

EVALUATION REPORT OF THE UNIT

IBV - Institut de Biologie Valrose

UNDER THE SUPERVISION OF THE FOLLOWING ESTABLISHMENTS AND ORGANISMS:

Université Côte d'Azur - Uca, Centre national de
la recherche scientifique - CNRS, Institut national
de la santé et de la recherche médicale - Inserm

EVALUATION CAMPAIGN 2022-2023
GROUP C



In the name of the expert committee¹ :

Christophe Le Clainche, Chairman of the committee

For the Hcéres² :

Thierry Coulhon, President

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

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

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

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

This version of the report is confidential under Decree no. 2021-1537 of November 29, 2021. The parts considered as confidential, as well as the answers to the supervising bodies' points of attention, will not appear in the public version of the report available on the Hcéres website.

MEMBERS OF THE EXPERT COMMITTEE

Chairperson:

Mr. Christophe Le Clainche, CNRS, Gif-sur-Yvette

Ms. Juliette Azimzadeh, CNRS, Paris

Ms. Pascale Bomont, Inserm, Lyon (representative of CSS Inserm)

Ms. Susan Chan, Inserm, Illkirch

Mr. James Hombria Castelli-Gair, Consejo Superior de Investigaciones Científicas, Spain

Ms. Alice Davy, CNRS, Toulouse (representative of CoNRS)

Ms. Bénédicte Durand, Inserm, Lyon (representative of CNU)

Experts:

Ms. Sandrine Lecart, Université Paris-Saclay (representative of supporting personnel)

Mr. Philippe Huber, CEA, Grenoble

Mr. Antonin Morillon, CNRS, Paris,

Mr. Didier Stainier, Max Planck Institute for Heart and Lung Research, Germany

Mr. Claus Storgaard Sorensen, University of Copenhagen, Denmark

HCÉRES REPRESENTATIVE

Mr Yacine Graba

Ms Marie José Stasia

CHARACTERISATION OF THE UNIT

- Name: Institut de Biologie Valrose
- Acronym: IBV
- Label and number: UMR7277, U1091
- Number of teams: 25
- Composition of the executive team: Mr Stéphane Noselli

SCIENTIFIC PANELS OF THE UNIT

SVE Sciences du vivant et environnement

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

THEMES OF THE UNIT

The Institut de Biologie Valrose (IBV) is composed of 25 teams that study the basic principles underlying the development of cells, tissues and embryos, in a normal or pathological context, using various model systems (cultured cells, *Drosophila*, zebrafish, *C. elegans*, sea urchin and a simple mammalian model) and covering a wide range of technologies (biochemistry, molecular biology, genetics, histology, cell and tissue imaging, cytometry and bioinformatics). The unit has also developed a strong clinical and translational research activity, with several teams hosting clinicians who provide links with local hospitals to study human diseases.

HISTORIC AND GEOGRAPHICAL LOCATION OF THE UNIT

IBV has its origins in the creation of the biochemistry centre in 1973 on the Valrose campus by M. Lazdunski. This centre was then divided into two separate research units in 1989. IBV was created in 2012 to bring these two units together under the direction of S. Noselli. Today, IBV is located in three buildings in Nice and occupies a total area of 4500 m². The Biochemistry Center and the Natural Sciences building, which are part of the Faculty of Sciences, are located on the Valrose campus, while the Pasteur Tower is located in the medical campus (Pasteur campus). The Valrose and Pasteur campuses are five minutes away by car.

RESEARCH ENVIRONMENT OF THE UNIT

IBV is a research centre supported by the Université Côte d'Azur (UCA), CNRS and Inserm. Within the framework of the PIA, IBV initiated and developed the Labex Signalife (50 teams, 11M€, Dir. S. Noselli 2012-2020). Signalife then played a decisive role in obtaining the Idex by the Université Côte d'Azur. In addition, IBV is a member of the EUR (Ecole Universitaire de Recherche) LIFE. IBV maintains close links with clinical research. Hence, three IBV teams are involved in FHUs (University Hospital Federation) bringing together clinical and research teams: two are part of the FHU Inovpain (Innovative Solutions in Refractory Chronic Pain), and one is part of the FHU OncoAge (Cancer & Ageing). The unit has created its own bio-incubation space to allow the development of start-up companies by its researchers.

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

Permanent personnel in active employment	
Professors and associate professors	14
Lecturer and associate lecturer	11
Senior scientist (Directeur de recherche, DR) and associate	26
Scientist (Chargé de recherche, CR) and associate	24
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	58
Subtotal permanent personnel in active employment	133
Non-permanent teacher-researchers, researchers and associates	5
Non-permanent research supporting personnel (PAR)	23
Post-docs	8
PhD Students	44
Subtotal non-permanent personnel	80
Total	213

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

Employer	EC	C	PAR
CNRS	0	28	24
Inserm	0	22	16
Université Côte d'Azur	15	0	10
CHU Nice	8	0	6
Centre Antoine Lacassagne	2	0	2
Total	25	50	58

UNIT BUDGET

Recurrent budget excluding wage bill allocated by parent institutions (total over 6 years)	8550.0
Own resources obtained from regional calls for projects (total over 6 years of sums obtained from AAP idex, i-site, CPER, territorial authorities, etc.)	4925.0
Own resources obtained from national calls for projects (total over 6 years of sums obtained on AAP ONR, PIA, ANR, FRM, INCa, etc.)	24,984.0
Own resources obtained from international call for projects (total over 6 years of sums obtained)	5742.0
Own resources issued from the valorisation, transfer and industrial collaboration (total over 6 years of sums obtained through contracts, patents, service activities, services, etc.)	4920.0
Total in k€	49,121.0

GLOBAL ASSESSMENT

IBV is an internationally renowned unit for its work in developmental biology, cell biology, genetics and signalling. The unit studies the fundamental mechanisms underlying the development and function of normal cells, tissues and embryos using a variety of animal models (*Drosophila*, zebrafish, sea urchin, *C. elegans*...), and conducts translational research on metabolic diseases, neuronal diseases, kidney diseases, reproduction, bone regeneration and growth, and cancer. Thanks to the LabEx 'Signalife' (1 and 2 period) fundings, which emerged from the IBV teams, IBV has demonstrated that it has a major structuring role for research in biology in Nice and more widely at the international level. To achieve its objectives, IBV has impressive resources: 39 DR/Prof, 39 CR/MDC, eight clinicians, 53 ITAs/Biatoss, nineteen postdocs, 48 PhD students in 2021; efficient technological platforms and new animal facilities that meet the highest international standards; and high level of funding (7 million Euros per year) which mostly relies on external funding (6 million Euros per year) resulting from exceptional successes in national and international calls for projects. The functioning of the unit is excellent, with an efficient management by the direction (although collegiality could be improved), including recruitment of highly visible and talented young team leaders, the support and modernisation of key technological platforms and model systems' facilities, as well as the promotion of start-ups through an in-house bio-incubator.

The attractiveness and visibility of IBV are outstanding. The exceptional reputation of many team leaders and IBV members is attested by numerous invitations to present their research at prestigious meetings in France (>80) and abroad (>200), the organisation of national and international meetings (49), involvement in editorial activities in international journals (>90) and reviewing activities at funding agencies (ERC, MRC, BBSRC, DFG, ANR, SFR, NSF). The members of IBV participated in 426 national and international steering and evaluation committees including CNRS (Section-22), Inserm (CSS-1), French and foreign Universities, IUF, Cefipra, ARC, La Ligue contre le Cancer, Hcéres, MRC UK, Institut Pasteur, Francis Crick Institute UK, Institut Curie, Collège de France, MESRI, Fond National Suisse. IBV members were recipient of numerous scientific prizes including from the Academy of Sciences (1), Academy of Medicine (1), American Academy of Microbiology (1), Fondation Bettencourt (1), and are part of scientific academies and organisations (4 Embo members, 1 Academia Europae and have over 20 responsibilities in academic societies). The unit's ability to attract young talent is noteworthy. During the evaluation period, IBV recruited three junior teams that were able to initiate their projects thanks to competitive young researcher grants: an Atip/Avenir and ERC starting grants for the first team, an Atip/Avenir and HFSP grants for the second team, and Atip/Avenir grant for the third team. A fourth senior team more oriented towards translational research, with established success in biotech creation and development, was also recruited during the second half of the contract. More generally, IBV researchers have demonstrated an exceptional ability to get their research funded in the most competitive calls for projects at local (Labex, Idex...), national (31 ANR, 17 as coordinator), four FRM team and charities) and international levels (1 ERC starting grant, 1 ERC Synergy, 3 NSF, 1 EU Marie Curie, 1 HFSP, 1 JPND...), averaging 6 million Euros per year over the reporting period. The attractiveness of IBV is also due to the state-of-the-art technologies and infrastructure for animal models. The most structured technology platforms are cytometry and imaging, which are open to external users. The new facility for non-human models, scheduled to open in 2022, and the new zebrafish facility, which will open in 2023, will definitely contribute to attracting new groups in the future.

The scientific production of the 25 teams evaluated in the unit is overall excellent and outstanding in a couple of established teams. The teams publish their most impactful research in highly visible journals (Nature, Science, Cell, Cell Metabolism, Developmental Cell, eLife, Plos Biology, Embo J, Embo Mol Med, Neuron, Nature Com, Current Biology, PNAS and Cell reports) and review articles in the most widely read journals (Nat Rev Mol Cell Biol, Trends Cell Biol, Curr Opin Cell Biol). Some rare very good teams are either struggling to publish the first results of their young team project, or are publishing a lot of papers but with less visibility than average. Publications

are well distributed among the different categories of staff. PhD students and postdocs generally publish their work as first authors in the majority of teams. The unit's scientific production respects the principles of research integrity, open science and ethics, particularly in terms of animal experimentation.

The contribution of the IBV's research activities to society is outstanding in many ways. For example, IBV teams have numerous collaborative contracts with industrial partners. In total, nineteen contracts with industry or with transfer structures have been obtained by seven IBV teams. Some of the start-up companies hosted by IBV in its unique bio-incubation structure have been highly successful, such as the start-up TherAchon, which was acquired by Pfizer in 2019 for 800 M€. IBV teams have filed 27 patents, nine of which have been licensed to develop various products in fields such as metabolic diseases, cancer and neuronal diseases. Finally, the unit's researchers share their knowledge with the general public through teaching and training, interviews in the major national media such as the written press, radio and television, public events and school visits.

DETAILED EVALUATION OF THE UNIT

A - CONSIDERATION OF THE RECOMMENDATIONS IN THE PREVIOUS REPORT

The previous report formulated six recommendations

1 - Scientific quality and outputs: if funds were available, they could be used to encourage internal collaborations (to support for example, collaborative projects, or joint postdocs).

The unit has not funded an inter-team scientific programme to foster collaborations. Nevertheless, several teams have developed collaborations during the evaluation period and teams working on related topics or models have joint-team meetings.

2 - Academic reputation and appeal: the institute members should maintain and expand their reputation, by attending international meetings, taking part in grant reviews in France and abroad, and organising international meetings in the pleasant city of Nice.

The researchers are members of Inserm (CSS1) and CNRS (Section 22) national committees and have participated in a large number of national and international grant reviews including H2020-MSCA-ITN-2016 (Europe), DFG (Germany), USA-Israel Binational Science Foundation, ERC Consolidator Grant, DIM1 Health Investissements 2021, Vice-President of the ANR CE13, Association Recherche contre le Cancer ARC CN2, President of the ANR CES16, member of the Scientific Council of the Jérôme Lejeune Foundation. The members of the unit contributed to the organisation of nearly 50 international scientific events, including some in Nice, despite the Covid-19 crisis.

3 - Interaction with the social, economic and cultural environment: the expert committee encourages IBV to pursue its strong involvement in dissemination and exploitation.

As in the previous evaluation period, IBV researchers were particularly active in disseminating their research to the public through about 100 actions including web articles, media interviews (newspapers, radio, the internet and television), meetings for the public (Fêtes de la science), high school visits (Declic). IBV continued to exploit its research successfully. Thus, 27 patents including 'invention statements' were filed and seven IBV teams obtained nineteen contracts from institutional transfer offices for the maturation stage (10) or directly from industrial partners (9). In addition, two start-ups were created and, above all, the start-up TherAchon was acquired by Pfizer in 2019 for 800 million euros.

4 - Organisation and life: the expert committee recommends that the number of LC meetings is increased.

The statutory Laboratory Council (LC) did not meet more often than in the previous period (2 to 3 times a year).

5 - Unit involvement in training through research: PhD students considered that the diversity of their employers was responsible for differences in salary and access to courses and information, that the selection criteria for doctoral contracts undervalued their academic record, that there was a lack of meeting spaces and that there was a lack of administrative documents in English.

The majority of these issues were not raised by students during the interview, with the exception of the lack of space, and the deterioration of buildings, which remains a problem.

6 - Strategy and the five-year plan: the management team should consolidate, communicate, support young groups (especially at critical transitions) and pursue sustainability.

Although many young teams have developed very well, there does not seem to be an internal strategy at IBV to consolidate young teams, such as prioritising technician/engineer positions, which currently depend on their ability to obtain external funding.

B – EVALUATION AREAS

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

Assessment on the unit's resources

The resources of the unit are outstanding. In 2021, the unit is composed of 139 permanent researchers and technicians/engineers and 166 non-permanent staff. The unit has 850–900 k€/year of institutional funds and six million Euros per year of external funds allowing a very high level of investment in the new technologies necessary for the teams' projects. IBV also implemented new model systems' facilities that meet the highest international standards.

Assessment on the scientific objectives of the unit

The clarity of the unit's objectives and their achievements are outstanding. This includes the recruitment of highly visible and talented young team leaders, the support and modernisation of key technological platforms, including model systems' housing, a strong structuring role in research and teaching in Nice area, and the promotion of start-ups through an in-house bio-incubator.

Assessment on the functioning of the unit

The functioning of the unit is excellent. The main strength is the clear research vision and effective management of the unit by the IBV direction. Although the unit has all the levels of organisation expected for a unit of this size, the PI council could meet more often. The lack of a Scientific Advisory Board to confront its choices, particularly for the recruitment of teams, is questionable.

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

Strengths and possibilities linked to the context

The permanent human resources from CNRS, Inserm, Uca, CHU, CAL (Centre Antoine Lacassagne) comprise 39 Research Directors (DR) or Professors (PR), 39 Researchers (CR) or assistant professors (MC), eight clinicians and 53 technical staff (ITA/Biatoss). The ITAs/Biatoss are well distributed over the 25 teams, platforms and administrative support services. Although the permanent human resources of the unit remain important, it decreased from 150 in 2017 to 139 in 2021. It is also important to add to this 2021 snapshot the 166 staff under short contracts including nineteen postdocs, 48 PhD students, 41 ITAs.

In addition to its institutional funding (CNRS, Inserm, Uca) which increased from 850k€ to 886k€ during the period, IBV has raised six million Euros per year in external funding, which is outstanding.

Work at the IBV relies on highly performant facilities including model systems' housing (Drosophila, zebrafish, etc.) and modern imaging resources.

Weaknesses and risks linked to the context

There are very few weaknesses except for the ageing of the staff, which will force the unit to use its resources to recruit staff on short contracts to compensate for the expected wave of retirement of the permanent staff, who will certainly not be fully replaced by the three supervisory authorities. At present, several key positions remain vacant. The most striking example is the lack of a 'secrétaire général' who provides indispensable assistance to the unit director in the day-to-day administrative management of the unit.

A source of tension within the unit seems to be the chronic lack of available office and laboratory space for the rapidly growing teams.

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

Strengths and possibilities linked to the context

The objectives of the unit are first and foremost scientific, and it is the biological questions that drive the investment decisions on new technologies.

The platforms and infrastructures have been designed to support the teams and they benefit from successful calls for equipment to ensure their constant modernisation.

IBV has proven during this evaluation period its capacity to provide itself with the means to achieve its objectives and plays a driving role in its environment by initiating or participating in ambitious and large-scale local programs such as the Labex Signalife, the Idex and the EUR for example, or by responding to national calls for projects adapted to its needs. The structuring role of the IBV in research in Nice through its very strong involvement in the Labex and Idex programs enables the unit's objectives to coincide with the development of the surrounding research units.

The targeted recruitment of young, highly talented, visible and attractive team leaders has been successfully carried out as evidenced by their success in national and international calls for projects (Atip/Avenir, HFSP, ERC).

As an academic institution and with fifteen professor/assistant professors, IBV is highly involved in teaching and training, coordinating Uca Bachelors and Masters as well as the Life Sciences Doctoral school, and in launching novel cursus (for example double degrees in biology/math, biology/chemistry, biology/earth sciences).

Finally, IBV has been creative in developing and financing its own translational research model with the establishment of a bio-incubator for companies. This has paid off since several start-ups have been created, some of them with resounding success.

Weaknesses and risks linked to the context

Although the objectives of the unit are clear, their definition could probably benefit from greater collegiality and external advice.

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

Strengths and possibilities linked to the context

IBV has a classic organisation scheme for a unit of its size with a director, a deputy director, a general secretary (vacant position), a PI council and a statutory laboratory council where all categories of personnel are represented.

Each team organises its periodic meetings and some teams organise joint meetings, according to their scientific interests.

IBV was a pioneer in setting up a Project Officer position in charge of supervising grant applications and in particular responses to calls of great strategic importance such as Labex and Idex.

A person in charge of communication ensures the flow of information through multiple channels.

The internal scientific animation is ensured by the organisation of seminars given by IBV members every two weeks. The external scientific animation is supported by the unit which finances regular seminars invited by the teams and keynote speakers which attract a wider audience.

Weaknesses and risks linked to the context

The efficiency of the IBV management is sometimes at the expense of collegiality and consultation with external advice. For example, it is regrettable that IBV generally prefers to punctually solicit candidates to start new teams rather than organise formal calls for applications, which is considered too restrictive by the unit. Although IBV advertises the possibility for internal researchers to start so-called emergent teams, this procedure seems to be rare and creates some frustration among researchers. Finally, it seems difficult for engineers and technicians to change teams during their career at IBV.

The gender balance among team leaders is very far from parity and seems difficult to correct without an adequate procedure when recruiting new team leaders.

The IBV direction also considers the use of a Scientific Advisory Board to be unnecessary, based on a questionable belief that such a body appointed by the unit itself is too biased to be useful.

The reduction in the number of engineers and technicians (ITA) in the unit has made it necessary to share these staff between the teams. It seems that this strategy is sometimes resented by the staff concerned.

Finally, one can regret that the PI council does not meet more often than three to five times a year.

EVALUATION AREA 2: ATTRACTIVENESS

Assessment on the attractiveness of the unit

The attractiveness of the unit is outstanding. The unit has attracted internationally renowned young talent, national and international funding through the most competitive calls for projects and numerous industrial contracts, and maintains and develops high standard technological platforms and animal facilities.

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

Strengths and possibilities linked to the context

During the evaluation period, IBV members were frequently invited to give seminars in other laboratories and at meetings within France (>80) and abroad (>200). In addition, they have participated in the organisation of 49 national and international meetings.

They have also been actively involved in editorial activities in numerous international journals (>90) and funding agencies (ERC, MRC, BBSRC, DFG, ANR, SFR, NSF) of the highest level as reviewers or as members of the editorial board.

In addition, IBV members participated in 426 national and international steering and evaluation committees including CNRS (Section-22), Inserm (CSS-1), French and foreign Universities, IUF, Cefipra, ARC, La Ligue contre le Cancer, Hcéres, MRC UK, Institut Pasteur, Francis Crick Institute UK, Institut Curie, Collège de France, MESRI, and Fond National Suisse.

IBV members were also the recipient of numerous scientific prizes including from the Academy of Sciences (1), Academy of Medicine (1), American Academy of Microbiology (1), Fondation Bettencourt (1), and are part of scientific academies and organisations (4 Embo members, 1 Academia Europae and over 20 responsibilities in academic societies).

Weaknesses and risks linked to the context

The recent success of the unit in translational research may put at risk the current balance between basic and translational research, and the current scientific reputation and attractiveness.

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

Strengths and possibilities linked to the context

During the evaluation period, IBV attracted four new teams that were able to initiate their projects thanks to competitive young researcher grants. The first was awarded an Atip/Avenir grant and an ERC starting grant, the second obtained both Atip/Avenir and HFSP grants and the third secured an Atip/Avenir grant. In addition to these three fundamental science research teams, a team more oriented towards translational research, created the company Innoskel after the success of TherAchon.

In addition to hosting young team leaders on a regular basis, as mentioned above, IBV is actively involved in the training of future researchers. One example is the initiative of a group of researchers to train Master's students to present the doctoral school competition in order to increase their chance of success in obtaining a doctoral contract.

Weaknesses and risks linked to the context

The unit is very attractive for PhD students, postdocs and young team leaders. However, it should be noted that the number of Master 1 and 2 students is low, with a cumulative total of only nineteen in 2021 for a unit of 25 teams. This last point is perhaps linked to the limited attractiveness of the unit for Uca teacher-researchers. Although very involved, there are only four professors and eleven assistant professors for a total staff of 305 in 2021.

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

Strengths and possibilities linked to the context

IBV teams have been very successful in raising funds. The external funding of the unit is around 6 million Euros per year, with a peak of almost nine million Euros in 2017, which is outstanding for a unit of this size. The IBV teams have secured funding from 80 different funding bodies, including one ERC starting grant, one ERC Synergy, three NSF, one EU Marie Curie, one HFSP, one JPND, 31 ANR (17 as coordinator), four FRM teams and others during the evaluation period. It is also important to highlight that IBV obtained sixteen important grants for the purchase of equipment, for a total amount of 1.7 million Euros, in particular for imaging.

Weaknesses and risks linked to the context

There is no reason to worry about the ability of the majority of IBV teams to maintain a high level of grant success.

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

Strengths and possibilities linked to the context

In general, IBV has state-of-the-art equipment suitable for its research. IBV has facilities adapted to its needs in imaging, flow cytometry and cell sorting, histology, biochemistry, molecular biology, genome editing/codon expansion and bioinformatics.

The most structured technological platforms are those of Cytometry and Imaging, which are open to external users. The Cytometry and Cell Sorting facility is equipped with several recent state-of-the-art flow cytometers and sorters, acquired from 2018 to 2021. The PRISM imaging facility, which has the national IBiSa label, provides researchers with the latest microscopy equipment. The platform has five laser scanning confocal systems, one light sheet microscope, two spinning disk confocal systems, and multiple classic microscopy systems. This facility regularly acquires state-of-the-art microscopy systems through successful applications for specific funds for the purchase of equipment.

IBV has made a substantial effort to develop and build non-human model systems' house facilities (zebrafish, *Drosophila* ...). The new facility, planned to open in 2022, is indispensable given the number of teams using the models at IBV. The new zebrafish animal facility opening in 2023 is a gamble that could pay off by allowing the IBV to position itself as an international reference for this powerful model in developmental biology and will contribute to its attractiveness for young researchers wishing to set up a new team.

Weaknesses and risks linked to the context

The main risks linked to the technological platforms are the possible delays in the opening of the zebrafish and house facilities, which could affect several projects of the unit. Indeed, part of the budget to equip the zebrafish facility and a position to recruit the necessary staff to run this structure is still missing.

More generally in the unit, whether in the platforms or in the teams, the constant reduction in ITA staff, and the increasing use of short-term contract, makes it increasingly difficult to maintain the unit's technical skills.

EVALUATION AREA 3: SCIENTIFIC PRODUCTION

Assessment on the scientific production of the unit

The scientific production of most of the IBV teams is excellent, with some teams having an outstanding scientific output. Teams published 536 articles during the period evaluated, including a significant number in highly visible journals such as Nature, Science, Cell, Cell Metabolism, Developmental Cell, eLife, Plos Biology, Embo J, Embo Mol Med, Neuron, Nature Com, Current Biology, PNAS and Cell reports.

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

Strengths and possibilities linked to the context

The scientific production of the unit is remarkable. From 2016 to 2021, it published 536 articles, including 85 clinical publications, fourteen book chapters and 94 review articles. Of the 536 articles, 223 have been signed by IBV members as leading authors (first, last or corresponding author). 247 articles are collaborations with external laboratories (228) or between IBV teams (19).

Many of these articles have been published in highly visible journals such as Science (2/2; total/IBV team-led), Cell 3/2), Cell Metabolism (5/2), Dev. Cell (3/3), eLife (13/4), Plos Biology (2/1), Embo J (3/1), Embo Mol Med (1/1), Neuron (2/2), Nature Com (11/5), Current Biology (5/1), PNAS (6/3) and Cell reports (12/4).

Similarly, several review articles have been published in the most prestigious journals of this category such as Nat Rev Mol Cell Biol, Nat Rev Endocrinol, Cell, Trends Cell Biol, Curr Opin Cell Biol.

Weaknesses and risks linked to the context

The scientific production of a few teams is below the standards of the unit.

Some teams did not succeed in getting PhD students to publish their work as first authors.

The number of publications corresponding to collaborations between IBV teams is nineteen, which is low for a unit of 25 teams over a period of six years.

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

Strengths and possibilities linked to the context

All teams regularly published although differences in the number and quality of publications exist. The overall scientific production is excellent and rather homogeneous within the unit with only a few teams with low output and two teams (Epithelial Morphogenesis and left-right asymmetry in Drosophila and Biology of ion channels) that stand out.

PhD students and postdocs generally publish their work as first authors in many teams. Permanent researchers publish as last authors in some but not all teams.

Weaknesses and risks linked to the context

The high visibility of the unit's scientific production largely depends on a few outstanding teams.

The unit's tendency to give maximum visibility to team leaders leads to a minimisation of the role of permanent researchers in certain teams, which leads to their relegation to secondary positions in the lists of authors of publications, with a risk of losing motivation in the long term.

Similarly, platform staff rarely seems to be involved in publications, which could weaken the links between the platforms and the researchers who use them.

Technicians and engineers are involved in publications in some but not all teams.

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

Strengths and possibilities linked to the context

IBV researchers are made as aware as possible of scientific integrity. The traceability of scientific results is ensured by the rigorous use of classical laboratory notebooks. Redundant storage facilities have been set up to protect the raw data.

The majority of the IBV teams' work is published in well-established peer-reviewed journals that meet current open access standards.

IBV respects the regulatory rules concerning the use of animal and human materials in research projects. An ethics committee (SBEA) chaired by the IBV veterinarian meets once a month to check general welfare. In addition, some IBV members have been appointed to a regional structure that verifies the compliance of scientific projects with current welfare standards (Ciepal). IBV has all the necessary authorisations to open the new experimental models' houses.

Weaknesses and risks linked to the context

There do not seem to be any weaknesses or risks in this evaluation criterion.

EVALUATION AREA 4: CONTRIBUTION OF RESEARCH ACTIVITIES TO SOCIETY

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

The inclusion of the IBV's research activities in society is outstanding. The IBV teams have numerous collaboration contracts with industrial partners averaging over 800 k€/year and have 23 filed patents, nine of which are licensed. IBV is active in launching start-ups, with the creation of three start-ups (DiogenX, ExAdEx-Innov and iWET), and has demonstrated the success of its bio-incubation model through the success of TherAchon. Finally, the unit's researchers share their knowledge with the general public through a variety of outreach activities.

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

Strengths and possibilities linked to the context

IBV is actively involved in the development of research projects in collaboration with industrial partners. Several IBV teams have contracts with companies such as Novo Nordisk, MSD/Merck, Ono Pharma and Horus Pharma Phenocell, Brain Ever and SAS Variant. In total, nineteen contracts with industry/pharma companies were obtained by seven IBV teams, averaging an income of over 800 k€ per year.

IBV is also very active in launching start-ups, with the creation of three start-ups founded by IBV researchers during the evaluation period: DiogenX, which develops diabetes treatments; ExAdEx-Innov, which develops adipose tissue models for pharmacological studies; and iWET, which works on developing ophthalmological treatment (in the process).

IBV has demonstrated the success of its bio-incubation model. This is illustrated by the transfer of basic knowledge relevant for the treatment of rare skeletal diseases, through the development of the Innoskel and TeRachon start-ups, the latter being subsequently acquired by Pfizer in 2019 for 800 M€. Pfizer/TherAchon and IBV have a current contract in place that allows Pfizer to use IBV's platforms for 80 k€/year.

Overall, the involvement of IBV researchers in the non-academic field is impressive and well above national standards for a unit of this size.

Weaknesses and risks linked to the context

There are no significant weaknesses or risks associated with this assessment criterion.

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

Strengths and possibilities linked to the context

The IBV teams have filed 27 patents in health-related fields, nine of which have been licensed. 90% of the patents cover discoveries related to metabolic diseases, cancer and neuronal diseases. The contracts with companies and the creation of start-ups mentioned earlier in this report are also proof that the IBV teams are producing knowledge and processes with economic value.

Weaknesses and risks linked to the context

There are no significant weaknesses or risks associated with this assessment criterion.

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

Strengths and possibilities linked to the context

The IBV teams actively communicate their work to the public through many channels in the major national media such as newspapers, radio and TV. For example, the team 'Biology of ion channels' has given 20 communications in major media such as France Info TV, Europe 1, LCI, Le Monde... Similarly, the team 'Epithelial Morphogenesis and left-right asymmetry in Drosophila' has given interviews for radio ('La Tête au Carré', France Inter) and the written press (Le Figaro, Nice Matin).

The IBV teams actively participate in events for the general public such as the 'Fête de la Science', the 'Journées du Patrimoine', the 'Semaine du Cerveau' and the 'Telethon'.

Finally, IBV researchers communicate their passion for life science research to young people during school visits organised by the Declic programme.

Weaknesses and risks linked to the context

Several teams work on subjects that are closely linked to diseases and seem to be poorly involved in communication actions towards the public.

C – RECOMMENDATIONS TO THE UNIT

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

In order for IBV to improve the collegiality of its management, the PI council should meet regularly. The role of this PI council in the functioning of the unit should also be increased.

In order to encourage internal collaborations, internal funding of collaborative projects around the unit's strong scientific axes could be set up.

IBV should consider using an external scientific advisory board for the recruitment of new teams.

The unit should try to correct the gender imbalance among team leaders.

Finally, IBV should initiate a reflection on the use of office and laboratory space to address the chronic lack of space mentioned by several teams.

Recommendations regarding the Evaluation Area 2: Attractiveness

Researchers who are not team leaders play an essential role in the development of team projects. To continue to attract them, the unit should consider, more than it does today, the possibility of promoting these researchers who develop high-quality independent projects, as PI of a subgroup in a team or as a new team leader.

To maintain its excellent scientific reputation and the resulting attractiveness, the unit must maintain the current balance between basic and translational research.

The unit could probably accommodate more teacher-researchers, who are very few for a unit of this size, to attract more students.

Recommendations regarding Evaluation Area 3: Scientific Production

The scientific output of the unit is overall excellent, outstanding for a few teams, and will undoubtedly remain so. The unit has been able to discover major concepts in biology and it must ensure that the pure curiosity-driven research on model systems that has been its strength is not supplanted by an overly strong appeal to the promises of purely translational research.

More use could be made of social media for the publication of preprints and their rapid dissemination.

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

The contribution of the IBV's research activities to society is outstanding, thanks in particular to industrial contracts, the incubation of start-ups and the very strong commitment of researchers who are highly visible in the media. The committee simply recommends that the IBV researchers maintain this effort at the exceptional level it is today.

RESPONSES TO SUPERVISING BODIES CONCERNS (IF ANY)

Four concerns were collectively expressed by the CNRS, Inserm and Uca.

1 - Development of a research axis in quantitative and computational biology.

A novel research axis in quantitative and computational biology is currently being set up at IBV to foster analysis of complex data and modelling. To this aim IBV will recruit two team leaders, initiate new scientific events and programs and promote training of students at several interfaces between biology and mathematics/computer sciences/physics.

2 - Increase in bio-incubation capacity.

The bio incubator space in the Natural Sciences building will be more than doubled from 160 m² to 360 m² to accommodate, in addition to Therachon-Pfizer, new start-ups at Uca. While positive and not putting at risk fundamental research at present, IBV should be cautious in the future to maintain a proper balance between basic and translational research.

3 - Zebrafish facility.

The IBV will host a new state-of-the-art zebrafish facility in 2023 thanks to the support of the Uca and the 'plan de relance' which will increase the number of samples and users by a factor of three. Dedicated laboratory space for users will be available in this new facility. This facility will open novel opportunities for team recruitment.

4 - Reduction in the number of permanent researchers.

IBV is well aware of the future reduction in the number of permanent researchers and regularly recruits new young team leaders to compensate for this.

TEAM-BY-TEAM ASSESSMENT

Team 1: AMRI -Cellular and molecular regulation of fat mass
 Name of the supervisor: Mr. Ez-Zoubir Amri

THEMES OF THE TEAM

The team, created in 2012, is focused on understanding the mechanism of obesity. The team works on ways to regulate fat mass, through the identification of new tools to enhance energy expenditure by inducing brown adipocyte formation, and to control white adipose tissue mass and distribution through oxytocin. Specifically, the team has studied: 1) the mechanisms of brite adipocyte (white adipocytes with brown adipocyte characteristics) formation and activation; 2) the nutritional control of white adipocyte browning; 3) adipocyte-hepatocyte crosstalk; 4) the role of oxytocin in preventing obesity and osteoporosis.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

In the previous evaluation, the team was encouraged to publish studies with deeper mechanistic insight, apply for a grant in the European Nanomedicine 2020 call, develop partnerships with companies, increase training of PhD students and teaching, and obtain more proof-of-concept data on parts of its proposed project.

The team has continued to publish regularly in good to very good journals, with numerous collaborations. Team members improved the most in non-academic activities, filing two patents in this period.

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	1
Lecturer and associate lecturer	2
Senior scientist (Directeur de recherche, DR) and associate	1
Scientist (Chargé de recherche, CR) and associate	2
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	2
Subtotal permanent personnel in active employment	8
Non-permanent teacher-researchers, researchers and associates	1
Non-permanent research supporting personnel (PAR)	0
Post-docs	0
PhD Students	2
Subtotal non-permanent personnel	3
Total	11

EVALUATION

Overall assessment of the team

The team showed very good scientific production with nine team-led original articles (Biochim Biophys Acta, Sci Rep, Mol Metab x2, Faseb J, Adipocyte, J Lipid Res, Cells, Int J Mol Sci) and a total of >70 papers including collaborative papers and reviews, focusing on understanding the mechanism of obesity. The team showed very good visibility and attractiveness in recruiting PhD students but lacked funding to hire postdocs. The team saw the departure of two CR researchers (one for retirement) but also recruited three new CRs, which was an excellent development. The team showed a very good capacity to obtain national grants (1 ANR as coordinator; 2 as partner; and grants from foundations) though the funding was reduced in 2020 and 2021. The non-academic activities were very good to excellent, with two patents filed in this period.

Strengths and possibilities linked to the context

The team had very good productivity with over 70 publications in the evaluation period, including nine team-led papers (Biochim Biophys Acta, Sci Rep, Mol Metab x2, Faseb J, Adipocyte, J Lipid Res, Cells, Int J Mol Sci) and collaborative primary papers and reviews, which reflects a regular and productive scientific production for a team of this size. They have isolated mesenchymal stem cell populations from young human adipose tissue (hMADS cells) that can differentiate into adipocytes and osteoblasts, and interestingly, into brite adipocytes (white adipocytes with brown adipocyte characteristics) upon exposure to PPAR agonists, which few other brown cell models had been shown to do. In addition, the team had identified micro-RNAs potentially involved in the white to brite adipocyte conversion, the K⁺ channel KCNK3 in brown adipocyte tissue activity, and the role of dietary fatty acids on the conversion process. Lastly the team has begun to address the implication of oxytocin in mesenchymal stem cell differentiation and osteoarthritis; this project allowed the team to obtain financial support from the CHU Nice to analyse patient samples to study the link between oxytocin level and weight loss. Although some of the studies relied on cell models, others depended on in vivo high-organisms' models that were no doubt severely impacted by the Sars-Cov-2 pandemic. In addition, the group leader also showed a strong enthusiasm for establishing strong national and international collaborations.

The team showed a very good ability to attract PhD students, and hosted two PhD students who defended in this period (both published as first authors), and two other PhD students in mid-term. The team would like to host postdocs, but did not have the funding to pay for a salary. The team had a strong capacity to lead research projects with a high number of permanent staff. Although two CRs left the group, three more joined in this period, which was an excellent development, and will hopefully allow the projects to develop further. The team showed a very good capacity to obtain grants from national agencies (1 ANR as coordinator; 2 as partner) and charity associations. It was unclear if the team members were invited to meetings, or organised meetings.

The non-academic activities were very good to excellent, with two patents filed in this period.

Weaknesses and risks linked to the context

The projects lacked deep mechanistic insight, which prevented the team from publishing outside of specialised journals. This situation was exacerbated by a reduction in competitive grant funding in 2020 and 2021, and as a consequence no postdocs joined the team.

The team seemed isolated in Tour Pasteur on the Pasteur campus, away from the main part of the unit and its platforms. Even though the group leader thought that this location was advantageous by allowing the team to be close to clinics, it may explain why the team has had few students compared with the number of permanent staff.

The group leader justified only 35% of his time to research, which was low among the group leaders in this unit, and 30% to research administration, which was higher than the other group leaders. This may have made it hard to focus on the research and improve visibility.

RECOMMENDATIONS TO THE TEAM

The team needs to obtain funding urgently.

The team needs to increase the number of PhD students and/or postdocs.

Team 2: Polarized growth in yeast
 Name of the supervisor: Mr. Robert Arkowitz

THEMES OF THE TEAM

The team applies interdisciplinary approaches to study the mechanisms underlying the establishment of polarity and polarised growth in yeast. A major focus is on the transition from budding to hyphal growth in the opportunistic pathogen *Candida albicans*, which is critical for infection. The work focuses on three main axes: regulation of membrane trafficking; biophysics of growth and morphogenesis; and dynamics of cell polarity establishment. Techniques employed to address these questions include microfabrication, optogenetics, high temporal and spatial resolution quantitative live cell microscopy, mathematical modelling, nanobody targeting and 3D electron tomography.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The team should continue its outreach activities, since its research topics have a real appeal to the general public.

The team has continued its outreach activities during the past term by participating to various events dedicated to the general public (Fete de Sciences, Telethon, Inserm Festival) as well as visits to local schools (Astep, Medites and Déclic programs). They also wrote several dissemination articles about their work to be posted on the CNRS website.

The team would greatly benefit from the hiring of an additional permanent researcher. Every effort should be made to help this team to achieve this goal.

Despite several applications for CNRS and Inserm positions, there was no new permanent researcher hired during the period.

In addition, the team would benefit from having a second microbiology group in the institute (IBV), which should be an aim in future recruitment.

This has not happened.

*The interdisciplinary project, aimed at understanding forces during fungal invasive growth, should be a major focus in the future. Both the micro-chamber approach and studies of interactions between *C. albicans* and human host cells are very promising directions.*

The biophysical aspects of filamentous growth remained a major focus of the team during the evaluation period, resulting in several publications (mBio 2021, BMC Biol 2020, Cell Reports 2019).

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	0
Lecturer and associate lecturer	0
Senior scientist (Directeur de recherche, DR) and associate	2
Scientist (Chargé de recherche, CR) and associate	0
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	1
Subtotal permanent personnel in active employment	3
Non-permanent teacher-researchers, researchers and associates	0
Non-permanent research supporting personnel (PAR)	0
Post-docs	1
PhD Students	1
Subtotal non-permanent personnel	2
Total	5

EVALUATION

Overall assessment of the team

The scientific production of the team is excellent, with six original publications as last/corresponding author in high quality journals, and several articles as collaborators. The visibility of the team is excellent to outstanding, with several participations in competitive international networks, high-level collaborations and an election to the American Academy of Microbiology. The investment in non-academic activities is very good to excellent, with one patent and one invention declaration filed during the evaluation period, plus multiple outreach activities.

Strengths and possibilities linked to the context

The publication record for the period under review is excellent. The team published 6 papers with members of the team as last/corresponding author (mBio 2021, BMC Biology 2020, Cell Reports 2019, Cellular Microbiology 2019, Small GTPases 2017, PloS Pathogens 2017). In addition, several collaborative studies were published during this period (J Biol chem, 2021, Science Signalling 2021,2016, Frontiers in Cell and Infection Microbiology 2018, Journal of Cell Biology 2016). The team also authored three reviews in high quality journals (Current Opinion in Cell Biology 2020a, 2020b, F1000 research 2019).

The team is very attractive to students, as demonstrated by the recruitment of seven PhD students, and has also hired five postdocs during this period. The reputation of the team is excellent to outstanding. Among others, the PI was elected Fellow of the American Academy of Microbiology in 2021). The team has been part of two competitive Marie Skłodowska-Curie Actions Innovative training networks. The PI has also obtained three ANR PRC grants as coordinator in the past term (2013-17, 2016-21, 2019-23), as well as one ERC synergy grant. The PI is also part of a NSF Research Coordination Network Grant and partner in two NSF research grants. The PI and the other senior scientist of the team participated in the organisation of international meetings.

Non-academic activities are excellent. The team is co-author of a patent and filed an invention claim in 2016. The team is also involved in outreach activities (Fête des sciences, Telethon, Inserm Festival, visits to local schools -Astep, Medites and Déclic programs) and writes press releases to disseminate its work.

Weaknesses and risks linked to the context

The team at the end of the evaluation period is small.

RECOMMENDATIONS TO THE TEAM

No particular recommendation except to continue this excellent work.

Team 3: Post-transcriptional control of neuronal plasticity
 Name of the supervisor: Ms. Florence Besse

THEMES OF THE TEAM

In the general context of the spatiotemporal regulation of translation in the neuron, the research team studies the mechanisms that control mRNA fate in health, aging and neurodegenerative diseases. Combining *Drosophila* with computational methodologies, the group dissected the dynamics, properties and compositions of ribonucleoprotein (RNP) granules within CNS neurons to 1) identify novel regulators and their effect on translational activation, and 2) uncover specific alterations in aging and pathology.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

It is recommended that the team continues to combine interdisciplinary technology development with addressing important questions in the field. The team should also continue to bring novel advanced technologies to the institute and to contribute to the Microscopy technology platform.

The team has pursued its effort in technical development (method to purify fly RNP complexes), in interdisciplinary approaches (quantitative imaging tools and predictive modelling with the Morpheme team). The group leader is also the scientific co-coordinator of the imaging platform at IBV.

The team should attract a few more postdocs, to facilitate the expansion of its interests to the study of additional mRNA binding proteins and disease connections. The team should increase its renown and ability to attract PhD students through dissemination and communication activities, which would attract prospective PhD students.
 The team has increased its visibility, by recruiting eight PhD students (4 of them have defended during the evaluation period). Only one postdoc researcher was recruited over the period.

The team should improve its communication as it manages topics and tools attractive for the general public.
 The team is engaged in several outreach activities to communicate the value of fundamental biological sciences to a wide public (Declic in high schools, Nuits des chercheurs, Expositions art et science...).

The team should organise additional specialised workshops, to spread their expert technical knowledge and connect with researchers worldwide.
 The team organised two events in France and the team leader was invited as session chair in two European meetings in Switzerland and Spain.

*If possible, the expert committee recommends to study specific mutations in patients that cause ALS and SMN like symptoms in TDP43, FUS or SMN. In this way, one can characterise the mechanism of the disease in the highly tractable *Drosophila* system.*
 The team joined a consortium of European laboratories (JPND program 2015-2018). It is anticipated (but not elaborated in the proposal) that the research group will study the alterations of RNP complexes with mutated TDP-43, mutated Fus...

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	0
Lecturer and associate lecturer	1
Senior scientist (Directeur de recherche, DR) and associate	1
Scientist (Chargé de recherche, CR) and associate	1
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	1
Subtotal permanent personnel in active employment	4
Non-permanent teacher-researchers, researchers and associates	0
Non-permanent research supporting personnel (PAR)	1
Post-docs	0
PhD Students	4
Subtotal non-permanent personnel	5
Total	9

EVALUATION

Overall assessment of the team

The team's scientific output is excellent with major publications in highly visible journals (eLife, Nat Commun, PLoS Comp Biol and Traffic). The attractiveness and visibility of the team are also excellent, given the multiple invitations to international conferences (GRC, Embo, Fens, Febs...), the success to grant applications at national (ANR, FRM team, Idex) and international (JPND) levels, the recruitment of eight PhD students, the membership to the CNRS section 22, the co-coordination of the imaging facility and the appointment of the team leader as new director of the IBV. The non-academic activities are very good with several outreach activities but no collaborations with industry.

Strengths and possibilities linked to the context

The attractiveness and visibility of the team are excellent. The team leader is regularly invited to conferences (10 European and international conferences such as GRC, Embo, Fens, Febs...) and four national meetings (NeuroFrance, French drosophila meeting...). The team participates in research funding agencies by sitting on the board of directors of Labex Signallife (Uca) and the scientific committee of the Ligue contre le Cancer (since 2020) and contributes to scientific evaluation by sitting on section 22 of the CNRS (since 2021) or by participating in the Hcéres committee of the IGH (2020). The team has been very successful in its funding applications at national (3ANR, FRM team) and international (European JPN network) levels. The team is very attractive for students as shown by the recruitment of eight PhD students, among whom four defended during the evaluation period.

The team conducts an original research program and has an excellent scientific production. The team uses the power of the Drosophila system to address the in vivo regulation of RNP granules, which will allow deciphering the underlying physiological functions within the nervous system. To do so, the team develops methodologies (purification methods of RNP in Drosophila, quantitative imaging and predictive methods in collaboration) that contribute to their scientific innovation in the field. Their work led to four reviews (3 in first rank position) and seven research articles (4 in first rank position in eLife, Nat Commun, PLoS Comp Biol, Traffic). Another paper is under

revision at Nat Commun. Importantly, three PhD students defended their thesis with one review & one high-profile journal paper.

Weaknesses and risks linked to the context

The team could not recruit more than one postdoctoral fellow over the evaluation period.

The team is not leading any European grants.

The team has limited involvement in the organisation of scientific meetings (2 French meetings as co-organiser in 2016 and 2018).

RECOMMENDATIONS TO THE TEAM

With an excellent scientific activity and recognition for its focused research program on the translational control of neuronal plasticity, the team should consider the following improvements:

First, the group needs to increase its capacity to hire postdoctoral researchers (same recommendation in the previous period).

Second, it would be important to apply to European grants as coordinator.

Third, the team should be able to increase their involvement in meeting the organisation.

Finally, as the team is conducting fundamental disease-related work, it should be possible to transfer some of its findings to industry in the long term.

Team 4: Gene-environment interactions in development and evolution
 Name of the supervisor: Mr. Christian Braendle

THEMES OF THE TEAM

The team aims to understand both proximate and ultimate causes of biological systems linking developmental evolution, genetics and ecology. They study morphology, behaviour and life history at a microevolutionary scale to understand the molecular-genetic basis of phenotypic evolution. The combination of quantitative experimental approaches, ranging from developmental biology, quantitative genetics, experimental evolution to evolutionary ecology, allows the team to address the question of how development influences the possible trajectories of evolutionary change. By a unique collection of *C. elegans* in their biotopes, the group put in perspective the evolutionary ecological framework with their ecology, genomics, phylogenetics, systematics and natural history.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

*A suggestion is presented regarding the potential exploitation of the range of genetic and genomic tools available in *C. elegans* so that the molecular/mechanistic aspects of the processes under study could be investigated at higher detail. This deeper mechanistic level of understanding may catapult the team to fertile new territory enhancing its impact in areas outside their current field of research.*

It is not clear whether the team used loss and gain of function tools to study deep mechanistic questions.

*The team should consider a stronger participation in regional/national scientific networks within France, focused on the study of gene-environmental problems. Should networks of this kind not exist at present, then it might be worth considering that the team takes a pro-active leading role in establishing such network which may involve work in *C. elegans* as well as in other modern genetically-tractable organisms.*

It is not clear if the group took this leading role to federate the community regionally or nationally. No meeting, conference or summer school have been organised by the team during the period. However, the collection of *C. elegans* species/strains in subtropical region is available to the community for further study.

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	0
Lecturer and associate lecturer	0
Senior scientist (Directeur de recherche, DR) and associate	1
Scientist (Chargé de recherche, CR) and associate	1
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	0
Subtotal permanent personnel in active employment	2
Non-permanent teacher-researchers, researchers and associates	0
Non-permanent research supporting personnel (PAR)	4
Post-docs	1
PhD Students	1
Subtotal non-permanent personnel	6
Total	8

EVALUATION

Overall assessment of the team

The team has an excellent scientific production (21 publications; 10 as main author) reaching high quality (Science advances 2021, Current Biology 2020, Developmental Biology 2016 and Evolution 2016). The team has an excellent visibility/attractiveness with excellent funding (4 ANR, 2 as coordinator, 1 ARC PJA2), with two postdocs and two PhD students over the period. It might lack international fundings (ERC, European network). No activity was reported for the non-academic world. Overall, the team is excellent.

Strengths and possibilities linked to the context

The research aims are original and important with the use of *Caenorabditis elegans* to study the interactions between genotype and environment and how these affect developmental and evolutionary processes. Although it is known that genotype-environmental interactions are pivotal for phenotypic variation, little is known about the mechanisms that underlie the links between the genetic programs of development and the environment. The team contributed in understanding complex interactions between developmental plasticity, genotype-by-environment interactions and genetic assimilation. In particular they provide insights into how naturally occurring molecular variants can mediate life history plasticity and evolutionary transitions between plastic versus fixed phenotypic characteristics (Science advances, 2021). In addition, they generated novel resources that serve a large scientific community by collecting and cryopreserving over 1800 wild isolates belonging to >30 *Caenorhabditis* species freely available. This has initiated studies on toxin-antidote elements (eLife, 2021) among others.

The team has an excellent visibility/attractiveness with high level of funding (4 ANR, 2 as coordinator, 1 ARC PJA2), with two postdocs over the period and two PhD students. It might lack international funding (ERC, European network). The PI participated in four editorial committees over the period.

Weaknesses and risks linked to the context

Despite high quality of publications, and international shared resources, the team is lacking a leadership role in the community with no reported activity on meeting organisation, international funds or network structuration.

In terms of non-academic activity, the team has a fair interaction with the social, economic and cultural environment reporting no specific facts on this matter while the *C. elegans* resources might be valorised.

RECOMMENDATIONS TO THE TEAM

The team might increase its visibility by leading actions to federate the community at the national or international level creating networks that could attract important structuring funding.

Team 5: Sex determination in mice
 Name of the supervisor: Ms. Marie-Christine Chaboissier

THEMES OF THE TEAM

The team has a well-focused theme and addresses several important questions: 1/the mechanisms of sex determination in mammals, 2/the normal and pathogenic development of the gonads, 3/ovarian homeostasis and repair and 4/WNT/ β -catenin signalling and the role of Sox genes in gonad development.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

Overall, the team successfully addressed most of the recommendations made in the previous evaluation.

The expert committee recommends that the team develops high-throughput approaches, such as single-cell transcriptomics.

Single cell transcriptomic studies were performed and their results published.

The team should obtain funding through research with translational application, in the field of cancer, or related to sex determination.

Funding in those domains was not obtained.

The interaction with the social, economic and cultural environment could be increased, in order to enhance its recognition by the general public.

The team interacted greatly with the general public through communications in local journals, videos and internet.

The permanent team members should be very vigilant in the next period because they will have to manage four PhD students at the same time, especially considering that each PhD student has to publish one first author manuscript.

Three PhD students defended their thesis with at least one publication as first author in high-level journals, suggesting that these students were well supervised. The fourth one is still ongoing.

The team should preserve its involvement in teaching, since it helps to detect outstanding students who may be interested in joining the laboratory.

With three MCFs, the team provides a lot of teaching hours, and is also very much involved in the program 'Licence à l'Université ; Compétences et Adaptabilités' of Uca.

The team would benefit from connecting with clinicians

No strong interaction was developed with clinicians.

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	0
Lecturer and associate lecturer	2
Senior scientist (Directeur de recherche, DR) and associate	1
Scientist (Chargé de recherche, CR) and associate	1
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	1
Subtotal permanent personnel in active employment	5
Non-permanent teacher-researchers, researchers and associates	0
Non-permanent research supporting personnel (PAR)	1
Post-docs	0
PhD Students	1
Subtotal non-permanent personnel	2
Total	7

EVALUATION

Overall assessment of the team

The team produced major results in the field of sex determination. This team was considered to be excellent to outstanding for their publication level, as most of the work was published in top and high-range journals. The team leader was invited in international meetings and contributed to the organisation of some of them. The team was also very active at the national level through participation of their members to Inrae, Inserm and Hcéres evaluation committees. Altogether, the team has an excellent to outstanding visibility at the national and international levels.

Strengths and possibilities linked to the context

The productivity of the team was excellent to outstanding for a team of this size, with a total of fifteen publications: fourteen original articles and one review. Team members were in leader positions in eight of them. Articles were published in top range journals (Cell Stem Cell, Sci Adv, PNAS, 2 in Cell Rep, Cell Death Differentiation), in high range journals (2 in eLife, Oncogene, Cells, Faseb J) or middle-range journals (2 in Dev Biol, Mol Cell Endocrinol). At the end of 2021, the team was composed of one DR (head of the team), one CR, two MCF and one IE. One CR left in 2021. The five researchers of the team published articles: four of the researchers were in leader positions in those articles. All PhD students with a defended thesis published one article as first author in a high-range journal and two of them were co-authors in other articles, which indicates that they were well supervised and that their results were exploited. The IE was co-author of five papers, with one as first author. Altogether, the team deciphered a number of molecular and cellular mechanisms in the field of gonad development and orientation, and introduced new concepts.

The team has an excellent to outstanding visibility, with a number of invited talks at national and international conferences. Together with other international scientists of the field, the team leader set up a European symposium on sex determination that will be held every three years. The team also participated in the organisation of the V international conference on WT1 biology in 2019. The team leader participated to various committees (CSS BioA-Inrae, CSS 3 - Inserm, Hcéres evaluations). The team researchers (and leader)

participated to PhD thesis or HDR committees, and were involved in grant evaluation. The team is attractive, as attested by the recruitment by mobility of a CR in 2017, and the recruitment of three PhD students in 2015, and one in 2021. Through the three MCFs, the team had a very strong teaching activity at the Uca, and is very much involved in the 'Licence à l'Université ; Compétences et Adaptabilités' of the L@uca project. Team 5 obtained several national grants (4 ANRs, including one as coordinator), as well as a grant from a charity and one from a foundation. Altogether, the team obtained 139 k€/y in average, which was sufficient to develop their scientific projects.

The team exhibited very good non-academic activities in the 2016-2021 period. More specifically, they interacted with the general public through communications in local journals, videos and the internet and contributed to a scholar textbook.

Weaknesses and risks linked to the context

There is only one ongoing PhD student in the team, which is low considering the number of researchers (4 including 2 HDRs).

No postdocs were hired during the period.

Interactions with clinicians was not set up.

RECOMMENDATIONS TO THE TEAM

The team is doing an excellent to outstanding work and should consider reaching the next level (e.g., applying for ERC funding).

Efforts should be made to increase the number of PhD students and possibly hiring postdocs.

Because of the team topic and its translational potential, collaborations with clinicians could be initiated.

Team 6: Diabetes Genetics
Name of the supervisor: Mr. Patrick Collombat

THEMES OF THE TEAM

The team is in diabetes research investigating pancreatic beta-cell regeneration with emphasis on mouse models. More specifically, they focus on Gaba activities in Type 1 diabetic patients and in particular effects of Gaba activities on beta-like cell neogenesis. The team also investigates how regenerated beta-cells can be protected from autoimmune attack. Finally, they investigate the role of specific genes in diabetes onset. The team is involved in a pilot clinical trial to establish if Gaba can help diabetic patients, they are also very actively engaged in a biotech spin-off on the same topic.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The expert committee recommends an increased involvement of all team members in interactions with the social, economic and cultural environment, to ensure sustainability (e.g. Fête de la science talks by junior members of team). The team should be more involved in leading/developing international training networks. The team leader should consider increasing the number of permanent staff members, to ensure longer-term sustainability and resilience.

The team has focused very much on the translational side of their diabetes findings, hence, these aspects have not been at the centre of team efforts.

This team's research hinges on having access to a suitable mouse facility. It is recommended that this is addressed by the team with the management.

This is no longer relevant as the team appears able to conduct their murine studies.

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	0
Lecturer and associate lecturer	0
Senior scientist (Directeur de recherche, DR) and associate	1
Scientist (Chargé de recherche, CR) and associate	0
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	0
Subtotal permanent personnel in active employment	1
Non-permanent teacher-researchers, researchers and associates	2
Non-permanent research supporting personnel (PAR)	4
Post-docs	0
PhD Students	1
Subtotal non-permanent personnel	7
Total	8

EVALUATION

Overall assessment of the team

The team conducts diabetes research at an excellent level (publications in Cell and JCB in 2017/2018). This team has an excellent visibility. They are able to translate their findings towards the clinic and biotech sectors, thus, the non-academic activities are at an outstanding level. The translational research has become a major focus, hence, basic science output was mainly in the first part of the assessment period.

Strengths and possibilities linked to the context

The team projects are within a central core and they are original with marked conceptual and translational potential. They have excellent academic and non-academic collaborators and they do run translational (interdisciplinary) projects linking basic and applied science. The team had a 2017 Cell paper (last author team leader on the Gaba-mediated beta cell neogenesis), and high-impact collaborations.

Attractiveness and visibility is excellent, with the securing of high level of funding (>700k€/year), the formation of 6 PhD students and hosting of seven postdoctoral fellows. The team leader is often invited at national and international meetings (although the exact number during the reporting period was not assessable), is reviewing for reputed journals (Cell, Nature...) and was awarded several prizes and distinctions (i-Lab Award, Auguste Loubatières Award, FR and 'Chevalier de l'Ordre national du Mérite').

The non-academic activities are outstanding with patents developments (2 were licenced), biotech star-up creation (DiogenX) in the diabetes field (aiming at generating new/improved molecules to induce a massive increase in pancreatic beta-cell numbers). DiogenX received funding from the JDRF Venture Fund, Boehringer Ingelheim Venture Fund and Advent France Biotechnology and is involved in a clinical trial with NovoNordisk and the Steno Diabetes Center (DK). The team is also active towards the general public, with 3 TV interviews, 6 radio interviews and 25 newspaper articles.

Weaknesses and risks linked to the context

Although the translational focus is a strength, it may now (at the end of the assessment period) be at such a comparatively high level where this aspect impacts basic science discoveries and output from the team. The number of basic science researchers in the team is relatively low considering the high quality of the research, this is a risk in case of additional team members leaving or periods of reduced grant income.

The publication trend is not optimal, top publications were in the start of the assessment period.

The team did not apply to or obtain European grants.

RECOMMENDATIONS TO THE TEAM

The team is based on basic science discoveries in the diabetes alpha/beta-cell field. Recently, it has been through a period of marked focus on translational research. This has been to extent where it may have impacted the team's ability to set ground-breaking basic science visions and unfold these with the sufficient commitment (in terms of funding, manpower, high-end new approaches, collaborations etc). An almost one-dimensional focus on translation and commercially oriented projects is not recommendable when hosted at IBV, thus, these commercial projects would ideally be better suited in incubators and/or the biotech sector.

The team could apply to European grants (alone or in consortia) to increase their sources of funding.

Team 7: Stem cells and differentiation
 Name of the supervisor: Mr. Christian Dani

THEMES OF THE TEAM

The team is interested in understanding the mechanisms of adipocyte differentiation in obesity and related diseases. In this period, the team developed experimental approaches to study how adipose progenitor cells (APCs) develop into adipocytes, and how drugs and the tumour microenvironment affect APCs and adipocytes. The team also developed iPSC-3D beige adipospheres and human mini-adipose 3D cultures (ExAdEx) to study adipocyte differentiation in vitro. The team has patented these in vitro approaches, and is involved in a start-up creation to exploit the ExAdEx model.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The previous report recommended that the team: 1) continue to publish in higher impact factor journals; 2) obtain funding for the forthcoming period; 3) try and validate further the cellular systems developed; 4) better describe the projects and funding opportunities.

In this period, the team satisfactorily addressed these recommendations. It was prolific in its production (13 team papers, 4 team reviews, 4 book chapters) in very good journals. The team obtained one ANR during the period, patented its in vitro models and created a start-up.

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	0
Lecturer and associate lecturer	0
Senior scientist (Directeur de recherche, DR) and associate	1
Scientist (Chargé de recherche, CR) and associate	2
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	1
Subtotal permanent personnel in active employment	4
Non-permanent teacher-researchers, researchers and associates	1
Non-permanent research supporting personnel (PAR)	0
Post-docs	0
PhD Students	0
Subtotal non-permanent personnel	1
Total	5

EVALUATION

Overall assessment of the team

The scientific production of the team is very good, with interesting and timely results on adipocyte differentiation, published in very good journals (Sci Rep, BMC Cancer, Cells). The team also contributed to important collaborative papers (Cell Metab, Nat Commun, Cell Rep). Team attractiveness was very good, and reputation and visibility was good. Societal impact was excellent to outstanding, with two patents and one license in 2021 to pharma, involvement in three maturation projects and a start-up creation, as well as public outreach through film.

Strengths and possibilities linked to the context

The team works on an important topic with implications for understanding fundamental biological processes with relevance for tech transfer. The team obtained very interesting and timely results on adipocyte differentiation, and generated important 3D models to study adipocyte differentiation. It published in very good journals (Cells x3, Sci Rep x3, BMC Cancer, etc.) at an excellent rate (13 team papers, 4 reviews, 4 book chapters), and contributed to important collaborative papers (eg. Cell Metab, Nat Commun, Cell Rep). The team was highly focused on several related projects, and permanent staff members have trained students and published as senior authors. Training was strong, as all five PhD students published one-two papers as the first author.

Team attractiveness was very good, with one ANR grant obtained as coordinator and 1 postdoc during this period. Reputation and visibility was good, with external collaborations that led to co-author papers in highly cited journals.

The team was impressively efficient in obtaining pre-maturation and entrepreneurial funding, and its patenting its models which has so far led to two patents and one license. It successfully obtained funding for 3 maturation projects, and was heavily involved in promoting its ExAdEx model at start-up programs and competitions. A start-up, ExAdEx-Innov, was created in 2022.

Weaknesses and risks linked to the context

The team trained five PhD students and one postdoc in this period, but no new trainees were recruited after 2016.

The team's budget also decreased at the end of the evaluation period.

RECOMMENDATIONS TO THE TEAM

The group leader will retire in 2023 so no recommendations were made. He will stay as emeritus to finish his projects.

Team 8: Circadian System Biology
 Name of the supervisor: Mr. Franck Delaunay

THEMES OF THE TEAM

The team investigates how mammalian peripheral circadian clocks interact with the cell cycle and metabolic processes, and they determine the relevance of these interactions in health and disease. They use a panel of tools and approaches including systemic and conditional knockout mouse models, culture of primary cells, functional genomics, bioinformatics and mathematical modelling.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The former expert committee recommended: A) the team should enhance its national external profile and appeal (invited talks, editorial boards, journal reviewing, prizes); B) the team consider engaging in knowledge transfer activities; C) the team should learn from the activities reported by other IBV team members; and D) the team has a greater involvement in national and international training programmes/networks (e.g. through EBRs), and attracts more PhD students.

The team has not really addressed these aspects. A causal explanation may be in the rather small size of the team, which limits possibilities to address the above issues in a manner that would really advance from the current situation.

Moreover, this teams research hinges on having access to a suitable facility. It is recommended that this be addressed at the unit level.

This is no longer expected to be relevant with the renovated IBV facilities.

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	2
Lecturer and associate lecturer	1
Senior scientist (Directeur de recherche, DR) and associate	0
Scientist (Chargé de recherche, CR) and associate	0
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	1
Subtotal permanent personnel in active employment	4
Non-permanent teacher-researchers, researchers and associates	0
Non-permanent research supporting personnel (PAR)	0
Post-docs	0
PhD Students	1
Subtotal non-permanent personnel	1
Total	5

EVALUATION

Overall assessment of the team

The team conducts cutting edge research on the circadian coordination of key metabolic processes in hepatocytes. Overall scientific production is very good to excellent (8 team led publications including 1 in eLife). The visibility is very good, whereas the team non-academic activity is limited.

Strengths and possibilities linked to the context

Scientific production of the team is very good to excellent. The team conducts focused and original research with the application of a number of relevant approaches and methodologies. The research line on circadian coordination of key metabolic processes in hepatocytes yielded a recent publication in eLife, thus, the team conducts cutting-edge research in a field of considerable potential with clear disease implications. They are collaborating with several (mainly national) teams to advance their research.

Weaknesses and risks linked to the context

The team is small, which indicates some issues with visibility and funding.

In spite of the small size, the team conducts two rather separate research lines, where the impact and potential appear more obvious for the line on circadian coordination of key metabolic processes in hepatocytes. The future potential is less obvious for the research line on the dynamic coupling of cell cycle and the circadian clock.

The small size is a threat in many ways as maintaining critical mass may become an issue.

Securing funding and attracting researcher talents appear key to ensure solid ground for the team to advance the very interesting research questions.

There are few non-academic activities, even when considering the small size of the team.

RECOMMENDATIONS TO THE TEAM.

The team conducts two moderately connected research lines, where the synergy is modest. This is quite a challenge for a small team with finite resources and manpower. A more dedicated focus on the metabolic research line would be a way forward for the team, as this puts emphasis on the most promising research line with current excellent performance.

The team should apply to European grants to increase their sources of funding. Joining national or international networks would also be important to help funding and recruitment efforts. Interaction with the society should be consolidated, which may help efforts to improve visibility and attractiveness. Also, for these aspects, a more unified research vision and strategy should help the team going forward.

Team 9: Membrane trafficking and developmental signalling in animal development

Name of the supervisor: Mr. Maximillian Furthauer

THEMES OF THE TEAM

The group has a strong expertise in the study of the roles of cell signalling and membrane trafficking in the development of the zebrafish embryo. In this evaluating period, the team evidenced: 1-a fine-tuned function of Notch signalling in controlling the zebrafish spinal cord morphogenesis; 2-a Notch-independent role of the mib1 E3 ubiquitin ligase in regulating Planar Cell Polarity; and three identified, with the team 'Epithelial Morphogenesis and left-right asymmetry in Drosophila', an evolutionary conserved role of Myo1D as a regulator of Left-Right asymmetry in zebrafish and Drosophila.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The team should aim to publish some of its best work with the team leader as the corresponding author in the next year or two.

The Team signed four publications as last author (Elife, Nat commun...) and two reviews.

The team should continue its efforts to obtain funding from these various sources, which will provide support for postdoctoral fellows to help build the team.

The team has limited capacity to secure grants (mainly small and local: Idex, Labex).

The group should continue its excellent contributions to the university and institute. The group should focus on securing funding to finance postdoctoral researchers, which would strengthen the team.

In addition to his function as scientific co-coordinator of the imaging facility, the group leader will become the scientific coordinator of the zebrafish facility, and one of the deputy directors of the institute for the next period.

The team could consider developing biochemical approaches to expand the capacity to demonstrate molecular mechanisms.

In light of the work, mechanistic studies have been conducted (eLife publication on the activity of the Mindbomb1 E3 ubiquitin ligase in controlling PCP components).

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	0
Lecturer and associate lecturer	0
Senior scientist (Directeur de recherche, DR) and associate	1
Scientist (Chargé de recherche, CR) and associate	0
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	0
Subtotal permanent personnel in active employment	1
Non-permanent teacher-researchers, researchers and associates	0
Non-permanent research supporting personnel (PAR)	1
Post-docs	0
PhD Students	1
Subtotal non-permanent personnel	2
Total	3

EVALUATION

Overall assessment of the team

The scientific output of this team is excellent, with its most visible papers in Nat. Comm. and eLife. The team has a very good attractiveness. It obtained an ANR grant and a smaller ARC grant as coordinator and local Labex and Idex funding. They have recruited PhD students but no postdocs. The team has an excellent visibility with regular invitations to international conferences. The small size of the team is a concern.

Strengths and possibilities linked to the context

The visibility of the research group is very good (for funding) to excellent (recognition). The excellent reputation of the research group is shown by the regular invitations to prestigious conferences in several fields: 11 European and international conferences (Embo, European zebrafish meeting, European Cilia meeting...) and 10 national meetings. The research group is able to regularly recruit PhD students (3 PhD students among which 2 defended during the period). The group leader is highly involved in the community (Institute and University): Co-coordinator of the imaging facility, coordinator of the zebrafish facility, future deputy director of IBV; scientific council of Idex, Labex, ethical committee...

Considering the very small size of the research team (the group leader with three overlapping PhD students and one technician over the period), the scientific achievement is excellent, with three major achievements. First, they identified that the Notch-mediated suppression of neurogenesis is essential to promote the midline-crossing of neural tube cells that shapes the spinal cord. This work evidences a fine-tuned function of Notch signalling in controlling morphogenesis of the zebrafish spinal cord. Second, the research team identified a Notch-independent role of the mib1 E3 ubiquitin ligase in regulating PCP through the control of endocytosis internalisation of the PCP component Ryk. Lastly, the team collaborated with the 'Epithelial Morphogenesis and left-right asymmetry in Drosophila' team to identify an evolutionary conserved role of Myo1D as a regulator of LR asymmetry in zebrafish and drosophila. Interestingly, rare disease with Myo1D mutation has been identified in families with laterality defects. Collectively, these findings are published in two excellent journals (Nat Commun, Elife) with the PhD students as 1st author, with other articles in Sci reports and Methods in Mol Bio. Also, two

reviews have been produced and one publication as co-author in Sci Signalling. In addition to authorship, the group leader promotes the PhD students (PhD award and Bettencourt Young researcher prize), hence creating a nurturing environment for young scientists.

Weaknesses and risks linked to the context

As mentioned by the group leader, the main risk is the small size of the team, with no permanent researcher/technicians and no postdoctoral fellows recruited over the period. Therefore, the research team relies on its ability to secure funding. Regarding this aspect, the funding capacity is only very good, with three grants obtained as principal investigator, and two other ones in partnership. Except for the ANR (as partner), the research group has relatively low income, which hampers the recruitment of postdocs; the funding sources are mainly local (Labex, Idex). Importantly, there is no mention of an ongoing grant after 2022, which represents a risk for the team.

Inclusion in society/organisation of meeting is limited but this results from the composition of the team: the group leader has to invest 70% of his time in research to be able to produce high-quality science. Therefore, the research team has little implication in organisation of meeting (1 with 1 summer school in France) and expertise (1 for ARC).

RECOMMENDATIONS TO THE TEAM

The team has made excellent scientific achievements, with high quality publications despite the small size of the team. Nevertheless, the team is at risk, not for scientific reasons but due to limited funding. Especially, no grant has been reported for the next period. Considering that the group leader is the only permanent researcher in the group, his high implication in the institute (coordinator of two platforms and future deputy director) and in the University (ethical, Labex, Idex committees) may decrease his capacity to reach the goal. The committee recommends to first secure the team with competitive funding to recruit postdoctoral researchers and pursue his important activities for the community. Considering the identification of genetic mutation in Myo1D in families exhibiting laterality defects, it would be interesting to explore the possibility to join forces with other (genetic, clinical) groups to study the fundamental role of Myo1D in disease. With this major funding issue, the inclusion in society and organisation of meeting is not a priority.

Team 10: Epitranscriptomics
 Name of the supervisor: Mr. Arnaud Hubstenberger

THEMES OF THE TEAM

This Atip Avenir team addresses RNP multiscale organisation, phase transitions and the adaptive regulation of gene expression during early development. They study mRNA supra-molecular assemblies into the RNA condensate cytosolic membrane-less organelles, dissecting the self- and co-assembly mechanisms that drive RNA condensate formation, and exploring how the resulting emerging properties impact the transcriptome functionality. Two projects focus on mRNA cytosolic condensation in the adaptation of mRNA translation to the environment and on the plasticity of mRNA cytosolic condensates in cancer.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

None, the team has been created in 2017.

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	0
Lecturer and associate lecturer	0
Senior scientist (Directeur de recherche, DR) and associate	0
Scientist (Chargé de recherche, CR) and associate	1
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	0
Subtotal permanent personnel in active employment	1
Non-permanent teacher-researchers, researchers and associates	0
Non-permanent research supporting personnel (PAR)	1
Post-docs	0
PhD Students	4
Subtotal non-permanent personnel	5
Total	6

EVALUATION

Overall assessment of the team

Overall this is very good to excellent for a promising young team. This Atip-Avenir team has been created in July 2017. It has a very good to excellent track of publications for a young team (but no last author yet). The team has an outstanding visibility/attractiveness with high funding and two prizes. The team is still small with only one permanent position (the team leader), four graduate students and two postdocs. There is no non-academic activity.

Strengths and possibilities linked to the context

The visibility and attractiveness are outstanding with excellent funding capacity with an Atip-Avenir and two ANR (including 1 as coordinator, 2 more submitted) and support from the LabEx. The team leader recognition is illustrated by two prizes: Académie des sciences and Université Côte d'Azur, 2018 and HDR in 2021 and awards for present research. The team is still small with only one permanent (PI) and four graduate students and two postdocs. The PI has been invited as speaker to several international meetings (Keystone, Embo, EMBL).

The team has a very good to excellent track of publication for a young team publishing five manuscripts (2 as main author) and a review. The team, Atip-Avenir, addresses how within a cell the expression of RNAs is coordinated between millions of transcripts, synchronised to development, and adapted to environment. They study a higher scale of organisation and regulation: mRNA supra-molecular assemblies into cytosolic membrane-less organelles, the RNA condensates. Using the phase separation/transition theory as a conceptual framework, they dissect the self- and co-assembly mechanisms that drive RNA condensate formation, and explore how the resulting emerging properties impact the transcriptome functionality, with a focus on condensate plasticity in response to developmental and environmental variations.

Weaknesses and risks linked to the context

The team is still young and has not yet marked its field with a last author original manuscript despite some collaborations. In addition, PhD and Post docs will have to publish their work as first author. The non-academic activity are not reported.

RECOMMENDATIONS TO THE TEAM

The team has to concentrate on the publication of its seminal work as soon as possible in this competitive field.

Team 11: Cellular sex and physiology
 Name of the supervisor: Mr. Bruno Hudry

THEMES OF THE TEAM

The team is interested in understanding the mechanisms that control the developmental and physiological differences between males and females using *Drosophila melanogaster* as a model organism. Their work uncovers bidirectional communication pathways between the testis and the intestine in *Drosophila* that impacts male physiology and behaviour.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

This team was recruited in 2018, therefore this section is not relevant.

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	0
Lecturer and associate lecturer	0
Senior scientist (Directeur de recherche, DR) and associate	0
Scientist (Chargé de recherche, CR) and associate	2
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	1
Subtotal permanent personnel in active employment	3
Non-permanent teacher-researchers, researchers and associates	0
Non-permanent research supporting personnel (PAR)	1
Post-docs	1
PhD Students	2
Subtotal non-permanent personnel	4
Total	7

EVALUATION

Overall assessment of the team

This is an excellent young team with the potential to become outstanding. Although there are no publications directly issued from the team's work, the team leader contributed to major publications with his previous postdoc laboratory, hence the scientific production is excellent and has the potential to become outstanding. The team attractiveness is already excellent with the potential to become outstanding as it is now supported by an ERC starting grant since 2020, that provides the ground for promising future developments.

Strengths and possibilities linked to the context

The team was supported by an AtipE research program and recently obtained an ERC starting grant, bringing high visibility and attractiveness. The team leader has already managed to attract two PhD students that have started in fall 2020 and one postdoc. A senior Inserm researcher, also joined the group.

The team leader has an excellent scientific production with major publications in the most prestigious journals (Cell, Nature from postdoctoral work). From 2016, he has contributed to seven publications, among which five are on a collaborative basis with his postdoc lab, one with his PhD lab and one with other teams of the IBV institute. The youth of the team is the reason why the PhD students and postdocs have not yet published.

Weaknesses and risks linked to the context

Publications directly issued from the teamwork are pending,

RECOMMENDATIONS TO THE TEAM

The next few years will be important for the team leader to assert the team's visibility by publishing its work in highly visible journals.

Team 12: Death receptors signalling and cancer therapy
 Name of the supervisor: Ms. Anne-Odile Hueber

THEMES OF THE TEAM

The team focuses on the dual and opposite signalling pathways of the receptor Fas in pathophysiological settings, such as cancer and immune response, and in cell survival transduction. More specifically, they study 1/ Fas phosphorylation in colorectal cancer and its interaction with EGFR; 2/ how cell polarity modifies Fas signalling; 3/ the role of Fas in extracellular vesicle release; 4/ the molecular mechanisms of TCR activation by Fas in T-cells.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The expert committee recommends more participation in international meetings, in order to increase the reputation of the team.

The team organised one international meeting. Participations or invitations to other meetings are limited and local.

The team is encouraged to continue developing its results and industrial partnership further.

The scientific projects were pursued and maturation of two translational projects is supported by SATT sud-est and Matwin.

The team should prioritise the objectives and specify the people involved.

The different research axes are clearly distributed among the three researchers of the team and can be handled simultaneously.

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	1
Lecturer and associate lecturer	0
Senior scientist (Directeur de recherche, DR) and associate	1
Scientist (Chargé de recherche, CR) and associate	2
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	1
Subtotal permanent personnel in active employment	5
Non-permanent teacher-researchers, researchers and associates	0
Non-permanent research supporting personnel (PAR)	0
Post-docs	0
PhD Students	1
Subtotal non-permanent personnel	1
Total	6

EVALUATION

Overall assessment of the team

The team published important original articles in middle to high range journals in leader position or in collaboration, which is very good to excellent. However, the two hospital practitioners only published clinical papers, and two (out of three) students were not first authors. The attractiveness of the team is very good to excellent, although visibility is not well established. The team's ability to develop maturation projects, supported by the SATT Sud-Est and Matwin in particular, is excellent.

Strengths and possibilities linked to the context

The attractiveness of the team is very good to excellent, as attested by the organisation of an international meeting, by the participation of the team leader in various committees at Inserm (as Référent Scientifique Inserm), at the Cancéropôle Paca, at Université Côte d'Azur (as Scientific Advisor for Medical Research Affairs), at the local Labex and Idex. The team leader is responsible for the flux cytometry platform at IBV. In that respect, she obtained as coordinator a large number of grants from the region, the Cancéropôle, the Itmo Cancer and the Labex to upgrade the platform equipment. The team leader obtained eleven grants from the Cancéropôle, the University, or charities on Fas projects, which provided 100 k€/y in average. This is a good granting for the team size. The team leader is very active in student supervising, in the management of an IBV platform, and through her participation at various councils and responsibilities.

Scientific production of the team is very good to excellent. The team comprises three researchers (including the team leader) from CNRS or Inserm, two PHs (1 PU and 1 MCU) and two PARs (1 IR and 1 AI) from CNRS and Université Côte d'Azur. This is thus a well-balanced team with a good parity. Team projects are well focused and of high importance for the field and in a therapeutic perspective. The team published nine original articles, with four in leading position, in middle to high range journals (J Cell Biol, Plos Biol, Apoptosis, Sci Rep, Immunol Lett, Febs J, Redox Biol). In addition, they published two methodological articles (Meth Mol Biol), two reviews (Front Immunol, Cancers) and one vulgarisation article (Med Sci). This is a very good to excellent level of publication for three researchers, and each project has progressed significantly. The PU-PH and the MCU-PH published numerous clinical articles as co-authors.

The team investment in translational research is excellent. The team initiated a project on the development of a Fas-signalling biomarker that could be used for targeted anti-cancer therapy. A European patent was filed in 2016 and the translational project is supported by the SATT Sud-Est and Matwin in order to find an industrial partnership. Another project, on the determination of Fas-induced extracellular vesicles in colorectal cancer, is also supported by Matwin. This project aims to develop a clinical study to determine the presence of these vesicles in the blood of colon cancer patients.

Weaknesses and risks linked to the context

Except for one co-authorship, the two PHs did not contribute to any research article, indicating that they only moderately contribute to the team's scientific projects. There were four PhD students (3 who defended, 1 ongoing), all supervised by the team leader, meaning that the two other HDRs did not supervise students. Moreover, the publication level of the past students is minimal: two with no publication as first author (only 1 for each as co-author in original articles) and one with an article as first author, one as co-author. This is largely insufficient. There is only one co-publication with another IBV team, indicating that there is little scientific interaction with other IBV teams.

Invitations to meetings are very limited (two in Nice, one seminar in Rennes), indicating that the reputation of the team is not well established. One researcher left in 2018, and was not replaced. No postdocs have been hired.

Numerous grants were obtained, but with limited and variable amounts - low in the last two years. This may create a financial insecurity for the research projects.

RECOMMENDATIONS TO THE TEAM

The committee recommends hiring more postdocs and PhD students, under the supervision of the other tenured researchers who have an HDR.

The committee encourages the remaining tenured researcher to pass her HDR.

In general, tenured researchers should better share team responsibilities and should apply for their own grants.

Participation to meetings should be encouraged to increase team visibility.

A better insertion of the two PH into the team research programs is encouraged.

If possible, collaborations with other IBV teams may be initiated.

The committee recommends pursuing the development of the two translational projects.

Team 13: Neurodevelopment: Temporal functions of transcription factors in mouse brain development

Name of the supervisor: Mr. Thomas Lamonerie

THEMES OF THE TEAM

The team's research objective is to elucidate the molecular mechanisms that regulate normal and pathological development of the mammalian central nervous system, particularly those controlled by the master transcription factor Otx2. The research activity is divided into three sub-projects with a strong emphasis on pathologies: normal and tumoural cerebellar development; development and function of the habenulo-interpeduncular system and susceptibility to psychiatric diseases; neuroprotection of the retina. The team uses in vivo approaches in a model organism, such as molecular genetics, recording of physiological activity and behaviour studies.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

Main recommendations from the previous report (*italics*) have been addressed as follows:

Novel technologies are needed to try and unravel transcriptional regulatory networks. Potentially, adding a bioinformatics aspect to the work may be helpful.

This has been addressed, the team included transcriptomics approaches in their latest studies which were published in J Neurosci. (2019) and Eneuro (2021).

If the investigators can get additional workforce and financial support for all of their projects, the main recommendation would be to continue and actively pursue the projects that are initiated, because they are all highly original. Otherwise, they should try and focus as much as possible on the projects that are more likely to yield scientific breakthrough.

This has been partly addressed. The team obtained an ANR in 2016, a PhD fellowship and R&D contracts and continued to work on the three sub-projects. Each sub-project benefited from at least one permanent researcher and one PhD student as well as Master students. All sub-projects were productive in terms of publication.

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	1
Lecturer and associate lecturer	1
Senior scientist (Directeur de recherche, DR) and associate	0
Scientist (Chargé de recherche, CR) and associate	1
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	0
Subtotal permanent personnel in active employment	3
Non-permanent teacher-researchers, researchers and associates	0
Non-permanent research supporting personnel (PAR)	0
Post-docs	0
PhD Students	2
Subtotal non-permanent personnel	2
Total	5

EVALUATION

Overall assessment of the team

The team basic and applied research axes are original, with a very good visibility and a very good scientific production. Translational activities, based on the recognised expertise of the team in retinal pathologies are very good to excellent. Teaching and training activities are excellent, the team leader is a professor who was the head of a Doctoral school. Academic and non-academic activities, such as meeting organisation, editorial activities and interaction with the lay public are limited considering the potential of the team.

Strengths and possibilities linked to the context

The team is composed of three full-time tenured researchers (among which 2 have a University teaching position, the head of the team is a Professor and one is a MCU), each in charge of a sub-project. The team is highly attractive for trainees: six PhD students were trained (4 recruited during this evaluation period) and one postdoc was hired. Most PhD students were authors of at least one publication as first author. The CNRS researcher obtained an HDR in 2021 which will further increase the team's capacity to train PhD students. The team has had a good capacity to obtain grants from national agencies (1 ANR as coordinator). The team has a very good visibility in the field of mammalian nervous system development and excellent recognition in the field of retinal pathologies leading to two R&D contracts. The teaching activities of the team are excellent, attested by numerous (17) invitations to HDR and PhD committees, by the fact that the PI and the MCU are in charge of teaching modules and that the team leader was the head of the ED for nine years. The visibility of the team leader within the University system is very good, he participated to three Hcéres committees for Doctoral Schools (1 as the Président) during the evaluation period.

The team has developed original in-house molecular genetic tools in a model organism to study the real-time activity of the Otx2 gene, to perform lineage analysis and to perform controlled gain or loss of function. The team has taken full advantages of these models to study in-depth the function of Otx2 in several aspects of the nervous system development in physiological and pathological contexts. They perform a wide range of studies such as dissection of molecular networks using high-throughput methods, cellular analyses of neuronal identity,

migration, projections, and recording of physiological activity or behavioural studies in adults. In the last few years, the team deciphered the role of Otx2 in cerebellar development and cancer; in establishment of the habenulo-interpeduncular circuit and it identified a non-autonomous function of Otx2 in photoreceptor cells of the retina. The three sub-projects are productive in terms of scientific advances and publications. Collectively, these studies led to very good scientific production with six articles from the team as first/last authors in leading specialty journals (including J. Neurosci. and Eneuro). In addition, collaborations within IBV and at national level produced two very good publications (Eneuro, Brain Struct Func).

The non-academic activities are very good to excellent with one patent development and two R&D contracts (Brain ever; SAS variants) for developing therapies for retinal pathologies.

Weaknesses and risks linked to the context

The team declared no recognition items (awards, organisation of conferences, responsibilities in academic societies) and did not participate in editorial committees. The ANR grant was over in 2021 and no other funding was obtained from national agencies or charities.

The team exclusively uses in vivo approaches in a mammalian model which are by essence lengthy and costly. In addition, two of the permanent researchers have heavy teaching duties. Thus, although all sub-projects developed by the team are productive, there is a risk that human resources on each topic are below critical mass and that this further delays progress on each sub-project.

There was no dissemination activities or interactions with the general public.

RECOMMENDATIONS TO THE TEAM

Although the team has been productive in the last period, the team should pay attention to the balance between teaching duties and scientific activities.

The team should prioritise promising projects and invest in activities that will increase visibility/recognition.

The team should explore all sources of funding at national level as well as charity grants.

Interaction with the lay public should be consolidated.

Team 14: Gene regulatory networks, axis specification and morphogenesis of the sea urchin embryo

Name of the supervisor: Mr. Thierry Lepage

THEMES OF THE TEAM

The team investigates gene regulatory networks, axis specification and morphogenesis using as model system the sea urchin embryo. Their interest is in understanding the development from the egg to an embryo with multiple differentiated cell types. More specifically, they investigate how the main axes of polarity (dorsal-ventral and left right) are specified. Moreover, they investigate morphogenesis of the larval skeleton, which requires epithelial-mesenchymal transition and directed migration of precursor cells within the embryo.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The expert committee recommends that the number of team members and in particular PhD students is increased, and the team should explore the use of light sheet microscopy. The expert committee suggests that the team should try to recruit additional members. Given that four PhD students have recently graduated and no student is currently working in the team it would be advisable to make a big effort to recruit additional students.

The team was not able to increase in size.

The expert committee recommended to focus on DV patterning and to only consider the LR asymmetry projects if additional team members can be recruited.

This was largely followed.

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	0
Lecturer and associate lecturer	0
Senior scientist (Directeur de recherche, DR) and associate	1
Scientist (Chargé de recherche, CR) and associate	0
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	1
Subtotal permanent personnel in active employment	2
Non-permanent teacher-researchers, researchers and associates	0
Non-permanent research supporting personnel (PAR)	0
Post-docs	0
PhD Students	1
Subtotal non-permanent personnel	1
Total	3

EVALUATION

Overall assessment of the team

The team has a focused and clear line of research in axis specification and morphogenesis with the sea urchin embryo as model system. This is an important area of developmental research, and the team has an excellent scientific production (publications from the team in Development and Plos Genetics, with more in the pipeline under review), which is remarkable considering the team size. Visibility and attractiveness is very good.

Strengths and possibilities linked to the context

The visibility of the team is very good with the co-organisation of a meeting in 2017 and the publication of a review in Current topics in Dev Biol. During the period the team obtained three grants (total 690k€, 1 ANR coordinated, 1 FRM team and 1 ARC PJA).

The scientific production of the team is excellent. The team is very experienced and knowledgeable in the field having contributed multiple important findings. There is a coherent and original research programme based on a vision with appropriate experimental strategies. Considering the small size of the group, the team has a solid publication record with seven publications: three team led publications (Development 2017, Plos Genetics 2018 and 1 Methods in Cell Biology, 2019); one co-last authored paper in Development, 2021 and two collaborative papers (Genesis and Journal of Proteomics). In addition, important work is in the pipeline (under revision). The team supports an OMIC resource on sea urchin.

Weaknesses and risks linked to the context

The small team size remains an issue. The team has difficulty in attracting funding and self-funded researchers. This obviously limits team productivity at almost all levels (though the team is productive in terms of research output).

RECOMMENDATIONS TO THE TEAM

Team size and attractiveness seems to be a recurrent issue. Attracting long-term stable collaborators might be a way forward.

Team 15: Epithelial Morphogenesis and left-right asymmetry in *Drosophila*
 Name of the supervisor: Mr. Stéphane Noselli

THEMES OF THE TEAM

The team uses *Drosophila melanogaster* as a model to study epithelial morphogenesis. Their work spans the genetic, molecular, cellular and organismal levels of complexity. In the evaluated period, the team focused on three main research topics: dorsal closure/JNK kinase signalling; collective cell migration/oogenesis; and regulation of left-right asymmetry. In addition to using *Drosophila* as a model, the team has established collaborations with local and international teams to test whether their discovery of myosin involvement in insect chirality is also applicable to vertebrates.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The previous report made very few recommendations:

Increase the number of international team members.

The current report does not specify the nationality of the researchers in the team.

Recruit additional students.

The team still has a small number of PhD students, this could be increased if all the permanent researchers in the team had an HDR.

Focus future effort on the mechanisms controlling LR asymmetry and impact of BM assembly on cell behaviour.
 The publications in this evaluated period show that the team has focused mostly on these topics, especially on LR asymmetry

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	0
Lecturer and associate lecturer	1
Senior scientist (Directeur de recherche, DR) and associate	1
Scientist (Chargé de recherche, CR) and associate	1
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	2
Subtotal permanent personnel in active employment	5
Non-permanent teacher-researchers, researchers and associates	1
Non-permanent research supporting personnel (PAR)	0
Post-docs	0
PhD Students	2
Subtotal non-permanent personnel	3
Total	8

EVALUATION

Overall assessment of the team

The scientific production of the team is outstanding with articles in highly visible journals such as Plos Genetics (2017, 2020), Development (2018, 2021), Cell reports (2017) and Science (2018). The team has outstanding attractiveness and visibility: it has been successful in grant applications (3 ANR, FRM team). The team leader, who was the IBV director for fourteen years and the head of the Signallife Labex (2012-2022), is also member of Embo and Academia Europaea, and has participated in committees at ANR, ARC, Inserm, IUF... The non-academic activities of the team are very good considering communications to the public. The group has no collaborations with industry.

Strengths and possibilities linked to the context

The team has outstanding attractiveness and visibility. The Team leader is Embo member, has been elected Member of the Academia Europaea in 2018 and has been director of IBV for fourteen years. The team leader has been the head of the Signallife Labex program (11M€; 2012-2022), Vice-President of the ANR CE13 (2018, 2019), Member of the Inserm Scientific Council (2013-2017), member of the Cefipra scientific council (French and India foreign affairs, 2013-2017), member of the ARC CN2 national committee (2012-2016) and member of the evaluation committee of the 'Institut Universitaire de France' (IUF) (2014-2016). In addition, the team has high capacity to obtain national (3 ANR grants, FRM team) and local grants (Labex Signallife, Région Paca, Conseil Départemental...).

The scientific production is outstanding with, in summary, two publications in Plos genetics (2017, 2020), two in Development (2018, 2021), one in Cell reports (2017) and one in Science (2018) as leading authors. The PI also has two collaborations in Current Biology (2018) and Nature Communications (2018). The group has pioneered the study of JNK signalling using dorsal closure in *Drosophila* as a model system. They identified 25 new JNK target genes whose analyses revealed a complex patterning of the leading edge along the anteroposterior axis, involving a three-way interplay between the JNK pathway, segmentation and Hox genes, which coordinates tissue sealing (Plos Genetics 2017). The group also revealed the essential role of a JNK/en/Pc/Hox gene regulatory network in the control of the plasticity of segment boundaries during dorsal closure (Cell Reports 2017). The team also used *Drosophila* border cells as a model system to study collective cell migration. They first show that the Insulin/Insulin-like growth factor signalling (IIS) pathway specifically activates the expression of *Chickadee*, the *Drosophila* homolog of the actin regulator Profilin, which is essential for promoting actin-based membranes extensions and migration (Development 2018). They also showed the role of the basement membrane components in oogenesis and border cell migration (Development 2021). Finally, what appears to be the laboratory's flagship project, namely LR asymmetry, has given rise to several very noteworthy works. In a remarkable publication, the team showed that Myo1D is a unique chiral factor, capable of inducing, through its motor domain, directional torsion at all biological scales, including the rotation of actin filaments in vitro, cell chirality, organ chirality and whole-body chirality (Science 2018). In a more recent publication, the team found that the *Drosophila* actin nucleator DAAM is essential for this Left-Right asymmetry (Plos Genetics 2020). Finally, thanks to internal collaborations within the IBV and an external collaboration with the University of Hohenheim, Germany), they have shown that the contribution of Myo1D to LR asymmetry is conserved in vertebrates (zebrafish and xenopus) (Nat. Comm 2018, Current Biol 2018).

The non-academic activities are very good. The PI has given two radio interviews and participated in a CNRS press release. The team participates in annual outreach activities.

Weaknesses and risks linked to the context

The permanent researchers should have greater input into the scientific production. The team's main focus on basic science does not allow them to patent inventions or generate companies.

RECOMMENDATIONS TO THE TEAM

The team could probably involve the senior researchers a little more in the research and in the supervision of the PhD students by, for example, ensuring that all senior researchers obtain an HDR.

The principal investigator and the associate investigators should aim for international funding, which seems achievable given the outstanding level of scientific production and visibility of the team.

Team 16: Morphogenesis and mechanics of epithelial tissues
 Name of the supervisor: Mr. Matteo Rauzi

THEMES OF THE TEAM

The team is interested in the cellular mechanisms underlying tissue flows and remodelling during embryonic development, with a particular interest in composite processes - such as the folding and extension that occurs during neurulation and gastrulation. The models studied are *Drosophila* and sea urchins. The team deploys a multi-disciplinary approach that combines genetics, cutting-edge microscopy, micromanipulation and optogenetics with computational modelling and physics.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The team was created in 2017 so there are no recommendations.

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	0
Lecturer and associate lecturer	0
Senior scientist (Directeur de recherche, DR) and associate	0
Scientist (Chargé de recherche, CR) and associate	1
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	0
Subtotal permanent personnel in active employment	1
Non-permanent teacher-researchers, researchers and associates	0
Non-permanent research supporting personnel (PAR)	1
Post-docs	1
PhD Students	2
Subtotal non-permanent personnel	4
Total	5

EVALUATION

Overall assessment of the team

The team was created in 2017 and originally funded by the Avenir program. The scientific production is excellent to outstanding, with one core research article (*Dev Cell*), two collaborative articles as co-corresponding author (*Nature Communications*, *Scientific Reports*) and four review or methods articles. The attractiveness is excellent to outstanding, with three PhD students and two postdocs hired over the period evaluated, several competitive grants obtained (including funding from HFSP and ANR-T-ERC), and high-level national and international collaborations. Interactions with the non-academic world are very good and include a contract with a microscopy company and collaborations with two other companies for technology development.

Strengths and possibilities linked to the context

The attractiveness is excellent to outstanding, illustrated by the recruitment of three PhD students (one thesis defended in 2021 and two others in progress) and two postdocs. The level of funding of the team is also excellent, with several important grants obtained by the team leader in addition to the Atip-Avenir. This includes funding from the HFSP (Carrier development award), Idex, and ANR (Tremplin-ERC), as well as two PhD fellowships from the region. The team also has several high-level national and international collaborations for mathematical modelling, image processing, sea urchin genetics, and the study of additional morphogenetic processes.

The team was created in 2017 funded by the Atip-Avenir programme. During the four years included in the evaluation period, the team generated an excellent to outstanding scientific production. They have published one research article of their own work (Dev Cell, 2021) and two collaborative articles as co-corresponding author (Nature Communications, 2020; Scientific Reports, 2020). In addition, they published four review or methods articles. Of note, a preprint from 2021 is now also published in a top-level journal (Nature Communications, 2022), confirming the excellent dynamics displayed by the team.

The interactions with the non-academic world are very good. The team has obtained a contract with the microscopy company Bruker that provided funding for a PhD scholarship. In addition, the team has established collaborations with two companies (SPARK and Optics11) for technology development. Team members also participated in outreach activities, dedicated in particular to school pupils.

Weaknesses and risks linked to the context

The only weakness is that the team has only one permanent researcher, which, however, is not unexpected at this stage of the team's development.

RECOMMENDATIONS TO THE TEAM

The team's priority is now to recruit another permanent researcher to support the great dynamics it is displaying.

Team 17: Biology of ion channels
 Name of the supervisor: Mr. Guillaume Sandoz

THEMES OF THE TEAM

The team is interested in the function of the 'two-pore-domain potassium' channels (K2P). The objective of the team is to integrate the structural, pharmacological, cellular and neurophysiological data of ion channel biology to promote the discovery of molecules with high therapeutic potential. To this end, the team combined in vitro and in vivo experiments using a photosensitive channel they designed, called Treklight, which is reversibly controlled by UV light. They also use a photochromatic ligand that allows for light-specific control of the K2Ps channel in a variety of models, including mammals, fish and worms.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The previous report did not reveal any major weaknesses in this team. However, the need to consolidate the team's workforce and increase the visibility of its leader was mentioned. The team's size now corresponds to that of a stable medium-sized team and the group leader clearly has more visibility thanks to important publications in Cell and Neuron.

WORKFORCE OF THE TEAM

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

EVALUATION

Overall assessment of the team

The scientific production of the team is outstanding with publications in high quality journals such as PNAS in 2016, Neuron in 2019 and Cell in 2021. The attractiveness of the team is outstanding since the team has trained six PhD students and recruited two postdocs. The team has been successful in grant competitions at ANR (3, including ERC tramplin), FRM, Atip-Avenir. The non-academic activities of the team are excellent to outstanding with two patents filed, two contracts with the pharmaceutical industry, a start-up project and a great presence in the media (TV, radio, newspapers).

Strengths and possibilities linked to the context

The attractiveness of the team is outstanding as it trained six PhD students, of which three defended their PhD thesis in 2016, 2018 and 2020 and 2 postdocs. The team was also very successful in obtaining grants from the ANR (3 grants including an ERC 'tremplin'), the labelling of the FRM team, a Labex funding, as well as the Atip avenir program which ended at the beginning of this evaluation period.

The scientific production is outstanding with publications on the team's project for which the group leader is lead author in high quality journals such as PNAS (2016), Neuron (2019), iScience (2021) and Cell (2021). It is important to add that the PhD students are usually first authors of the major papers in this team. In the first of their two major studies, the team studied a mutation of Tresk (Tresk-MT), a K2P channel linked to migraine. This mutation is responsible for a frameshift mutation-induced alternative translation initiation (fsATI). fsATI produces a Tresk fragment, which co-assembles with the K2P channels Trek1 and Trek2 and inhibits them, leading to an increased trigeminal sensory neuron excitability and a migraine-like phenotype in rodents (Neuron, 2019). In their second major study, the team used pharmacology, gene invalidation, and single-molecule fluorescence to show that KCNE1 is an auxiliary subunit of the TMEM16A chloride channel, in addition to being an auxiliary subunit of the KCNQ1 channel. KCNE1 switches TMEM16A from a calcium-dependent to a voltage-dependent ion channel. With this study, the team challenges the specificity of auxiliary subunits and the classification of ion channels (Cell, 2021).

Non-academic activities are excellent to outstanding. The team has been very active in transferring its technologies and research to the industry. First, the team obtained grants from ONO pharmaceutical to determine the effect of Trek agonist to reverse migraine phenotype in rodent models and to develop cell expressing Trek channels for drug screening purposes. In addition, the team filed 2 patents and is committed to launch a start-up with the help of SATT-Sud Est, CNRS and Uca. Finally, the group leader is extremely involved in the communication of his research in the major French media such as Le Monde, France Info TV, Europe 1, LCI (20 in total) but also with students in schools.

Weaknesses and risks linked to the context

The team has very few weaknesses. One can regret the weak involvement of the team in scientific societies and in the organisation of scientific meetings.

RECOMMENDATIONS TO THE TEAM

The committee encourages this team to continue along the same successful path. The organisation of national and international scientific meetings could further increase the visibility of this team.

Team 18: Molecular programs controlling development and tissue homeostasis

Name of the supervisor: Mr. Andreas Schedl

THEMES OF THE TEAM

The team projects are centred on understanding the molecular cascades that control organ development and homeostasis in mammals. The team is mostly focused on the kidney, but also develops a research axis on cardiac development. It identified R-spondin as regulators of the differentiation processes in these organs.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The previous recommendation which was to keep on dynamic interactions, productivity and attractiveness is fully reached.

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	0
Lecturer and associate lecturer	0
Senior scientist (Directeur de recherche, DR) and associate	1
Scientist (Chargé de recherche, CR) and associate	1
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	1
Subtotal permanent personnel in active employment	3
Non-permanent teacher-researchers, researchers and associates	0
Non-permanent research supporting personnel (PAR)	0
Post-docs	1
PhD Students	1
Subtotal non-permanent personnel	2
Total	5

EVALUATION

Overall assessment of the team

The team is excellent with recognised expertise in organ and tissue homeostasis and in particular in kidney development. It has an excellent to outstanding research production with a large number of publications including several in highly visible journals (2x eLife, Cell reports, Cell Stem Cell, Genes and Dev...). The attractiveness of the team is excellent as it is very active in national and international collaborations leading to major publications and in training through research with 5 students and 3 postdocs trained for the period. It has also raised several grants during the period and has secured funding until 2024.

Strengths and possibilities linked to the context

The team has excellent visibility and recognition and is very attractive for students and postdocs. Three postdocs were hired during the last contract, which is excellent given the small size of the team. PhD students have all contributed to at least one publication or review with up to nine articles for one. The team leader was also involved in the organisation of two international meetings and is a member of the editorial board for *Developmental Biology* and *Faculty 1000*, demonstrating his reputation in his field. The team has an excellent ability to raise grants from national agencies (2 ANR as coordinator and 2 as partner) and from national charities (6 contracts as coordinator, in particular team label from the Ligue Nationale contre le Cancer), coordination of one international grant (WWCR) and partner for two European grants (Marie-Curie EST grant, Integrated project). The team also contributed to four reviews among which one in *Nature Reviews of Endocrinology* also demonstrating their strong recognition in the field.

The team has an excellent scientific production, in particular when reported to the size of the team. Collectively the work led to twelve publications as first/last co-authors with at least five in high ranking journals (*Genes & Dev*–2016–, *Cell Report*–2017–, *Cell Stem Cell*–2019–, 2x *eLife*–2021, 2020– and ten publications in collaboration with different teams in France and internationally, which produced top-range publications. The team has a solid expertise in signalling cascades involved in the development of several organs using genetic approaches in *in vivo* models. The team obtained major results in three research axes: they have demonstrated the critical role of R-spondin three in coronary artery formation and the protective role of retinoic acid on cardiomyocyte apoptosis induced by infarct. Their work also identified R-Spondin as a critical regulator of adrenal cortical tissue homeostasis and identified a sex-specific behaviour of adrenal cortical cells. Last the team dissected the molecular cascades that regulate, downstream of the Wilm's Tumour Suppressor WT1, the formation of the kidney and urinary tracts, and identified, in addition to *Rspo1* and 3, the critical role of *Sox11*.

Weaknesses and risks linked to the context

There are no weaknesses identified as the team manages to keep up with active research, despite a small size – 3 permanent Inserm positions: PI, 1 researcher and 1 research Engineer – and to secure funding. Note that the Engineer could potentially retire during the next contract, which could be a threat for the team if the position is not renewed.

RECOMMENDATIONS TO THE TEAM

The team is encouraged to keep their high investment in research and collaborative interactions. The team should keep innovating to maintain funding resources for the future.

Team 19: Bio engineering and osteo-articular physiopathology
 Name of the supervisor: Mr. Jean-Claude Scimeca

THEMES OF THE TEAM

The research team focuses on the engineering of mineral matrix for bone reconstruction upon injury and in paediatric cancer. Highly focused on translational research, the group aims: 1- to study the interplay between blood and the mineral matrix used for bone reconstruction with the goal to identify the signalling cascades in both materials than can be targeted to enhance osteogenesis and implantation; 2- to identify next generation biomaterials for percutaneous vertebroplasty; and 3- study the function of fractalkine–CX3CL1–in bone cancer.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The team should improve its scientific production both at the quantitative and qualitative levels. The team should publish in higher impact factor, both for the bone substitute part –no publication yet in the best journal of the discipline: Biomaterials – and for the immunotherapy part.

About half of the publications – 12/20 – are not in first rank position. The publications directly emerging from the team are not in high-level journals – with the exception of Acta Biomater –.

The team must obtain complementary funding to develop their ambitious project for the next 5 years, or the number of projects should be diminished. The involvement in international networks should be increased.

The research team obtained regular funding – low amounts – from patient's driven associations and other agencies – Adec, Itmo, CHU –, all focusing on the paediatric cancer axis. Other grants were obtained as partners – ANR, Idex, and CNRS –.

Interactions with companies – the economic environment – should be reinforced, especially with the aim of obtaining private funding.

There is no activity reported with private companies and no patent. The research team has not organised meetings, has no editorial activity and has no implication in societies. Activity concentrates on the cancer paediatric axis: the team is part of a national network 'React-4kids' and has regular outreach activity for the general public.

The team should reinforce its human resources in terms of PhD and postdoctoral researchers for the next contract.

The team has not recruited postdoctoral fellow over the period, and only three PhD students – all 3 recruited on the paediatric cancer axis –, which appears low in regards to the size of the team).

The projects should be prioritised. The team members should consider feasibility and availability of funding. They also have to strengthen their work force, especially concerning PhD students and international postdocs.

Besides the paediatric cancer axis, the low income and lack of PhD/Postdoc question the feasibility of the research programs.

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	4
Lecturer and associate lecturer	0
Senior scientist (Directeur de recherche, DR) and associate	3
Scientist (Chargé de recherche, CR) and associate	0
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	4
Subtotal permanent personnel in active employment	11
Non-permanent teacher-researchers, researchers and associates	0
Non-permanent research supporting personnel (PAR)	1
Post-docs	0
PhD Students	1
Subtotal non-permanent personnel	2
Total	13

EVALUATION

Overall assessment of the team

The team conducts a research program in the field of bone reconstruction upon injury and in paediatric cancer. While the project is ambitious and of interest, the scientific production and visibility is only good to very good. Major recommendations formulated in the previous report still holds, including attractiveness, quality of the publications, level of funding and of non-academic activities.

Strengths and possibilities linked to the context

The team has a big size, with a balance of researchers (3DR, 3CR levels) and clinical professors (3 PH, 4 PUPH) and several technicians/engineers that certainly facilitates the transfer of the work to the clinics. Among the 3 research programs of the team, the paediatric cancer axis is particularly active: training of the 3 PhD students recruited over the evaluating period, obtention of all the grants coordinated by the team, and promotion of science through regular outreach activities with the general public.

The goals of the project are very interesting: they aim to 1- improve our understanding of the blood-material interface to identify targets for improved osteogenesis and transplantation of artificial bone, and 2-develop novel biomaterials compatible with guided delivery upon percutaneous vertebroplasty. While the methods are not very clearly stated in the application, the laboratory succeeded in identifying calcium supplementation to reduce inflammation, and several molecules/pathways (FGN, LBP...) as possible targets to induce osteogenesis.

The team is involved in projects with non-academic partners (Graftys SA, Colcom SA). This reflects the attractiveness of the laboratory for its expertise in spine fracture and bone repair assessment with spectral imaging. Also, the team members are involved in the expertise for several agencies at local and national levels (ethics, Inserm, Labo'Life, DRRT, Menesr).

Weaknesses and risks linked to the context

The attractiveness and visibility of the team are only good to very good. No postdoctoral researcher and only 3 PhD students have been recruited over the last period. Only two out of six researchers are training students. Recurrent but low funding was obtained as coordinator by several patient's driven associations and other agencies (Adec, Itmo CHU), with increased amount only obtained as collaborators (ANR). No major grant has been obtained as primary investigator at the national or European level. In the application, there is no mention of invitations to meetings, which limits the evaluation of the visibility of the team. Likewise, the research team does not seem to have editorial responsibility, is not involved in the organisation of scientific meetings, and is not member of councils.

Regardless of the size of the team (which is rather big: 3 DR, 3 CR, 3 PH, 4 PUPH, technicians and 3 PhD students), the scientific production is only very good. Over the seven, publications and one review that team members are signing as first/last or corresponding authors, only one paper has a PhD student as first-author (Cancer Microenvir, 2019). Except for Acta Biomater, which is highly recognised in the field, the work was published in good journals. The majority of publications (12/20) are generated in collaborations. The paediatric cancer axis (item #3) which is not sufficiently described in the report seems to concentrate the activity (grants as coordinator, recruitment, part of React-4kids, public outreach). This questions the feasibility of the research programs (items #1 and #2) of the team. It is unclear whether the other axes are supported by collaborative grants (Eurobiomed, ANR...) and how Omics analysis and identification of signalling cascades can be performed.

Surprisingly, considering the translational thematic on bioengineering, the team has declared no patent.

RECOMMENDATIONS TO THE TEAM

The research group has a niche in bone reconstruction and is integrated in projects with other academic and non-academic partners. The recommendations from the previous period will be reiterated. It would be important to increase funding at the national level, to recruit postdoc and PhD students, participate to the organisation of meetings and other scientific and societal activities.

With a team of this size, the scientific production should be increased in quality and the committee would recommend involving more the PhD students in the research and publications. Certainly, the paediatric cancer axis must pursue its active engagement for the training of the students, for interaction with patient's associations and should develop its scientific projects, which were unfortunately not sufficiently described in the report.

Team 20: Regulation of ion channels in cancer
 Name of the supervisor: Mr. Olivier Soriani

THEMES OF THE TEAM

The team studies ion channel functioning in normal conditions and two pathological settings: cancer and hereditary xerocytosis, a familial anaemia. More specifically, they studied: 1/ the link between Sig1R chaperone upregulation and ion channel overexpression at the membrane, promoting cancer aggressiveness; 2/ the SigR1-dependent association of two ion channels, leading to calcium influx and metastasis; 3/ the role of a K⁺ channel in the formation of Adherens Junctions, and its negative regulation by the Wnt pathway, notably in cancer progression; and 4/ the mutations of two ion channel genes in hereditary xerocytosis and their pharmacological inhibition to prevent red cell dehydration.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The team can be very attractive for international consortia. It might be advisable to proactively search for such collaborations.

The team collaborates with international labs in Germany, Spain, Italy, Ireland ... and several French labs outside Nice. However, the team did not apply to (or obtained) a European grant based on an international consortium.

For Senicapoc clinical trials, IP expert advice should be obtained at an early point. The expert committee recommends that the team integrate the research on red blood cell volume regulation and cancer, in order to generate more synergies. It is advisable to seek advice and support from the pharmaceutical industry (SigmaR1) and clinician networks (Senicapoc) at a very early stage to avoid jeopardising the further development of therapeutic strategies.

The team interacted with Loïc Garçon, haematologist, to set up the clinical trial on Senicapoc treatment for HX. However, Senicapoc production was discontinued and the project was stopped.

The recruitment of PhD students could be beneficial on midterm productivity. If financially feasible, the number of PhD students should be increased.

The number of PhD students is still very low for four HDRs: two ongoing and none who defended.

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	1
Lecturer and associate lecturer	0
Senior scientist (Directeur de recherche, DR) and associate	2
Scientist (Chargé de recherche, CR) and associate	1
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	1
Subtotal permanent personnel in active employment	5
Non-permanent teacher-researchers, researchers and associates	0
Non-permanent research supporting personnel (PAR)	1
Post-docs	0
PhD Students	3
Subtotal non-permanent personnel	4
Total	9

EVALUATION

Overall assessment of the team

This is a very dynamic team with excellent visibility and scientific production. The thematic of the team is well focused and produced important results to demonstrate the role of ion channels in two pathological settings. The team was also very active to initiate collaborations with clinicians, notably for clinical trials. One patent has been filed and two are pending, hence showing excellent to outstanding non-academic and transfer activities. The team has been successful to obtain local and national grants. However, the number of students is low and no postdoc were hired.

Strengths and possibilities linked to the context

The team attractiveness is excellent: they gathered a large number of national and international collaborators to develop their projects and obtained grants from ANR (1 as coordinator), from ARC foundation (3), and from the Canceropole Paca (1). Altogether, the team obtained 735 k€ during the period (123 k€/y in average), which is sufficient to support the scientific projects. Three grants were obtained for doctoral contracts (FRM, Idex, ED). Furthermore, a young researcher was recruited as CR at CNRS. The team leader is in the editorial board of four journals. The team organised four national meetings on ion channels. The team contributed to University educational programs, as the team leader is a full-time professor.

The team comprises one PU, two DR, one CR (recruited in 2016), one tenured PAR and one PAR in CDD. The thematic is well focused, original, important for scientific knowledge and should provide medical benefits for cancer and HX patients. The four projects progressed remarkably during the period. Nine articles have been published in high range journals (PNAS, Haematologica, Cancer Res, Oncogene, Oncotarget, Cell calcium...), mostly as corresponding authors, as well as eleven reviews. This is an excellent production for a team of this size. All researchers produced significantly except for 1 DR.

Non-academic activities were excellent to outstanding. One international patent was filed and two are pending, further demonstrating their interest to transfer their scientific results into the clinic. The team was highly proactive to start clinical trials 1/on the role of SigR1 in cancer cells and 2/to examine the effect of Senicapoc in HX. The team also participated to outreach activities, with two broadcasts at France Television, gave a conference at ARC foundation and met high school pupils in lycée (3).

Weaknesses and risks linked to the context

Although the team has an excellent recognition at the national level and produces cutting-edge data, their participation to European networks seems to be limited to scientific collaborations, not grant applications.

There were only two PhD students during the period (one resigned), both hired in 2019, which is very low for the supervising capacities of the team (4 HDRs).

No postdoctoral researchers were hired.

RECOMMENDATIONS TO THE TEAM

The team should keep producing high quality results.

The team should try to be more active in international networking to obtain European grants.

The team should hire more PhD students and postdocs to increase further the research potential.

Team 21: Development and Function of Brain Circuits
 Name of the supervisor: Ms. Michèle Studer

THEMES OF THE TEAM

The team is interested in deciphering the cellular and molecular origins of neurodevelopmental disorders (NDDs), a group of complex and heterogeneous diseases showing symptoms associated with abnormal brain development. The team focuses on the gene *NR2F1* which is causative for the syndrome Bosch-Boonstra-Schaaf optic atrophy syndrome (BBSOAS). The team uses innovative experimental methodologies ranging from in vivo approaches in models carrying genetically engineered mutations to in vitro models of patient-derived stem cell lines (iPSCs) allowing the production and characterisation of human 3D brain organoids.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

There were no specific recommendations.

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	0
Lecturer and associate lecturer	1
Senior scientist (Directeur de recherche, DR) and associate	1
Scientist (Chargé de recherche, CR) and associate	1
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	0
Subtotal permanent personnel in active employment	3
Non-permanent teacher-researchers, researchers and associates	0
Non-permanent research supporting personnel (PAR)	0
Post-docs	2
PhD Students	4
Subtotal non-permanent personnel	6
Total	9

EVALUATION

Overall assessment of the team

The team's scientific strategy, to ally basic research on brain developmental mechanisms in genetically engineered mutant models with studies on cerebral organoids derived from iPSCs of patients, is excellent. The scientific production is excellent to outstanding and the team's visibility, training activities and non-academic activities are outstanding.

Strengths and possibilities linked to the context

The team has an outstanding national and international visibility and recognition in the field of neurodevelopment. The team leader was awarded one Prix scientifique and one Prix d'excellence, was elected member of two learned society and co-organised three conferences. In addition, the team leader has been invited to 22 PhD/HDR juries and sits in five scientific councils. The team leader was vice chairwoman and chairwoman for ANR panel CES16. The team has been extremely efficient at obtaining funding from national agencies (2 ANR, Fondation de France, Labex), charities (FRM, 3 others) and a European agency (ERA-NET). In the evaluation period, the team hosted and trained six PhD students and six postdoctoral fellows which is outstanding considering the French context and shows the extremely high attractiveness of the team. Most PhD students were funded through national or international competitive fellowships. The team leader has an exceptionally strong commitment to teaching in France and in Italy.

The team scientific production during the evaluation period is excellent to outstanding with eleven publications as last/co-last author, often published in leading journals (Embo Journal, Embo Mol Med, eLife, Cell reports, Development, Cerebral Cortex...). In addition, the team was involved in collaborations that led to 8 publications, and contributed 6 review articles the two most prominent ones published in Current Opinion in Neurobiol. and Brain Research. The team has a long-lasting expertise in using genetically engineered mouse mutants to study brain development. Specifically, in the evaluation period, they have unveiled the multifaceted functions of *Nr2f1* in mouse brain and eye development by using constitutive and conditional loss-of-function (LOF) approaches. They showed that *Nr2f1* is required to promote neuronal differentiation, to drive sensory area identity and cell-type specification, to control cell migration as well as axonal navigation, to modulate activity-dependent processes, as well as topographic sensorimotor circuit assembly. More recently, the team has used in vitro models (neurospheres and hiPSC-derived organoids) to assess the consequences of pathogenic variants of *Nr2f1* on brain development, which is an excellent complement to the in vivo work.

The non-academic activities are outstanding with one patent and participation in the creation of a new patient association in France and Europe. In addition, the team contributed to five public media interventions.

Weaknesses and risks linked to the context

The contribution of the tenured researcher to the team reputation and scientific output is not clearly described.

RECOMMENDATIONS TO THE TEAM

The scientific strategy is clear, no recommendation is needed.

Team 22: Signal transduction and control of morphogenesis in *Drosophila*
 Name of the supervisor: Mr. Pascal Théron

THEMES OF THE TEAM

The team uses *Drosophila melanogaster* as a model to study cell signalling, focusing mostly in the Hedgehog (Hh) pathway. Their studies analyse the genetic and cellular mechanisms controlling the secretion of the signal and how this affects the range at which the signal is received. In the evaluated period the team has focused on three main research topics: functional dissection of ligand trafficking and secretion; signal transduction; and a new project on the effect of Hh signalling in life span.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The previous evaluation made no recommendations for the team.

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	0
Lecturer and associate lecturer	1
Senior scientist (Directeur de recherche, DR) and associate	2
Scientist (Chargé de recherche, CR) and associate	1
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	1
Subtotal permanent personnel in active employment	5
Non-permanent teacher-researchers, researchers and associates	0
Non-permanent research supporting personnel (PAR)	0
Post-docs	1
PhD Students	1
Subtotal non-permanent personnel	2
Total	7

EVALUATION

Overall assessment of the team

The scientific production of the team is excellent with major research articles in journals such as *Development* (2018, 2021), *Cell reports* (2020) or *J. Cell Science* (2021). The team has an excellent visibility and attractiveness as demonstrated by the invitations of the team leader to hold editorial responsibilities and its success in obtaining national grants (3 ANR grants and one Ligue Nationale Contre le Cancer). Non-academic activities are very good with some communications to the general public, but no links to industry.

Strengths and possibilities linked to the context

The team has excellent visibility and attractiveness. The team is internationally known for its work on the Hedgehog signalling pathway, a very competitive field. This has resulted in the publication during this period of evaluation of two important reviews on the topic. The team leader has participated as guest editor for Plos genetics, as external academic editor for Plos biology and is a Review Editor for Frontiers in Cell and Developmental Biology. The team is small but solid, composed of three researchers that publish regularly in prestigious journals, and of an engineer with great experience. The group has very high capacity to obtain national grants (3 ANR grants and a Ligue National Contre le Cancer totalling over 1.100.000 euros during this period). The team has established collaborations with other French and international groups.

The Scientific output of the team is excellent. They study at the subcellular level how the ligands are transferred between the basal and apical membranes using the recycling machinery and how this affects signalling range and strength. Their work has discovered a new structure associated with the endosomes (the Hherisome) and has lately focused on the microvilli. The team produces few publications, but these are of great quality and originality. In those cases where the publication is a collaboration with other groups, the team is clearly leading the work appearing as corresponding or co-corresponding authors. The scientific production in this period included two publications in Development (2018, 2021), one Cell reports (2020), one Biology Open (2021), one Developmental Dynamics (2021) and one J. Cell Science (2021) research papers as well as two reviews (Development 2020 and J. Cell Science 2020).

The non-academic activities are very good. The team leader participated in a CNRS press release and a conference in high school. The team's new line of work on how the Hh pathway affects lifespan could have a significant social impact.

Weaknesses and risks linked to the context

The team has very few PhD students. The work is entirely focused on the *Drosophila melanogaster* model despite the universal applicability to other organisms.

Due to the basic nature of the team's research, the group does not have the capacity to patent inventions or generate companies.

RECOMMENDATIONS TO THE TEAM

The team should try to attract more PhD students as it has the capacity to provide them with an excellent training.

It would also be interesting to have collaborations with other groups working in complementary systems that could be used to demonstrate the universality of the team's findings in *Drosophila*.

Team 23: Adhesion Signalling and Stromal Reprogramming in the Tumour Microenvironment

Name of the supervisor: Ms. Ellen Van Obberghen-Schilling

THEMES OF THE TEAM

The team is interested in the role of the extracellular matrix in the progression, spread and response to treatment of carcinomas. The objectives are: 1) to understand the mechanisms that regulate the expression and alternative splicing of onco-fetal ECM proteins and the impacts of these splice variants on their assembly; 2) to understand the mechanisms by which the neoplastic ECM contributes to the progression and spread of head and neck carcinomas; and 3) to understand the ECM-regulated control of anti-tumour immunity. To this aim, the team uses 3D cell culture approaches, recombinant matrix proteins, computational tools and analysis of patient samples.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

In the previous evaluation report thematic dispersion was perceived as a weakness because of the study of glioblastoma. In the present report, the objectives are very clear and the cancers studied are restricted to carcinomas of the neck and head.

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	2
Lecturer and associate lecturer	1
Senior scientist (Directeur de recherche, DR) and associate	1
Scientist (Chargé de recherche, CR) and associate	0
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	2
Subtotal permanent personnel in active employment	6
Non-permanent teacher-researchers, researchers and associates	0
Non-permanent research supporting personnel (PAR)	1
Post-docs	0
PhD Students	3
Subtotal non-permanent personnel	4
Total	10

EVALUATION

Overall assessment of the team

The scientific production is excellent with publications on the team's project in high quality journals such as Nature Communications, Cancer Immunology Research, Genome Medicine, Journal of Cell Science and Matrix Biology. The attractiveness of the team is excellent to outstanding as it has attracted two Postdocs and five PhD students. The team has obtained numerous grants for basic research and cancer research (ANR, ARC, FRM, INCa, Cancéropôle Paca...), has organised numerous scientific meetings and is very active in teaching at Uca. The non-academic activities of the team are excellent and concern mainly the involvement in medical research through the clinicians of the team and the involvement in national and international programs and networks. The outreach activities are limited to a few articles for non-experts.

Strengths and possibilities linked to the context

The scientific production is excellent with twelve research articles including publications on the team's project for which the first author is from the team or the group leader is the lead author in high quality journals such as Nature Communications, Cancer Immunology Research, Genome Medicine, Journal of Cell Science and Matrix Biology. In addition to these research publications, the team has published 48 clinical research articles, including some in prestigious journals such as Lancet Oncology. Among its important achievements, the team documented the ECM landscape of human HNSCC (CAF Matrisome) and identified FN and $\alpha_5\beta_1$ integrin as critical factors of the tumour-stroma dialogue that promotes collective migration of carcinoma cells and activation of the TGF β stromal program (Nat Commun., 2017). The team also showed that the presence of extra domains of fibronectin (FN), produced by alternative splicing, impacts FN assembly, function and physical properties of the matrix. The presence of these extra domains alters pH homeostasis, survival, and signalling by tuning the magnitude of cellular responses (J Cell Sci, 2021).

The attractiveness of the team is excellent to outstanding as it has attracted two Postdocs and five PhD students, of which two have been defended in 2019 and 2020. The team has obtained numerous funding for basic research and cancer research (ANR, ARC, FRM, INCa, Cancéropôle Paca...). It should be noted that the team has obtained an international PRCI ANR France-Switzerland. The team benefits from an excellent national and international visibility through the organisation of numerous scientific meetings (13) and the participation in scientific societies. The attractiveness of the team also comes from its strong commitment to teaching at Uca. One of the team members is director of the Uca Master's programme in Life Sciences (since 2019), co-director of the Master's programme in Genetics and Development (since 2018), member of the steering committees of the Department of Life Sciences and of the EUR LIFE PhD school.

The team non-academic activities are excellent in many different ways. The Team hosts local clinicians studying head and neck cancer. Among other examples, to understand how ECM components of human tumours and their organisation affect the host immune response, the team searches for factors that predict treatment response in tumour samples obtained from patients treated with nivolumab (anti-PD1) enrolled in the Unicancer-sponsored multicentric Phase II Immunotherapy Trial: Topnivo ORL09. Moreover, the team leader is the co-leader of the Head and Neck Disease Workpackage of FHU 'OncoAge' (Hospital-University Federation), vice-president of the Biological Task Force H&N Cancer Group of Unicancer, and member of the Scientific Committee of the Head and Neck Cancer International Group. Non-academic activities also include a few outreach articles and videos aimed at non-expert researchers and the general public.

Weaknesses and risks linked to the context

The team has very little weaknesses. One can only regret the low activity of communication towards the general public for a cancer research team.

RECOMMENDATIONS TO THE TEAM

With the group leader retiring soon and joining another team, the committee would simply like to congratulate the team on the excellence of its past achievements.

Team 24: Cancer Stem Cell Plasticity and Functional Intra-tumour Heterogeneity

Name of the supervisor: Mr. Thierry Virolle

THEMES OF THE TEAM

The team studies cancer stem cell plasticity and intra-tumour heterogeneity in glioblastoma (GB), with the goal of identifying factors that can inhibit stem-like and aggressive properties that could be used for therapeutic purposes.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

The previous report recommended that the team: 1) aim for higher-ranking publications; 2) better integration in research networks in Neuro-Oncology including international partnerships; 3) target the stem cell phenotype and its related miRNA; 4) participate in local PhD programs.

The group leader was selected to lead an emerging team at IBV in 2014. The present team has shown that it can publish in high visibility journals, have tight links to the clinic, and work productively on the role of miRNAs. The lack of PhD recruitment remains a major weakness.

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	2
Lecturer and associate lecturer	0
Senior scientist (Directeur de recherche, DR) and associate	1
Scientist (Chargé de recherche, CR) and associate	0
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	3
Subtotal permanent personnel in active employment	6
Non-permanent teacher-researchers, researchers and associates	0
Non-permanent research supporting personnel (PAR)	0
Post-docs	0
PhD Students	1
Subtotal non-permanent personnel	1
Total	7

EVALUATION

Overall assessment of the team

This new team was very successful in setting up focused projects to study the mechanisms of glioblastoma stem cell plasticity. Scientific production was excellent with four team papers in high visibility journals (J Biol Chem, Cell Death Dis, Oncogene, Cancer Res), two reviews, three clinical papers and four collaborative papers. Team attractiveness was excellent, with >500K euros of funding obtained during this period, and one PhD student recruited. Reputation and visibility was very good, with some productive collaborations established. Societal impact was excellent to outstanding with a start-up planned.

Strengths and possibilities linked to the context

The team visibility and attractiveness are very good. The team has one permanent researcher (the team leader) and three affiliated clinical professors, which is an excellent beginning. In addition, one PhD student started in 2019. The team secured multiple grants (Cancéropôle Paca, ARC, Itmo Cancer, INCA) totalizing >500k€ during the evaluation period. The team leader is often invited to give conferences and talks at meetings (10).

The scientific production was excellent. The team has developed a focused research program to understand: 1) the molecular mechanisms in the acquisition and maintenance of stem-like and aggressive tumour cell phenotype; 2) the mechanisms involved in glioma stem cell differentiation; and 3) the identification of a compound that represses GB stem-like cells (GSCs). Each of the topics has been successful, with papers published in high visibility journals (J Biol Chem, Cancer Res, Cell Death Dis, Oncogene). One more manuscript is submitted and a second one describing a novel compound with therapeutic potential in a mouse GB model is in preparation, along with two reviews (one in French). In addition, the group leader has collaborated closely with clinicians, and was a co-author on three clinical papers. There were also four collaborative papers.

Non-academic activities were excellent to outstanding, with three patents, pre-maturation contracts with the SATT, the planification of a start-up and outreach activities towards local media (Nice Matin, Var matin).

Weaknesses and risks linked to the context

The team only trained one PhD student in this period, and works almost exclusively with ITAs paid by contracts to the group leader.

Although there have been some interns, the group leader is reluctant to train PhD students or postdocs because their qualities were deemed insufficient.

RECOMMENDATIONS TO THE TEAM

To maintain a successful academic lab, the group leader is strongly encouraged to host PhD students and postdocs. This is essential for intellectual input from different points of view.

Team 25: Vessel formation in development and disease
 Name of the supervisor: Mr. Kay Wagner

THEMES OF THE TEAM

The team, created in 2015, aims to understand how vessels form in development and disease, and the contribution of different cell types (pericytes, smooth muscle cells, hematopoietic cells) in this process. The team also addresses the signals received by surrounding tissues (myocardium, tumour stroma, immune cells) that modify tissue growth. Specifically, the team focused on: 1) vessel formation and function in organ development and aging; 2) cardiac angiogenesis and repair; 3) tumour vessel formation and cancer growth.

CONSIDERATION OF THE RECOMMENDATIONS OF THE PREVIOUS REPORT

Considering that the team started in 2015, the previous evaluation was light, and commented only on a few points:

- start with one major research focus (cancer or cardiovascular) to increase visibility,
- develop more testable hypotheses,
- consider moving towards drug development
- and attract more PhD students.

The committee worried that the projects were not linked, and carried the risk that none of them will be developed in a timely and internationally competitive fashion.

There is a continuing concern about the team's lack of permanent and non-permanent staff, and the profoundly negative impact of the Sars-Cov-2 pandemic on the research (eg. decimation of their mouse colony). Further, the team did not seem to have focused on one research area, and continued to work on both cancer and cardiovascular elements of vessel formation.

WORKFORCE OF THE TEAM

Permanent personnel in active employment	
Professors and associate professors	0
Lecturer and associate lecturer	0
Senior scientist (Directeur de recherche, DR) and associate	1
Scientist (Chargé de recherche, CR) and associate	1
Other scientists (Chercheurs des EPIC et autres organismes, fondations ou entreprises privées)	0
Research supporting personnel (PAR)	1
Subtotal permanent personnel in active employment	3
Non-permanent teacher-researchers, researchers and associates	0
Non-permanent research supporting personnel (PAR)	0
Post-docs	0
PhD Students	1
Subtotal non-permanent personnel	1
Total	4

EVALUATION

Overall assessment of the team

The team showed very good scientific production with eight papers as corresponding author (Int J Mol Sci 2021, Cells 2019 x2, J Vis Exp 2017, Aging 2017, Sci Rep 2017, PPAR Res 2016, PLoS One 2016). The team showed very good visibility and attractiveness in hosting three PhD students and 2 postdocs (one only for a year). It suffered from its small size but established fruitful local and international (Iran, Spain, UK, Switzerland, Turkey, USA) collaborations. The non-academic activities were good to very good, as the team has applied for one patent.

Strengths and possibilities linked to the context

The scientific production was very good, with 22 publications including seven reviews and eight team-led papers (signed as corresponding author) in specialised journals (Int J Mol Sci 2021, Cells 2019 x2, J Vis Exp 2017, Aging 2017, Sci Rep 2017, PPAR Res 2016, PLoS One 2016). In this period, the team addressed important mechanistic questions focused on vessel development in normal and pathological (cardiac angiogenesis) conditions, cell type involvement and interactions, and related signalling pathways. The team addressed them with a variety of physiologically relevant in vivo mouse models, which were severely impacted by the Sars-Cov-2 pandemic, which explained the higher number of reviews published in this period. When appropriate, the team aimed to see the biomedical implications of its results, by applying for grants from national charity organisations and contacting the relevant agencies to patent its findings.

The team's visibility was very good. It collaborated widely and fruitfully with local (Ircan, CHU, IBV) and international (Iran, Spain, UK, Switzerland, Turkey, USA) teams, which resulted in the publication of numerous collaborative papers. The group leader mentioned that he was involved in editorial work. The funding was very good for the size of the team, with consistent support (85–150 K €) every year, coming from regional grants as marked in the unit's 'Données de production et d'activités' excel file, but mentioned as Equipe FRM, ANR and Fondation ARC by the group leader in his written report and during his oral presentation. The team recruited 2 PhD students, as marked in the unit's 'Données de caractérisation' file, and the group leader mentioned a 3rd student who arrived in 2021; the student who finished in the period successfully published as first (review) and second (primary paper) author.

The team's non-academic activities were good to very good. It is applying for a patent concerning the identification of pharmacological inhibitors of the WT1 protein as a potential cancer treatment.

Weaknesses and risks linked to the context

The team suffered from its small size, and at times seemed to have operated as a two-person group, though it hosted three PhD students (2017, 2020) and two postdocs (one only for a year) in this period. Unfortunately, the team did not receive technical help from the unit. All of this has negatively impacted its scientific ambitions.

The team has no problem identifying important questions but addressed too many for its size. The team relied heavily on collaborations, to the benefit of its collaborators and perhaps at the expense of the team.

The team seemed isolated in Tour Pasteur on the Pasteur campus, away from the main part of the unit and its platforms, though it took advantage of the location to collaborate with Ircan groups in the vicinity. However, it is too far from the animal colony on which it is dependent.

RECOMMENDATIONS TO THE TEAM

It is crucial for the team to focus on priority projects in order to use its limited manpower to benefit the team-led projects. Better success at this will increase the team's visibility in the unit and allow it to argue for technical help and recruit more non-permanent staff.

The team should consider asking to move near the unit's platforms and services.

CONDUCT OF THE INTERVIEWS

Dates

Start: 06 December 2022 at 8:45 a.m.

End: 07 December 2022 at 5 p.m.

Interview conducted online

INTERVIEW SCHEDULE

Day 1: 6 December 2022

- 8:45- 9:00** Preliminary meeting of the expert committee (closed hearing)
Attending: expert committee, Scientific Officer (SO, Y. Graba and M.Stasia)
- 9:00- 9:15** Presentation of the Hcéres evaluation to the unit (Y. Graba, SO)
Attending: expert committee, SO, representatives of institutions and all unit members
- 9:15 - 10:15** Presentation of the research unit by the unit director (including 15-30 min questions)
Attending: expert committee, SO, representatives of institutions and all unit members
- 10:15 - 10:30** **Break**
Attending: expert committee, SO
- 10:30-1 p.m.** Parallel scientific team presentations (2 sub-committees)
30 min/team (15 min presentation + 10 min questions + debriefing of the committee). *Attending: team members, expert committee, SO, director of unit, representatives of Institutions*

Sub-com. 1		
10:30-11:00	Team 6	COLLOMBAT
11:00-11:30	Team 4	BRAENDLE
11:30-12:00	Team 5	CHABOISSIER
12:00-12:30	Team 1	AMRI
12:30-1 p.m.	Team 28	WAGNER
Sub-com. 2		
10:30-11:00	Team 2	ARKOWITZ
11:00-11:30	Team 3	BESSE
11:30-12:00	Team 9	FÜRTHAUER
12:00-12:30	Team 12	HUDRY

- 1 p.m. - 1:30 p.m.** **Lunch**
Attending: expert committee, SO

1:30 p.m.-3:30 p.m. Parallel scientific team presentations

Sub-com. 1		
2 p.m.- 2:30 p.m.	Team 7	DANI
2:30 p.m.- 3 p.m.	Team 11	HUBSTENBERGER
3 p.m.- 3:30 p.m.	Team 14	LAMONERIE
Sub-com. 2		
1:30 p.m.- 2 p.m.	Team 13	HUEBER
2 p.m.- 2:30 p.m.	Team 17	NOSELLI
2:30 p.m.- 3 p.m.	Team 19	RAUZI
3 p.m.- 3:30 p.m.	Team 20	SANDOZ

3:30 p.m.-3:45 p.m. **Break**
Attending: expert committee, SO

3:45 p.m.-6:15 p.m. Parallel scientific team presentations

Sub-com. 1		
3:45 p.m.- 4:15 p.m.	Team 16	LEPAGE
4:15 p.m.- 4:45 p.m.	Team 24	STUDER
4:45 p.m.- 5:15 p.m.	Team 27	VIROLLE
5:15 p.m.- 5:45 p.m.	Team 8	DELAUNAY
Sub-com. 2		
3:45 p.m.- 4:15 p.m.	Team 21	SCHEDL
4:15 p.m.- 4:45 p.m.	Team 22	SCIMECA
4:45 p.m.- 5:15 p.m.	Team 23	SORIANI
5:15 p.m.- 5:45 p.m.	Team 25	THEROND
5:45 p.m.- 6:15 p.m.	Team 26	VAN-OBBERGHEN

Day 2:7 December 2022

9:00 - 10:30 Sub-committees debrief (closed hearing)
Attending: expert committee, SO

10:30 - 11:30 Parallel meetings (3 sub-committees)

- Meeting with technical and administrative personnel (in French)
Attending: Technicians, Engineers, Administrative staff, sub-committee 1 of expert committee, SO
- Meeting with thesis students and postdocs
Attending: PhD students and postdocs, sub-committee 2 of expert committee, SO
- Meeting with researchers and professors
Attending: Researchers except group leaders, sub-committee 3 of expert committee, SO

11:30 – 12:00 Committee debrief (closed hearing)
Attending: expert committee, SO

12:00 - 12:30 Meeting of the Committee with the head of the unit.
Attending: Unit Director, expert committee, SO

12:30 – 2 p.m. Lunch

Attending: expert committee, SO

2 p.m. - 2:45 p.m.

Meeting with the representatives of CNRS, Inserm and University

Attending: expert committee, representatives of Institutions, SO

2:45 p.m.- 5 p.m.

Final deliberation of the Committee (closed hearing)

Attending: expert committee, SO

PARTICULAR POINT TO BE MENTIONNED

None.

GENERAL OBSERVATIONS OF THE SUPERVISORS

Nice, le 12 juin 2023

**Direction de la
Recherche, de la
Valorisation et de
l'Innovation**

Mme Johanna ZERMATI
Directrice

✉ drvi-recherche@univ-
cotedazur.fr

à l'attention du Haut Conseil à
l'Evaluation de la Recherche
et de l'Enseignement Supérieur

Objet : Observations de portée générale

Unité : DER-PUR230023136 - IBV - Institut de Biologie Valrose.

Affaire suivie par :
Mme Delphine ISCAYE
Gestionnaire

☎ 04 89 15 16 44
✉ delphine.iscaye@univ-
cotedazur.fr

L'Institut de Biologie Valrose remercie les membres du comité d'évaluation HCERES pour leur travail d'évaluation de notre unité.

Nous ne souhaitons pas apporter de remarques générales sur le rapport globalement extrêmement positif.

Signature

Tampon


GRAND CHÂTEAU
28, AV VALROSE
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06103 NICE CEDEX 2

 **Florence BESSE**
Directrice
Institut de Biologie Valrose (iBV)
Université Côte d'Azur
CNRS UMR7277 - Inserm U1091

Nice, le 25 juillet 2023



**Direction de la
Recherche, de la
Valorisation et de
l'Innovation**

Mme Johanna ZERMATI
Directrice

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cotedazur.fr

à l'attention du Haut Conseil à
l'Evaluation de la Recherche
et de l'Enseignement Supérieur

Affaire suivie par :
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 delphine.iscaye@univ-
cotedazur.fr

Objet : Observations de portée générale

Veuillez trouver ci-après les observations de portée générale d'Université Côte d'Azur concernant l'unité **DER-PUR230023136 - IBV - Institut de Biologie Valrose**.

Université Côte d'Azur tient à remercier l'ensemble du comité HCERES pour le travail, conséquent et de qualité, d'analyse et d'évaluation des activités de l'unité IBV. Les appréciations et recommandations du comité sur les différents domaines d'évaluation sont très utiles pour positionner les activités de l'unité et apporter des éléments sur lesquels s'appuyer pour consolider la vision prospective de l'unité.

L'établissement n'a pas d'observations de portée générale à formuler.



Pour le Président d'Université Côte d'Azur
et par délégation,
Le Vice-Président Recherche et Innovation


Noël DIMARCO

Nice, le 27 janvier 2023



à l'attention du Haut Conseil à
l'Evaluation de la Recherche
et de l'Enseignement Supérieur

**Direction de la
Recherche, de la
Valorisation et de
l'Innovation**

Mme Johanna ZERMATI
Directrice

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Affaire suivie par :
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Objet : Observations de portée générale

L'INSERM n'a aucun commentaire à formuler concernant les rapports d'évaluation des unités de recherche dont il est tutelle :

- **U 1065 / UMR 1065** C3M
- **U 1091 / UMR 7277** IBV
- **U 1081 / UMR 7284** IRCAN

Signature

Tampon

Dominique Nobile
Délégué Régional Inserm
Provence-Alpes-Côte d'Azur
et Corse



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The Hcéres' evaluation reports are available online:
www.hceres.fr

Evaluation of Universities and Schools

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