team. Clinicians did not coordinate or participate in hospital-based clinical research programs (PHRC). There were five HDRs including one defended during the period and only three PhDs defended their thesis with no foreign fellow. One medical student stopped his PhD thesis because of no interest in basic research. The mean duration of the PhD thesis is 42 months. The number of PhD students is low and the duration of the thesis is more than 36 months. One clinician with HDR did not train or co-train PhD. The team did not welcome any postdocs over the period and invited only one foreign researcher for one month. It had no European or international funding and no relations or grants with industrial partners and has any patents.

Analysis of the team's trajectory

The PAG team will merge with B2PE team (team 1) to create the 'Endocrinology of Diabetes and Fertility' EnDf team in 2025. EnDf will aim to better understand the physiology and the interrelationships of the two endocrine systems: endocrine pancreas and the female gonadotrope axis (hypothalamus-pituitary-ovary). Diabetes and fertility are two global public health concerns, so the social and economic impacts of this new team will be very important. The two teams B2PE and PAG have already worked together to identify and characterise the Goto-Kakizaki rat as a spontaneous prototypical rodent model of polycystic ovary syndrome in women (Nature Com, 2021). The project presented by the two joint teams is scientifically very convincing and there is real added value to this fusion. However, the human permanent resources (only one 1 CR) have to be increased and the two teams have no common-financial resources for the moment. The EnDf team should have more opportunities to develop collaborations with private companies. It should claim to further fund and recruit more post-doc and PhD students.

RECOMMENDATIONS TO THE TEAM

In order to improve the international visibility of the fertility thematic in the new team, the number and the scientific level of the publications should be increased. The researchers should also recruit more post-doc and PhD students and try to integrate international consortia to participate in international or EU projects. Also, clinicians should coordinate or participate in hospital-based clinical research programs and they should really be involved in the basic research of the team. The researchers should develop more intra-unit collaboration.

Team 4: Myologie fondamentale et translationnelle

Name of the supervisor: FERREIRO Ana

THEMES OF THE TEAM

The team conducts multidisciplinary research on inherited diseases of striated muscle, particularly congenital myopathies and myofibrillar myopathies. There are 4 main projects distributed in two axes of research: Axis 1 – Congenital myopathies – SEPN-1-related myopathies – ASC-1 related myopathies. Axis 2 – Intermediate filaments and their partner proteins in myopathies and cardiomyopathie – Desmin-related myopathies – Myopathies related to nuclear proteins. Team members are at the origin of the identification of the genetic basis of several forms of myopathies and the associated mechanisms. They also identify the first pathophysiology-based therapeutic drugs in vitro and ex-vivo which have been the basis of the first clinical trials for these currently untreatable rare conditions (SEPN-1/SELENON).

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The recommendations were to increase the level of the journals of the team senior authored papers and to develop partnership and collaborations with other team's unit, with the hospital and with industrial partners. Also, the team was recommended to increase the level of funding, the number of HDR and, for the members of the team, to take responsibilities in teaching.

The level of the journals has increased with 33 original articles and ten excellent reviews for at least one discipline of which two are inter-teams. The journals are very good to excellent (Front Cell Dev Biol, eLife, Haematologica, J Neuromuscul Dis, J Physiol, Circulation). Of these 43 papers, team members are in first, last, corresponding authors of twenty papers. A patent is in the process of deposit with the UPC Satt Erganeo and the creation of a start-up is in preparation.

During the present contract, the team obtained 788k€ in funding from different sources (Ligue Française contre les Myopathies, Cure CMD, Marie Curie [European Commission], Giving Strength [USA]). A member of the team passed the HDR and all the members of the team are responsible of many teaching units. They obtained grants for pedagogic activities (99k€).

WORKFORCE OF THE TEAM: IN PHYSICAL PERSONS AT 31/12/2022

Catégories de personnel	Effectifs
Professeurs et assimilés	0
Maîtres de conférences et assimilés	3
Directeurs de recherche et assimilés	1
Chargés de recherche et assimilés	2
Personnels d'appui à la recherche	2
Sous-total personnels permanents en activité	8
Enseignants-chercheurs et chercheurs non permanents et assimilés	0
Personnels d'appui non permanents	0
Post-doctorants	1
Doctorants	1
Sous-total personnels non permanents en activité	2
Total personnels	10

EVALUATION

Overall assessment of the team

Scientific production is excellent regarding 33 publications and twenty in leading positions, all in excellent journals at least in one discipline in speciality journals ((eLife, J Physiol, Biophysical J, Circulation,...). Major highlights are congenital myopathies and desmin-related myopathies for what members of the team received twelve invitations for international conferences. The team obtained some results on the understanding of SEPN1/SELENON that led to the first clinical trials to cure a rare disease

Attractiveness is very good regarding funding as coordinator, from national (Association contre les Myopathies), EU (CMD Cure, Marie Curie) and International (Giving Strength, USA). The team recruited one foreign postdoc from Stanford University. The team recruited very good PhD students, one defended a European PhD that obtained 4 awards.

The valorisation is very good regarding eleven contracts obtained from local to international sources (Idex Paris Cité, Association contre les Myopathies, Fédération Française de Cardiologie, CMD Cure, Marie Curie, Giving Strength) for a total of 854k€. One patent is in preparation.

Strengths and possibilities linked to the context

The scientific production of the team is very good with 33 original papers and ten reviews, all in Q1 for at least one discipline (Front Cell Dev Biol, eLife, Haematologica, J Neuromuscul Dis, J Physiol, Circulation). Of these 43 papers, team members are in first, last, corresponding authors of twenty papers. A patent is in the process of deposit with the UPC Satt Erganeo and the creation of a start-up is in preparation.

The team obtained fundings, mainly as coordinator (9/eleven), from local (Idex Université Paris Cité, 49, 6 k€) national (Association contre les myopathies, Fédération Française de Cardiologie ; 412 k€), European (CMD Cure, Marie Curie ; 334 k€) and international (Giving Strength (USA, 58.6 k€ fundings associations. The team work is internationally recognised as indicated by the ten international conferences invited. Interestingly, it has to be noted that beside the head of the team, a member increased her visibility following the defence of an HDR as indicated by the publication of two reviews, one as first author and one as last author, two recent original articles, in 2022, one in before last and one as last author. She, and the team leader, obtained the PEDR over the period.

The team recruited 4 PhD students and one postdoc over the period.

The team leader is involved in different societies (Word Muscle Society; founding member of the Société Française de Myologie). She founded a consortium inside UPC of labs working on skeletal muscle (MyoParis) and she projects to create an institute without walls. She coordinates three consortia of the European Neuromuscular center and is corresponding of the European Academy of Neurology.

All the teaching members of the team are involved in the life of the lab and the Life Sciences faculty by participating to different councils.

At last, team members share their knowledge in different manifestations (Fête de la Science, journée scientifique de l'UFR SdV) and in different medias (The conversation, TV78, France 5, Est-Républicain, France Culture).

Weaknesses and risks linked to the context

The CNRS CR appears to be less involved than the MCU that have a lot of teaching and administrative duties making it difficult for them to have a leading role in research.

Analysis of the team's trajectory

Not applicable, the team will not stay in BFA. All members but one will move to other labs.

RECOMMENDATIONS TO THE TEAM

Not applicable

Team 5: 'Contrôle central du comportement alimentaire et de la dépense énergétique'

Name of the supervisor: LUQUET Serge

THEMES OF THE TEAM

The aims of team 5 are to understand and characterise the molecular mechanisms involved in the balance between energy intake and expenditure to control the energy homeostasis.

In particular, the C2OFFEE team studies the regulation of neural circuits controlling basal metabolic rate and feeding behaviours. The disorganisation of these neural circuits can lead to the development of metabolic diseases including obesity and diabetes.

Using modern molecular genetic tools in integrated approaches, the team studies in vivo the physiological and molecular mechanisms involved in the dialogue between the brain and the peripheral organs resulting in the control of energy balance.

The goal is to discover potential therapeutic targets to ameliorate metabolic and feeding disorders.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The team pursued their policy of excellence. The team increased the number of their publications during the past contract with 68 original publications (compared to 30) and 87% reached the first quartile in their categories. Moreover, the team has successfully developed a partnership with other teams of BFA attested by common publications with important scientific impact (Cell Metabolism 2022, Diabetes 2019, 2017, Diabetologia 2017, 19 publications).

The team also obtained an impressive number of highly competitive contracts including international (Modern Diet and Physiology Research Center-research grant-Project, Allen Foundation), European (European union large-scale cooperative research grant) and national contracts (ANR grants, labelling support of FRM...).

The team addressed several recommendations from the previous evaluation. Whereas no patent has been obtained during the period, the team successfully obtained contracts with industries (MSD avenir research grant, Bariatek medical, Novo Nordisk) which could lead to patent applications in the near future. The number of HDRs and PhD students in the team has been increased as recommended.

WORKFORCE OF THE TEAM: IN PHYSICAL PERSONS AT 31/12/2022

Catégories de personnel	Effectifs
Professeurs et assimilés	1
Maîtres de conférences et assimilés	0
Directeurs de recherche et assimilés	1
Chargés de recherche et assimilés	1
Personnels d'appui à la recherche	1
Sous-total personnels permanents en activité	4
Enseignants-chercheurs et chercheurs non permanents et assimilés	0
Personnels d'appui non permanents	3
Post-doctorants	1
Doctorants	4
Sous-total personnels non permanents en activité	8
Total personnels	12

EVALUATION

Overall assessment of the team

The scientific production is outstanding with a seminal contribution on the control of feeding behaviours (Cell Metabolism 2017, 2020, 2022, Cell reports 2020, 2022, Trends in Pharmacological Sciences 2021, Trends in neurosciences 2021).

The attractiveness is outstanding with 21 highly competitive grants as PI. The team obtained as PI eleven national grants (4 ANR, 1 FRM team certification, 4 grants from foundations, 2 grants from CNRS), one European grant as PI (European Union Large-scale cooperative research grant) and three international contracts (Allen foundation/Modern diet and physiology research center) as PI. The outstanding attractiveness is also reflected in its ability to recruit PhDs (5) and postdoctoral fellows (6) and in the number of invitations to national (14) and international (30) meetings.

The team has an outstanding mentoring and teaching policy. One PhD was defended for one HDR and 2HDR were defended during the period.

Valorisation activity is excellent to outstanding with 4 Industrial contracts (MSD Avenir, Bariatek, Novo Nordisk) and the excellent public outreach.

Strengths and possibilities linked to the context

The team is constituted by three researchers (1 DR1, 1 CR and 1 MCF who obtain PR promotion on 12/2022) and one engineer.

The scientific production is of 68 publications total with 22 in leading position. Their results are published in a very regular way and have led scientific advances. They published their results, in leading position in top journal of the domain (Cell Metabolism 2017, 2020, 2022, Cell reports 2022, Trends in Pharmacological Sciences 2021, Trends in neurosciences 2021, Journal of neurochemistry 2019, Scientific reports 2019).

The work of the C2OFFEE team aims to highlight potential therapeutic targets to ameliorate metabolic and feeding disorders, and they have developed approaches at the intersection between neurosciences and metabolism. In the first item in the portfolio (Cell Metabolism 2020), the members of the team demonstrated that circulating nutritional triglycerides are metabolised and alter signalling in the reward circuit to regulate behaviour. They also showed that astrocytes present in the paraventricular nucleus can control neural activity and thus modulate insulin sensitivity, glucose metabolism, energy expenditure and food intake (Cell Metabolism, 2022, portfolio item 2). The C2OFFEE team also demonstrated that glycemia could regulate brain access and action of GLP-1 (Cell reports 2022). Binge eating elicits compensatory adaptations through the action of peripheral endocannabinoids by the gut-brain-axis (Molecular Psychiatry, 2022) and the paraventricular thalamus can regulate feeding and metabolic responses to stress-like contexts (Journal of Physiology 2022). Finally, the olfactory system is at the crossroad between sensory processing and metabolic sensing (Neuropharmacology 2022), and plasticity in primary sensory areas was influenced by multisensory processing (Scientific reports 2019).

All team members are involved in collaborative projects leading to the publication of 46 manuscripts as co-authors, in top journals (Cell metabolism, Nature communication, diabetes, molecular metabolism...) showing their impressive implication in the field. They established successful collaborations with teams from BFA center illustrated by nineteen publications. Finally, they published ten reviews with five in leading position in journals including Nature metabolism 2022 or Cell Metabolism 2020.

The team was able to get an impressive number of highly prestigious grants at the national, European and international level (21 grants as PI and 5 as collaborators) with a total funding of 3,936 k€ over the 2017–2022 period. The team obtained three international research grants as PI (Modern Diet and Physiology Research Center and Allen Foundation, with a total value of 200k€; Two Europeans research grants (Helmholtz Zentrum München, Institut für Diabetes und Adipositas as PI and European Union Large-scale cooperative research grant as collaborator, 534k€); Eight Grants from ANR, 4 of which as PI and five research grants from foundations as PI. The team obtained the prestigious labelling support of FRM (286k€, 2020–2024). The team was successful to obtain 4 research grants as PI with industry (MSD 462k€, Bariatek medical 250k€, Novo Nordisk 255k€).

All members of the team are internationally well recognised in their domain, as evidenced by many invitations to international meetings (30 invitations) and national conferences (14 invitations). They are very active in disseminating their research findings to national and international meetings. PhD students and post-doc were successful to obtain research grants, travel grants, best oral communications, and best poster prizes.

Team members are involved in editorial responsibilities in several journals (Metabolism, Frontiers in behavioural neurosciences, frontiers in neuroscience, molecular metabolism) and they are strongly involved in evaluation as members of national and international committees, thesis follow-up and PhD/HDR juries, doctoral school, recruitment committee, scientific advisory boards.

One PhD thesis was defended in 2018 (for 1 HDR) and two HDRs were defended in 2020 and 2021. All researchers have HDR and supervise PhD students. The team has been attractive for the recruitment of Master students (6), PhD students (5) and postdoctoral fellows (6). All PhD students and postdocs have at least one publication.

The team has an excellent mentoring and teaching policy (portfolio item 4). In addition to mentoring PhD students and postdoctoral researchers, all team members are involved in teaching with the welcoming of fourteen students (undergraduate to master 2 students). They have a strong implication in teaching activities in bachelor's degree programs, master programs and DU formation in Université Paris Cité, Université Paris Saclay, Université Sorbonne, Université de Bourgogne Franche-Comté. A member of the team develops innovative teaching approaches with the creation of an interdisciplinary and international double bachelor program 'politics of life and identities'.

Team members are actively involved in associations (anosmie.org, BlogNeuroCNRS). The team also has a strong activity towards society (portfolio item 3) and members of the team participate in the dissemination activities. They participate to several communications in public conferences and debates (Fete de la science, semaine du cerveau), radio interviews (RFI, France culture, France inter), TV interviews (France 2, M6), and in scientific mediation (blog CNRS, ça m'intéresse).

The team leader is responsible of the Functional and Physiological exploration facility (FPE) that allow an integrated view of the energetic metabolism at the physiological level in both rat and mouse, but also in fly.

Weaknesses and risks linked to the context

The team is composed of three researchers. Although the activity is outstanding, the team could face a lack of critical mass. Moreover, the technical support of the team is limited.

The equipment of the Functional and Physiological exploration facility is starting to become outdated and will need to be replaced in the near future. One of the engineers involved in the platform activity left the laboratory in January 2022 to join Cochin institute (Université Paris Cité) and absence of technical support will compromise the efficiency of FPE facility.

Analysis of the team's trajectory

For the next contract, the project of the Co2FEE team will be in continuity of the previous period and will address the understanding of the dialogue between the brain and peripheral organs to regulate the energy balance. Four research axes will be developed to decipher the physiopathological bases of the control by the brain of feeding and energy expenditure: 1 – impact of metabolic state on multisensory signalling, 2 – astrocyte control of metabolism, 3-molecular determinants of brain susceptibility/resilience to feeding and metabolic diseases, 4 – interoceptive dynamics controlling homeostatic and reward processes.

The team will be headed by S. Luquet and will host permanent research director (1), professor (1), permanent research (1) and engineer (1). One engineer is currently on demand with the team REGLYS, (50% time shared basis between CO2FEE and REGLYS teams).

The research is funded through several grants (19 research grant (17 public, 3 private) funding secured for ~ 3.39M€). Moreover, the team is implicated in several national and international collaborative scientific network including the Modern Diet and Physiology Research Center and the Université Paris Cité, CNRS, Yale University and Mt Sinai (2022–2027).

RECOMMANDATIONS À L'ÉQUIPE

The committee recommends the team to continue their excellent research activity and projects. Increasing the number of researchers and engineers is encouraged.

Team 6: 'Réponses moléculaires et cellulaires aux xénobiotiques'

Name of the supervisor: DUPRET Jean-Marie

THEMES OF THE TEAM

RMCX work aims to better understand how some airborne pollutants contribute to illnesses such as inflammatory respiratory diseases. To this end, RMCX performs basic research to determine the molecular/cellular effects of these pollutants in different experimental models. The main themes of this team are: 1) Identification of pulmonary hazards by determining whether these pollutants are harmful to the human bronchial epithelium. 2) Understanding the mechanisms whereby some xenobiotics can induce nucleolar stress, with a peculiar focus on the nucleolar protein NPM1. 3) Characterisation of the molecular, structural and functional impact of some pollutants, especially carcinogens, on enzymes that are relevant to cell signalling and epigenetics.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

Four recommendations were made to RMCX regarding Criterion 1 (Scientific production/activities): 1) Increase the number of publications in journals with a high IF. This recommendation was considered as the number of Q1 publications increased from 64 to 95%, as recommended by DORA. 2) Promote scientific collaborations with teams 2, 5 and 8. This has been done with eleven common publications with these teams. 3) Make efforts to label the Metabolism platform. RMCX is considering an IBSA certification for the next contract. 4) Low number of postdocs in the Team. This number remained low since only one postdoc was recruited. No recommendation has been made for Criterion 2 (Team's organisation and life). Regarding the recommendation Criterion 3 (Scientific strategy and projects): Scientists are encouraged to apply for high-level funding and efforts should be made to coordinate new projects and maintain collaborations with private companies. RMCX was granted seventeen contracts (including 6 international contracts) for 1836 k€, 4 of which were coordinated by members of the team. Collaborations with private companies were apparently not maintained.

WORKFORCE OF THE TEAM: IN PHYSICAL PERSONS AT 31/12/2022

Catégories de personnel	Effectifs
Professeurs et assimilés	5
Maîtres de conférences et assimilés	2
Directeurs de recherche et assimilés	0
Chargés de recherche et assimilés	2
Personnels d'appui à la recherche	4
Sous-total personnels permanents en activité	13
Enseignants-chercheurs et chercheurs non permanents et assimilés	1
Personnels d'appui non permanents	2
Post-doctorants	0
Doctorants	6
Sous-total personnels non permanents en activité	9
Total personnels	22

EVALUATION

Overall assessment of the team

The scientific production of RMCX is very good as it comprised 59 original articles including 26 in leading positions, which are of excellent level, while fifteen articles were published in best speciality journals as PIs (e.g. ACS Nano, Environ Sci Technol, Biomed & Pharmacother, Protein Sci., Environ Pollut). RMCX attractiveness is very good as attested by the successful ability to raise funds as coordinator from national sources (e.g. ANSES, IdEx), or as partners from national and international sources (e.g. ANR, NIH, EU). Hence, the scientific networking of this team is excellent. RMCX trained eight PhD students during the 2017–2022 period (with 6 ongoing PhD), but only one postdoc fellow has been hosted during this period. Valorization is limited as no industrial partnerships have led to private funding, while no patents or licenses have been issued. However, the involvement of some RMCX members in public outreach is very good with the communication of their findings and knowledge via different ways (e.g. radio, open debates, articles). Finally, interactions among the three RMCX groups are scanty.

Strengths and possibilities linked to the context

RMCX includes fourteen members with tenure positions (8 teachers researchers, 2 CNRS researchers, 4 engineers/technicians). Among these, one associate PR and one assistant engineer (CNRS) were recruited via competitive examinations (in 2017 and 2018, respectively), while one associate PR and one PR joined the team via ingoing mobility. There were no outflows of permanent staff.

RMCX production comprises 59 original articles with 95% of them being Q1 and 44% having RMCX members as first/last/corresponding authors. Several articles as PIs were published in best speciality journals such as ACS Nano, Environmental Science & Technology, Biomedicine & Pharmacotherapy, Protein Science, Environmental Pollution, Archives of Toxicology, British Journal of Pharmacology, FRBM and JBC. In the 2017 JBC article (Portfolio item 2), the team reported that dithiocarbamates such as the pesticide thiram can alter brain glycogen phosphorylase activity via the formation of an intramolecular disulfide bond. This key finding might explain why these chemicals can favour Parkinson-like neuropathy. RMCX developed an original 3D model of the human bronchial epithelium (Portfolio Item 1) and contributes to a Raman imaging platform and the Bioprofiler resource, which has been associated with nineteen publications (Portfolio item 5).

RMCX had different collaborations with other BFA teams which led to twelve publications (20%). The team also had national and international (e.g. USA, UK, Spain) collaborations, in the frame of different competitive funding. RMCX obtained many competitive funding as partners (13, such as NIH 180k€, 2xEU H2020 455k€, ANR, FRM, ...) or as coordinators (4, such as 1 ANSES 50k€ and 1 IdEx 20k€, ...) for a total of 1836 k€.

RMCX's contribution to research training and higher education is remarkable (Portfolio item 4) with involvement in three Masters (BMC ; Toxicologie-Ecotoxicologie and I2P), one University Research School (EUR Thérapies Innovantes en Cancérologie), one dual Degree with Sciences Po (Politique et identité du Vivant) and one Professional license (Microbiologie Industrielle et Biotechnologies). RMCX members trained 21 Research trainees (L1/2, M1/2, BTS) and supervised eight PhD students during the 2017–2022 period (all PhD defended for 7 HDR), while six PhD Thesis are ongoing.

Several RMCX members are nationally well recognised with recurrent invitations to write chapters in French books, to talk at national conferences and to be members of expert committees of national agencies (ANR, ANSES) and other types of committees (selection committees for PR recruitment, PhD thesis follow-up). Several RMCX members have also been invited to international conferences, or have editorial responsibilities in different international scientific journals. Some members of RMCX were very active in communicating their findings and knowledge to a public radio (France Culture) and to an association (l'Arbre des connaissances), participated in open debates, or wrote articles in French popular scientific journals or annals (Portfolio item 3).

Weaknesses and risks linked to the context

Only one postdoc fellow has been hosted by RMCX during the 2017–2022 period, which is low for a team comprising ten teachers researchers/researchers with tenure positions. RMCX has no clinicians, especially pulmonologists.

The two members of the group working on nucleolar stress, who are CNRS researchers, have a limited number of original publications (2) as first/last/corresponding authors over the 2017–2022 period.

Interactions between the three RMCX groups are limited with only 6 common publications during the last contracts.

No industrial partnerships have led to private funding and no patents or licenses have been issued.

For the 2017–2022 period, eight PhD students were supervised by three members for a total of 7 HDR in the team. No HDR has been defended for the 2017–2022 period.

Analysis of the team's trajectory

The project of the RMCX team is fully in line with the three main scientific themes developed during the last contract, namely, the identification of pulmonary hazards via different types of advanced toxicological assays and models, the understanding of the mechanisms whereby some xenobiotics can induce nucleolar stress and the characterisation of the molecular, structural and functional impact of some pollutants on enzymes that are relevant to cell signalling and epigenetic processes. Because the production of the small group (i.e. 2 CNRS researchers) working on nucleolar stress does not appear optimal, a recommendation could be the recruitment of young investigators with significant expertise in this scientific field, such as postdoc fellows or researchers with tenure positions. Alternatively, this group could merge with the one working on cell signalling and epigenetic processes.

Either action might favour the interactions of these two CNRS researchers with the other BFA teams. Noteworthy, the new team (Team 5, MCPX) will have a new leader, Fernando Rodrigues-Lima (PREX) since the previous one (Jean-Marie Dupret, PR) does not wish to keep on this duty.

RECOMMENDATIONS TO THE TEAM

More postdoc fellows could be hosted by the team, which could give opportunities to recruit young researchers during the next contract. Collaborations with private companies could provide RMCX with some opportunities to benefit from private funding and get thesis grants via CIFRE contracts. Such collaborations could also allow for valorising the team's work through patents or licenses. Recruitment of young investigators by the group working on nucleolar stress would allow it to have a more sustained scientific production. This might also allow this group to have more interactions with other members of the Unit. The incorporation of clinicians in the team could allow for performing more translational/clinical investigations related to pathologies such as pulmonary diseases and cancers.

Team 7: Processus dégénératifs, stress et vieillissement

Name of the supervisor: MONNIER Véronique

THEMES OF THE TEAM

The DPSA team conducts basic and preclinical research on aging and human degenerative processes, addressing acute social issues and proposing anti-aging interventions and innovative therapies around three themes: 1) Search for interventions modulating aging and analysis of the underlying molecular processes; 2) Study of neurodegenerative and cardiac diseases using home-made humanised *Drosophila* models to test new therapeutic strategies; 3) Search for efficacy biomarkers for monitoring patients with metabolic and cognitive diseases in treatment. DPSA is interested in the molecular signalling mechanisms involved in cognitive deficits, diabetes and obesity, working on therapeutic strategies to modulate these deregulated pathways and develop translational research in connection with clinicians.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The majority of the previous recommendations were taken into careful consideration by the team during the last contract. Regarding scientific production and activities (criterion 1), collaborations with groups with *in silico*, *in vitro* or clinical expertise enabled to develop multi-model and multi-scale approaches. The team was encouraged to focus on more ambitious publications in journals with a higher impact factor, in order to gain greater visibility. In this respect, 90% of the team's publications are excellent journals. It was also recommended to train more PhD students, and the team was able to recruit 4 PhD (from which two have defended their thesis). About the team's organisation and life (criterion 2) and the better integration of the two main research lines, the team was reorganised in 2021, allowing the next arrival of two CNRS researchers, the DR of whom being intended to co-head the future team, which should strengthen the research projects using *Drosophila* models to study aging and degenerative processes. As far as scientific strategy and projects are concerned (criterion 3), diverse sources of funding have been successfully involved over the 2017–2022 period and a research project has been abandoned after the departure of its leader.

WORKFORCE OF THE TEAM: IN PHYSICAL PERSONS AT 31/12/2022

Catégories de personnel	Effectifs
Professeurs et assimilés	1
Maîtres de conférences et assimilés	3
Directeurs de recherche et assimilés	0
Chargés de recherche et assimilés	0
Personnels d'appui à la recherche	1
Sous-total personnels permanents en activité	5
Enseignants-chercheurs et chercheurs non permanents et assimilés	1
Personnels d'appui non permanents	2
Post-doctorants	1
Doctorants	2
Sous-total personnels non permanents en activité	6
Total personnels	11

EVALUATION

Overall assessment of the team

Scientific production is very good, with 29 original articles and 7 reviews, mostly published in speciality journals (*Aging Dis; Human Mol Genet...*). A major achievement was gained when the DPSA developed the first endogenous *Drosophila* models of TNR (triple nucleotide repeats) diseases using the CRISPR/Cas9 technology to insert TNR in the sequence of the gene orthologous to the human gene responsible for Friedreich's ataxia. Attractiveness of DPSA is very good, with 4 highly competitive national grants (3 ANR, 1 as PI, 491 k€). Members of the team were also involved in 9 other national grants (8 as PI) for 486 k€. Eleven national and 9 international conferences/seminars, were reported; Seven members are involved in 7 national and two international expert committees. Five PhD students (including one holding a Chinese government scholarship) and two postdoctoral (ATER) fellows were hosted. The valorisation is excellent, thanks in particular to the ability of a DPSA member to secure two contracts as PI with a private Chinese company specialising in cosmetics and dietary supplements, for a remarkable 556 k€ in funding. Members has a strong public outreach (more than 20 public conferences and debates for general audience, high-school students and patients associations).

Strengths and possibilities linked to the context

At the start of the period, DPSA comprised 9 full members (2 PR including 1 emeritus, 1 DR, 3 associate PR, 1 CR, 2 technical staff). The CR left the unit in early 2018, one technician in mid-2019, and the DR retired in early 2022. DPSA members were associated with 29 original articles (including in *Proceedings of the National Academy of Sciences USA*, 2018; *Free Radical Biology and Medicine*, 2018; *Elife*, 2018; *Human Molecular Genetics*, 2020; *Computational and Structural Biotechnology Journal*, 2020 & 2021) and 7 reviews, Ninety percent of the articles were Q1 and 66% had DPSA members as first/last authors. The team has developed the first endogenous *Drosophila* models of TNR diseases, which led to emphasise the protective effect of N-acetyl-cysteine, both on survival and locomotor function of frataxin-deficient flies (*Human Mol Genet.* 2020, Portfolio item 1), highlighting the reliability of this model for *in vivo* drug screening. Further essential outcomes can reasonably be expected in the next future. The scientific results are robust and the models developed are highly relevant.

Down Syndrome (DS) is a genetic disorder associated with intellectual disabilities (ID) as well as with nervous and endocrine anomalies. Recent advances in DS research and treatment have helped to extend the life expectancy of DS patients, but it remains crucial to identify the therapeutic targets in the context of DS. The DPSA team found DYRK1A-interacting proteins implicated in inflammation, fatty acid and neurotransmitter metabolism. Thanks to murine models and cohort of DS patients, DPSA showed that these proteins could be used in trials targeting pathophysiological mechanisms not only on ID but also of dementia and metabolic syndrome in DS patients (*Biomedicines*. 2022, Portfolio items 3 & 4).

DPSA has an international recognition (28 international conferences/seminars, 23 at the national level). Team members also contributed to organising the World Down Syndrom Day (JMT21/WDS) three times in the last five years.

In terms of recognition, two team members are involved in the board of the French Association for Research on Trisomy 21. Two DPSA members were rewarded with the PEDR or RIPEC C3 bonuses since 2017. Team members were also implicated as review editors in the *Frontiers in Genetics of Aging* journal or in the board of the *World Journal of Gastroenterology*. They also participated in expert committees for international and national project evaluations, as well as in several selection and promotion committees, thesis and HDR juries. DPSA was successful in attracting two foreigner PhD students.

DPSA is a remarkable team with important resources (funding, models, collaborations) at disposal.

The team has a strong capacity to obtain diverse funding. In addition to the team's share of the funds allocated by the supervisory bodies (Paris Cité University and CNRS), DPSA received significant financing (nearly 1.28 M€ over the 2017–2022 period) at the national and local levels. Eleven of them were obtained by DPSA members as principal investigators: ANR PIF21 (2019–2023), two contracts (2017–2021) with a private Chinese partner (Infinitus Ltd; Portfolio item 2) well as eight grants (2016–2023) awarded by foundations or research funding associations for various genetic and metabolic diseases (Friedreich's ataxia, trisomy 21). In addition, DPSA has also been funded through collaborations in three ANR projects (2018–2025) and one with the Friedreich Ataxia Research Alliance, as well as one participation in the IdEx Université Paris Cité. Several grant proposals were submitted with other teams as a result of collaborations within the unit.

DPSA had several collaborations with other BFA teams (4), which led to seventeen publications (including 4 reviews; 49%), and with other French teams from the Ile-de-France region, Lille, Strasbourg, Montpellier and Aix-Marseille. DPSA was also involved in international scientific collaborations with 6 Spanish, Dutch, German and Canadian units. The team has also developed a comprehensive network of collaborations and links with

associations of patients and foundations. DPSA's scientific collaborations can also be considered very constructive because a large proportion of them (71%) have led to successful funding applications.

The members of the team benefit of a solid experience of student mentoring and are involved in Bachelor and Master faculty programs. DPSA is attached to the BioSPC doctoral school. Three PhD students, for three HDR-holding members, defended their doctoral dissertations over the 2019–2022 period (one of whom being officially supervised by a non-member of the DPSA team but awarded by the French National Academy of Pharmacy in 2021). Two more PhDs are in progress. Each DPSA PhD student was associated with an average of five publications, compared with 3.9 for the unit as a whole. In the last five years, two post-docs researchers have been hosted, in addition to five engineers and assistant engineers, and twelve master students. Three DPSA members were also involved in 9 thesis follow-up committees as well as in twelve PhD/HDR juries. DPSA members are heavily committed to education not only as the President or members of the teaching council of the Life Sciences Department (UFR SDV), but also in other functions including Director of the Bachelor degree of Life Sciences, co-responsible for several Master programs or for the teaching domain 'Biodiversity-Ecology-Evolution', and coordinator of educational projects. One member even gave a course in a Master program of the Barcelona University.

Weaknesses and risks linked to the context

The departure of three senior members of the DPSA team will be numerically compensated by the arrival of three new members in the next contract (see below, S. Birman and Z Rahmani from ESPCI, and A. Filipe from BFA's Team 4), but with distinct skills and expertise, and with no certainty of sufficient complementarity in the absence of joint publications. Also, the assignment of the research and technical staffs to the three axes of DNSA, as well as the connections between them, needs to be carefully considered.

The technical support for research is insufficient and needs to be reinforced.

Regardless a very good scientific output, the journals selected by the team have limited impact with specialists and the general public.

Despite an important number (9) of grants from associations and foundations, international collaborations have not enabled the team to be funded by European and international contracts. There is minimal French, European or international funding for PhD students as well as for basic research, especially in the field of aging which is, furthermore, highly competitive. In this context, it seems necessary to recruit new research staff to increase the critical size of the team.

Analysis of the team's trajectory

The team 4 (Degeneration, Neurotransmission, Stress and Aging (DNSA)) will result from the merger of two existing groups: the DPSA team, currently led by Véronique Monnier and part of the BFA unit, and the Genes, Circuits, Rhythms and Neuropathologies (GCRN) team, led by Serge Birman, currently at the Brain Plasticity Laboratory of ESPCI Paris. Dr Birman's group will join the BFA, initially virtually, and then fully. For the period of 2025–2029, both team leaders will initially co-lead the team. Following the retirement of Dr Birman mid-period, the team will be led by Dr Monnier, while Dr Birman will stay on as an emeritus researcher if possible. This fusion is scientifically rational and is expected to be productive. The main objective of the new DNSA team will be to study genetic, molecular and synaptic degenerative processes in human affecting the heart, intestine and nervous system caused by aging, diseases or exposure to environmental factors. Focusing on the two neurodegenerative diseases on which a significant expertise has been developed for many years (Parkinson's disease, PD, and Friedreich's ataxia, FA), the DNSA team intends to identify and characterise mechanisms involved in these processes, to evaluate how they are impacted by environmental factors and, on this basis, to identify potential therapeutic interventions. The use of *Drosophila* models should provide the opportunity to develop multi-scale and *in vivo* integrative approaches and to screen for new genes involved in systemic degenerative disorders, with a particular focus on cardiomyopathies. The project will be divided into three axes: 1) the study of degeneration mechanisms on dopaminergic neurons and PD progression and cardiomyopathies, with the aim to validate new candidate genes identified in patients; 2) the exploration of new therapeutic strategies for FA and PD based either on drug screening or on the development of therapeutic interfering peptides; 3) the study of interactions between environment, aging and neurodegeneration, related to physiological aging and long-term transgenerational environmental impacts as well as on the effects of environmental exposure. These three identified lines of research are ambitious and innovative, which implies that human and budgetary resources need to be strengthened if they are to be pursued in parallel.

The expertise, skills and tools at disposal in the new DNSA team should provide valuable guarantees for successful investigations. This should also enable the new team to benefit from respective established local, national and international collaborations. It is to be hoped that the merger will bring added scientific value through new collaborations and sources of funding, in addition to the various sources of subsidy sought individually by each group.

RECOMMENDATIONS TO THE TEAM

The committee recommends that the team pursues its remarkable work on its high-impact research projects for health and society.

The team will be strengthened when the two full-time researchers will have joined the BFA unit, but the research staff did not evolve significantly with the departure of former members and it is still mainly made up of associate professors. The team's research potential should therefore be further enhanced by recruiting experienced researchers.

Even if 90% of the team's publications are ranked in the first quartile, it seems to us that their scope is still too modest in order to sustain higher scientific recognition, visibility and attractiveness. To remedy this, we reiterate our recommendation to attempt to publish larger, more ambitious and impactful articles, rather than fragmenting results into smaller papers.

The team should secure more funding, including by targeting international grants, in order to better meet its research ambitions by increasing the human resources, including its technical support. This would also contribute to recruit more PhD students and postdocs and foster the construction of the future team and project. This would also be helpful for the assistant professors of the team to progress in their career by getting their HDR degree.

The team should maintain its strategy for publication in highly ranked and higher impact journals, balanced with the need for young researchers (PhD students or postdocs) to sign early publications.

Team 8: Modélisation computationnelle des interactions protéine-ligand

Name of the supervisor: TUFFERY Pierre

THEMES OF THE TEAM

CMPLI is an interdisciplinary team that was formed in 2019 by the merger of two teams working on (i) in silico pharmacological profiling of small molecules and (ii) peptide design regulating protein-protein interaction. They employ approaches from structural bioinformatics, chemoinformatics, biomathematics, and biostatistics. Its primary research interests include: i) determining ligand-phenotype associations; ii) structural modelling of targets, binding site characterisation, and ligand profiling to improve candidate drug identification; and iii) modelling protein-peptide interactions to design peptides capable of modulating protein-protein interactions. The team also oversees the national platform RPBS (Ressource Parisienne en Bioinformatique Structurale), which provides structural bioinformatics and chemoinformatics services to help researchers better comprehend the molecular mechanism of living cells and aid in drugs discovery.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The majority of the recommendations of the previous report were taken into careful consideration by the team. The team uses a range of tools, including git versioning, gitlab, jupyter, and R Studio, for tool development and maintenance. On Github, they also made some of their software freely accessible. Following the previous recommendation to hire a system administrator, an interim position will be filled in September 2023, and it will become a permanent one in the following year. With 20% more articles appearing in Q1 journals, they also placed a higher priority on quality publications. Two patents have been produced as a result of improved collaborations with experimental biologists. From 2017 to 2022, the team trained seven postdocs. Several grant applications and eleven co-publications resulted from interactions with teams in the BFA unit. Furthermore, iPOP-UP IdEX project helped to strengthen the link with experimental biology at Université Paris Cité.

WORKFORCE OF THE TEAM: IN PHYSICAL PERSONS AT 31/12/2022

Catégories de personnel	Effectifs
Professeurs et assimilés	3
Maîtres de conférences et assimilés	5
Directeurs de recherche et assimilés	1
Chargés de recherche et assimilés	1
Personnels d'appui à la recherche	1
Sous-total personnels permanents en activité	11
Enseignants-chercheurs et chercheurs non permanents et assimilés	0
Personnels d'appui non permanents	1
Post-doctorants	2
Doctorants	5
Sous-total personnels non permanents en activité	8
Total personnels	19

EVALUATION

Overall assessment of the team

Scientific production is very good with 27 original articles as PI in specialities as well as generalist journals. Attractiveness is excellent as the team was successful in obtaining funding as PIs, one at the national level (IFB-MS2MODELS) and five at the local level. Furthermore, they obtained three European and three national grants as partners. Members hosted ten PhD students, five defended, and five postdocs. The valorisation is excellent thanks to securing three grants as PI with private sectors (Bayer, MSD Avenir, SATT Erganeo) and two patents (WO2021185851A1, WO2020193441A1). Furthermore, seven new services have been deployed on the RPBS platform since 2019. RBPS is a structural bioinformatics platform that operates on a national and international scale. No public outreach activity was reported.

Strengths and possibilities linked to the context

The team consists of eleven permanent members: three professors, five assistant professors, one researcher, one research director, and one technical employee. One of these professors joined the team through incoming mobility. There are two personnel departures: one IR due to outward mobility and the other technical member due to retirement.

The team conducts quality research and produces very good scientific output, with 27 out of 74 original articles as leader in Q1 journals (*Nucleic Acids Research*, *Bioinformatics*, *International Journal of Molecular Sciences*, *The Journal of Infectious Diseases*, *Scientific Reports*, *Biomolecular Structure and Dynamics*, *Computational and Structural Biotechnology Journal*, *Journal of Proteome Research*). The team has engaged in internal exchanges within BFA unit that have led to three grants and eleven co-publications. Furthermore, iPOP-UP IdEX project helped to strengthen the link with experimental biology at Université Paris Cité.

The CMPLI team focuses on the development and application of in silico protocols aimed at facilitating the discovery of potential candidate drugs, including small molecules and peptides, that target proteins or protein-protein interactions. To find druggable binding sites for various protein targets, the team devised a unique in-silico protocol that blends machine learning with target flexibility. They emphasised the significance of the non-structural protein NS1 as a viable pharmacological target and paved the way for the discovery of NS1-targeting drugs by combining molecular dynamics simulations with the 3D structure of the non-structural protein NS1 (Portfolio item 1). In a different study, the group created a system pharmacology network that relates biological mechanisms to drug compounds by fusing pathways and phenotypic data. Additionally, they suggested a chemogenomics library of 5000 small compounds representing a varied panel of therapeutic targets in various biological effects and diseases (Portfolio item 2).

Regarding the team's focus on protein-protein interactions (Portfolio item 3), they used the PEPscan method to identify the peptides that interfere with the LRRK2/PP1 interaction, which resulted in the patenting of the detected peptides (WO2020193441A1). For further development, they have obtained funding (Prematuration SATT Erganeo, IdEX Emergence, ANR-21-CE16-0003-01). This study also influenced the team's scientific strategy for the years 2025–2029, when a new team will be formed to focus solely on peptide development.

The RBPS platform proposed a variety of bioinformatics services (7 new services since 2019 were introduced) at the local, national, and worldwide levels, resulting in more than 150 citations. Staying up to date with the recent technologies, they plan to implement deep learning techniques for 3D protein structure prediction (AlphaFold 2). They also received funds to buy additional GPUs. They recently proposed SeamDock, an online, user-friendly service that integrates multiple docking tools and is excellent for training and education. It also offers 3D visualisation of ligand, receptor, and docking positions, as well as their interactions with the receptor (Portfolio item 4).

The team received significant financing at both the local (5 grants as leader; Calcul GPU 95k€, iPOP-up 300k€, 5 p, IreEL, Identification des résidus «hot spot» de la protéine Spik) and national (MS2MODELS-IFB 90k€ as leader) levels. In addition, three of the projects as leaders were sponsored by private partners (Bayer 90k€, SATT Erganeo 50k€, MSD Avenir 347k€). Three grant proposals were submitted with other teams as a result of collaborations within the unit.

The team has an international recognition, with six invited seminars at the international level and five at the national level. They additionally organised eight international conferences and ten national scientific events.

The team welcomes the co-founder of the PEP Therapy start-up founded in 2014, outside the context of the BFA unit. Team members are also involved in editorial activities (PLOS Computational Biology, Frontiers in Molecular Biosciences, Scientific reports, Protein-Peptide Letters, and Biomolecules) and actively participate in expert committees for international (Horizon 2020, Swiss National Science Foundation, etc.) and national project (ANR, ANSES, etc) evaluations, and selection committees (competitions, HDR, theses follow-up). They are also members of local and national bodies (university boards, CNU, CSS Inserm, CNRS, doctoral school boards). They also have duties in several societies, including coordination and participation in the internal management committee of the EU COST project EUTOPIA, membership in the GDR BigDataChimie, and representation in the European 3DBioinfo ELIXIR community.

The team is heavily committed to innovative educational methods and practices (Portfolio item 5). Since 2022, two team members who co-lead the Bioinformatics in silico drug design master program are now partners in the ChEMoinformatics+Erasmus Mundus Joint Master program and have successfully secured funding of 150 keuros through the Erasmus Mundus project.

Fourteen Master-2 students were hosted and overseen during their internship. Five PhD students for five HDRs successfully defended their doctoral dissertations between 2019 and 2022 and five more are in progress. Five postdocs have been hosted between 2019 and 2022. There was one HDR defence in the last contract. There are three publications on average for PhDs students (0.75 on average as a lead author). There are on average two publications per postdocs (0.3 on average as a lead author). Thirty-three percent of PhDs are foreigners. PhDs are mostly hired through university or public agencies funds while postdocs are recruited through PIA, ANR, European and Industry funds.

Six team members received PEDR or RIPEC bonuses. The team was also visited by seven International visiting researchers from Finland, Italy, and Spain.

Weaknesses and risks linked to the context

As partners, the team obtained three European and three national grants. However, as a leader, there is no European or international funding in the last contract.

Foreign professors and researchers continue to make sparse trips and there were no outgoing trips to international labs in the last term.

The team's interaction with the broader public remains modest.

No public outreach activity is reported for the last term.

Analysis of the team's trajectory

CMPLI was created by merging two separate teams which continued working independently. The decision to divide CMPLI into two teams seems logical and consistent given the variety of research conducted. It will help to increase the visibility of each team in their proper domains. NEW? Team 6 In silico Pharmacological Profiling (IsPP) team will be largely concerned with drug design, while the new team 7 Therapeutic Peptides: Protein-Protein Interaction Modulation (TPM2PI) will work on therapeutic peptide modelling. The objectives and the mission statement of the two teams are clearly stated.

With a view to the next contract 2025–2029, a call for applications was issued at the end of 2021. Following the first call, a professor (Samuela Pasquali) and an assistant professor (Dirk Stratmann) were invited to join the team. D. Stratmann's mobility is still being finalised. Concerning S. Pasquali, her arrival at BFA has been agreed with her home laboratory (Faculty of Pharmacy, Paris Cité) and anticipated for early 2022 as part of a CRCT (Congé pour recherche ou conversions).

IsPP team will be formed from five researchers of CMPLI team and will welcome one professor, two assistant professors and one statistical assistant engineer. Seven non-permanent employees with five grants, including two European ones, are already secured for 2025. The arrival of Dr S. Pasquali enriches the team's expertise on Protein with RNA. The team is heavily involved in innovative teaching at national and international levels, making it visible and appealing to excellent candidates.

TM2PI team will be formed with four current members of CMPLI team and will integrate one research director, one assistant professor, two professors, one clinician, and one technician. TM2PI will not focus only on in silico but also on in vitro, in-vivo experiments, and clinical testing. One of the new team members is the co-founder of the PEP Therapy start-up. The team was able to secure funds for after 2024. The team is in charge of the RPBS

platform, which provides services on a national and international scale, hence enhancing the visibility of the team worldwide.

RECOMMENDATIONS TO THE TEAM

The committee suggests that the team continues its excellent multidisciplinary research.

The committee recommends publishing more in high quality journals.

The team should promote the sharing of software, with a particular emphasis on open-source development, in order to accelerate scientific discovery by facilitating new collaborations and ensuring the reproducibility of research outcomes.

Collaborations at the European and international levels can be strengthened, potentially leading to funding for international projects, in particular experimental validation of the predictions can lead to further collaborations.

It is preferable to maintain a balanced strategy for publications demonstrating the genuine impact of multidisciplinary research, i.e. prediction to in-vivo applications, while keeping in mind that young researchers (PhD students or postdocs) require early publications to advance in their careers.

One of the new team members is the co-founder of a start-up firm, PEP Therapy. It is critical to strike the balance between company interests and open science.

CONDUCT OF THE INTERVIEWS

DATES

start: 28 novembre 2023 à 13 h 30

end : 30 novembre 2023 à 14 h 30

Interview conducted: on-site

INTERVIEW SCHEDULE

Mardi 28 Novembre — Amphi 5 C/Halle aux Farines puis salle RH73/Bâtiment Lamarck B
 13 h : accueil des experts par les membres BFA dans le Hall du bâtiment Buffon A (RdC), 4 rue Marie-Andrée Lagroua Weill-Hallé, 75013 Paris

Amphi 5C/Halle aux Farines

13 h 15 Arrivée des experts, installation et présentation du comité d'experts à l'unité
 14 h Présentation du bilan 2017-2022 par le directeur d'unité (J.M. Dupret)
 Présentation de la trajectoire par le futur directeur d'unité (C. Magnan)
 14 h 50 Equipe 3 : bilan (J. Cohen-Tannoudji)
 Equipe 1 : bilan (J. Movassat)
 Trajectoire : (J. Movassat, future équipe 3)
 15 h 45 — Equipe 2 : bilan et trajectoire (C. Magnan, future équipe 1)
 16 h 30 Equipe 5 : bilan et trajectoire (S. Luquet, future équipe 2)
 17 h 15 Equipe 4 : bilan (A. Ferreiro)
 17 h 50-19 h Huis clos comité

Mercredi 29 Novembre — Salle 064E/Halle aux Farines

8 h 15 : : accueil des experts par les membres BFA dans le Hall du bâtiment Buffon A (RdC), 4 rue Marie-Andrée Lagroua Weill-Hallé, 75013 Paris

8 h 30 Arrivée des experts
 8 h 45 Equipe 6 : Bilan (J.M. Dupret), trajectoire (F. Rodrigues-Lima, future équipe 5)
 9h30 Equipe 7 : Bilan (V. Monnier), trajectoire (S. Birman, future équipe 4)
 10 h 15 Equipe 8 : Bilan 2019-2022 (P. Tufféry)
 Trajectoires future équipe 7 (P. Tufféry) et future équipe 6 (A.C. Camproux)
 11 h 5-12 h 15 Huis clos des experts
 12 h 15-13 h 30 Déjeuner des experts organisé par l'unité (Salle 589/Bâtiment Lamarck B)
 13 h 30-14 h 15 Entretiens avec les personnels BIATSS et ITA
 14 h 15-15 h Entretiens avec les doctorants et post-doctorants
 15 h-15 h 45 Entretiens avec les enseignants-chercheurs et chercheurs non chefs d'équipe
 15 h 45-16 h 30 Bilan des rencontres
 16 h 30-17 h Rencontre avec les tutelles

Faculté des Sciences d'Université Paris Cité :

Nathalie Eisenbaum, Vice-doyenne recherche de la Faculté des Sciences

Pauline Andreu, Directrice du Pôle recherche de la Faculté des Sciences

CNRS : Yvan De Launoit/Prip-Buus, DAS/DAS adjointe

Inserm : Claire de Marguerye, Déléguée Régionale Paris IDF Centre Nord ; Raymond Bazin — IT PMN

17h-18h30 Huis clos du comité

Jeudi 30 Novembre — Salle 589/Bâtiment Lamarck B

8 h 15-8 h 15 accueil des experts par les membres BFA dans le Hall du bâtiment Buffon A (RdC), 4 rue Marie-Andrée Lagroua Weill-Hallé, 75013 Paris

8 h 30-9 h 30 Arrivée des experts — Préparation des questions au DU

9 h 30-10 h 30 Rencontre avec les directions actuelle (J.M. Dupret/J. Cohen-Tannoudji) et future (C. Magnan/P. Tufféry) de l'unité

10 h 30-13 h Huis clos du comité pour la finalisation du rapport

13h-14h30 Déjeuner organisé par l'unité (Salle 589/Bâtiment Lamarck B)

14 h 30 Départ du comité

GENERAL OBSERVATIONS OF THE SUPERVISORS

Le Président

Paris, le 4 mars 2024

HCERES
2 rue Albert Einstein
75013 Paris

Objet : Rapport d'évaluation de l'unité DER-PUR250024098 - BFA - Unité de biologie fonctionnelle et adaptative.

Madame, Monsieur,

L'université Paris Cité (UPCité) a pris connaissance du rapport d'évaluation de l'Unité de Recherche **BFA - Unité de biologie fonctionnelle et adaptative**.

Ce rapport a été lu avec attention par la direction de l'unité, qui signale des erreurs factuelles à corriger (cf courrier joint), par la vice-doyenne Recherche et le doyen de la Faculté des Sciences d'UPCité, par la vice-présidente Recherche d'UPCité, et par moi-même.

Présidence

Référence

Pr/DGDRIVE/2023

Affaire suivie par

Christine Debydeal -
DGDRIVE

Adresse

85 boulevard St-Germain
75006 - Paris

J'adresse mes remerciements au comité HCERES pour la qualité du rapport d'évaluation, ainsi que pour ces remarques, et vous indique ne pas avoir d'observations de portée générale à apporter.

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

www.u-paris.fr

Édouard Kaminski



Référence
MC/NE/EB/2024-013

Faculté des Sciences
Université Paris Cité
5 rue Thomas Mann
75013 Paris

Objet : DER-PUR250024098 - Évaluation HCERES de l'UMR 8251 BFA - Retour Tutelle Université Paris Cité

Chères et Chers Collègues,

Nous souhaitons par ce courrier remercier les membres du comité de visite pour le temps qu'ils ont consacré à l'évaluation de BFA, ainsi que pour leur écoute et le travail considérable qu'ils ont accompli.

La Faculté des Sciences est fière de compter BFA parmi ses unités de recherche et rappelle la grande qualité de la recherche menée par tous les membres du laboratoire.

Après lecture du rapport provisoire d'évaluation de l'UMR 8251 BFA, la Faculté des Sciences ne souhaite ajouter ni remarques générales, ni remarques factuelles.

En vous priant, chères et chers collègues, d'accepter nos chaleureuses salutations.

Maximilien CAZAYOUS
Doyen
Faculté des Sciences
Université Paris Cité

Nathalie EISENBAUM
Vice-Doyenne recherche Faculté
des Sciences
Université Paris Cité



Paris, February 12, 2024

To whom it may concern

Re : comments on BFA Hceres report


We thank the members of the Hceres committee for their in-depth assessment of BFA and having highlighted BFA strengths, in particular the high relevance of its scientific objectives, as well as BFA excellence in many areas such as national and international visibility, attractiveness, fund-raising and public outreach.

We also appreciate that our efforts to fully satisfy the recommendations of the previous Hceres committee have been acknowledged in this report.

Sincerely,

Jean-Marie Dupret, director

Joëlle Cohen-Tannoudji, deputy director



Les rapports d'évaluation du Hcéres
sont consultables en ligne : www.hceres.fr

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