Evaluation of Research

EVALUATION REPORT ON THE UNIT:

GIN - Grenoble Institut des Neurosciences

UNDER THE SUPERVISION OF INSTITUTIONS ANS RESEARCH BODIES:

Université Grenoble Alpes - UGA

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

EVALUATION CAMPAIGN 2025-2026

GROUP A

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High Council for the evaluation of research and higher education

On behalf of the committee of experts:

Olivier Nicole, Chairperson of the committee

For Hcéres:

Coralie Chevallier, President

In accordance with articles R. 114-15 and R. 114-10 8° of the Research Code, evaluation reports drawn up by the committees of experts are signed by the chairpersons of these committees and countersigned by the president of Hcéres.

To facilitate the reading of the document, the terms used in this report to designate functions, occupations or responsibilities (expert, researcher, teacher researcher, professor, lecturer, engineer, technician, director, doctoral student, etc.) are generic and gender neutral.

This report is the outcome of an evaluation by a committee of experts the composition of which is specified below. The assessments it contains are an expression of the independent and collegial deliberation of the committee. The data within it are the certified accurate data extracted from the application forms submitted by the supervising bodies on behalf of the unit.

This version of the report is public under Article R. 114-23 of the Research Code. Sections of the report considered confidential, and responses to points of attention from supervisors are not included in it.

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UNIT CHARACTERISATION

- Name: Grenoble Institut des Neurosciences
- Acronym: GIN
- Label and number: U1216
- Number of teams: 13
- Composition of the executive team: Mr Emmanuel Barbier (director), Ms Isabelle Marty (deputy director), Mr Alain Buisson (deputy director) and Ms Cécile Massit (financial and administrative manager).

SCIENTIFIC PANELS OF THE UNIT

SVE Sciences du vivant et environnement
SVE5 Neurosciences et troubles du système nerveux

THEMES OF THE UNIT

The GIN develops an integrated research program aiming to understand the functioning of the central and peripheral nervous system across scales, from molecular and cellular mechanisms to circuits, cognition and behaviour, while maintaining a strong focus on pathophysiological processes and clinical relevance. In parallel, the unit invests in innovative technologies to probe and intervene on the nervous system, with the overarching objective of driving therapeutic innovation for neurological, psychiatric, and neuromuscular disorders. This positioning relies on a deliberately interdisciplinary continuum that bridges fundamental neuroscience and clinical research, and is supported by access to cutting-edge platforms and expertise (e.g. advanced imaging, electrophysiology, quantitative approaches), enabling projects that span mechanisms, biomarkers, proof-of-concept interventions.

HISTORIC AND GEOGRAPHICAL LOCATION OF THE UNIT

The GIN was created in 2007 by Inserm, CNRS, University Grenoble Alpes, CEA (Commissariat à l'énergie atomique et aux énergies alternatives) and CHU Grenoble-Alpes. It is located on the health Campus, near Grenoble hospital (neurology department and MRI unit). A new building (E. J. SAFRA building) was constructed for this occasion and inaugurated in 2007. This new building gathered 10 laboratories that were dispersed across the campus and who become teams. At that time the GIN was headed by a director in charge of 10 teams between 2007 and 2010 and of 13 teams between 2011 and 2014. In 2013, another director has taken over responsibility for the GIN and he reorganized the institute into 8 teams (2016-2020) and then 13 teams (2021-2023). During this period, 3 deputy directors joined the management team (between 2014-2021 and between 2022-2023). Since December 2024, the GIN is composed of 12 teams including 3 scientific platforms and 4 technical facilities. It represents 127 permanent people. Several technical platforms (including MRI imaging, confocal and super-resolution microscopy, and electron microscopy) are operational and form part of local infrastructures certified by GIS IBiSA (Infrastructure en Biologie, Santé et Agronomie) and/or France Life Imaging. Finance and Administration are managed by the same person since 2017 with the support of financial managers. Logistics and building are also managed by the same person, with the support of technicians whereas occupational health and safety are managed by a member of the unit specifically dedicated to this mission. It is noteworthy that the GIN is currently hosting 2 start-ups: HuntX Pharma and The Element BioTechnology. Their employees are not members of GIN but interact with the scientific teams and use several platform/facilities.

UNIT RESEARCH ENVIRONMENT

GIN benefits from a rich research environment which allows it to establish strong interactions with different laboratories and infrastructures tailored to its needs. These interactions take place at the local, national, and international levels. The GIN research environment also contributes to expand its network of collaborators, thereby promoting its studies.

Locally, GIN is part of labex CerCoG@UGA, an interdisciplinary research program supported by the University of Grenoble Alpes (UGA) and involving the Grenoble Alpes University Hospital (CHUGA). Related to the scientific themes of the GIN, this labex aims to explore the links between the brain and cognition, covering a broad spectrum ranging from neural biology to clinical and societal research and applications. GIN is also a member of labex GiMED whose objective is to foster the emergence of ambitious, internationally visible scientific projects, led by laboratories. These labex receive exceptional funding that helps the GIN to strengthen its scientific excellence and international positioning, but also to set up innovative educational projects. In addition to being a member of these labex, the GIN is also a member of MIAI-Cluster, a multidisciplinary institute for artificial intelligence whose goal is to conduct cutting-edge research in artificial intelligence, offer attractive training programs to students and professionals of all levels, support innovation, and engage with citizens on all aspects of AI.

As a corollary of this strong presence in centers of excellence, the GIN benefits from infrastructures suited to their scientific projects. For example, the GIN uses different research facilities such as IRMaGe (preclinical MRI, FUS and radiotherapy; Clinical MRI; clinical EEG/TMS and soon TUS; metabolomic); hTAG (maintenance of lineage); ISBG (electron microscopy); Clinatec …

At the national level, GIN is involved in driving the PEPR and in the Brain Health Trajectory consortium but also the PEPR PROPSY for which GIN is involved in data collection or PEPR Neurodegenerative Diseases. Indeed, several GIN members are involved in driving the latter PEPR. The GIN also belongs to various French networks including, but not restricted to, ECell France (French research infrastructure for regenerative medicine - Mesenchymal stem cell-based therapies) gathering state-of-the-art technological platforms to conduct non-clinical and phase 1 & 2 clinical trials. GIN is also involved in the executive board of France Life Imaging which is a harmonized imaging network for biomedical research (GIN is involved in driving the Grenoble Hub and the national organization).

Finally, at the international level, GIN participates in the coordination of EBRAINS (Open research infrastructure that gathers data, tools and computing facilities for brain-related research; contribution to equipment) and réseau CoEN network (Center of Excellence in Neurodegeneration). The aim is to build collaborative research activity in neurodegeneration research across borders, focusing on the critical mass and excellence.

UNIT WORKFORCE: IN PHYSICAL PEOPLE AS OF 31/12/2024

Catégories de personnel	Effectifs
Professeurs et assimilés	17
Maitres de conférences et assimilés	16
Directeurs de recherche et assimilés	14
Chargés de recherche et assimilés	18
Personnels d'appui à la recherche	43
Praticien hospitalier	12
Total Sous-total personnels permanents en activité	**120**
Enseignants-chercheurs et chercheurs non permanents et assimilés	1
Personnels non permanents d'appui à la recherche	18
Post-doctorants	16
Doctorants	62
Total Sous-total personnels non permanents en activité	**97**
Total personnels	**217**

BREAKDOWN OF THE UNIT'S PERMANENT STAFF BY EMPLOYER: IN PHYSICAL PEOPLE AS OF 31/12/2024. NON-SUPERVISING EMPLOYERS ARE GROUPED ON THE HEADING "OTHERS".

Nom de l'employeur	EC	C	PAR
UGA	33	0	13
Inserm	0	25	25
Autres (CNRS, CEA, CHUGA)		19 (12 PH)	5
Total personnels	**33**	**44**	**43**

GLOBAL ASSESSMENT

The Grenoble Institut des Neurosciences (GIN) demonstrates an excellent overall performance, combining high scientific productivity, strong impact, and a clear translational trajectory. The unit shows remarkable competitiveness and financial autonomy, with >390 grants (including major national schemes and 3 ERC) supporting a robust non-recurrent budget of approximately €9 M/year, and a marked increase in competitive resources compared to the previous term. GIN is particularly strong at the basic-to-clinic interface, supported by close interactions with CHU Grenoble Alpes, extensive clinical research involvement, and an active valorisation dynamic (industrial partnerships, Cifre agreements, patents and start-up creation), reinforcing its regional and international visibility. Since June 2023, the new leadership has taken on board the vast majority of points raised in the previous evaluation, strengthening internal dialogue and implementing a more structured framework to support dissemination and grant competitiveness, particularly for junior PIs and teams with lower publication visibility. Despite a challenging human-resources context, teams have maintained strong scientific momentum; priorities for the next period include platform sustainability (imaging/microscopy), workforce planning in view of significant turnover (~20% expected departures), and further improvements in doctoral publication outcomes and international attractiveness (PhD students, postdocs, visiting scientists) to consolidate GIN's long-term excellence.

DETAILS OF THE EVALUATION OF THE UNIT

A - CONSIDERATION OF THE RECOMMENDATIONS IN THE PREVIOUS REPORT

Since June 2023, the new GIN leadership has taken on board the vast majority of the points raised during the last evaluation and has made restoring trust, internal dialogue, and collective cohesion a central priority. Concrete measures were rapidly implemented to rebuild links within the unit, including more direct and regular interactions between the Director, team leaders and staff through formal and informal meetings, as well as dedicated support actions such as individual coaching for several team leaders and the Director (2023–2024). Although some team-specific situations may still persist, they are clearly identified, monitored, and addressed through targeted actions aimed at stabilization, improved communication, and the prevention of further deterioration in working conditions. In parallel, the new Direction has strengthened the unit's scientific strategy by implementing a more structured and proactive framework to support dissemination and competitiveness, with particular attention to junior PIs and teams with lower publication visibility. This includes earlier strategic discussions on publication objectives, reinforced internal feedback on manuscripts and reviews, and enhanced grant-support mechanisms (internal peer-review, mentoring, and project prioritization) to help teams focus on the most critical projects and target highly competitive funding schemes. Despite the major human resources constraints experienced over the period, GIN teams have maintained a strong scientific trajectory and sustained high-quality publication output, reflecting both resilience and commitment.

B - EVALUATION AREAS

When considering the references set in the research units' evaluation, the committee will see to it that outstanding elements that relate to the strengths and weaknesses of the unit are pinpointed. Each and every assessment must be backed up with observable facts, namely from elements submitted in the portfolio. The committee assesses whether the unit's performance is consistent with its profile of activities. Information in boxes is summarily drafted based upon evaluative elements described in the subsections on the strengths and weaknesses.

EVALUATION AREA 1: THE UNIT'S SCIENTIFIC OBJECTIVES, ORGANIZATION AND RESOURCES

Assessment of the unit's scientific objectives, organization and resources

The unit's scientific objectives, organization and resources is **excellent**. The unit has defined clear and relevant scientific objectives combining high-level research and technological development, aligned with the current challenges of its research field. These objectives structure all of its activities and are reflected in a coherent organization that promotes efficiency in the conduct of scientific projects. All teams were able to raise funds and capitalize on their skills to work independently while encouraging internal and external collaborations, particularly with industry. The unit has also taken proactive measures to support its staff and restore harmonious working conditions. Certain governance issues, particularly those related to the use of certain platforms and communication on decision-making, however, still need to be resolved in order to strengthen cohesion between the different categories of staff.

1/ The unit has set itself relevant scientific objectives and is organized accordingly.

2/ The unit has resources adapted to its scientific objectives, profile of activities and research environment and mobilizes them.

3/ The unit has premises, equipment and technical skills adapted to its scientific policy and research objects.

4/ The unit's practices comply with the rules and guidelines set by its supervisory bodies in terms of human resources management, safety, environment and data protection as well as scientific assets.

Context-related strengths and opportunities for the four references above

The GIN demonstrates a commitment to the relevance and quality of its scientific objectives, combining high-level research and technological development. The unit has achieved a 30% increase in resources from competitive calls compared to the previous term, primarily from national sources (44% of the total: ANR, PHRC) and European sources (25% of the total, including 3 ERC). These resources are strategically mobilized to ensure the valorization of its research, through 50 contracts with industrial partners, including six Cifre PhD agreement, and the creation of three start-ups, two of which are hosted at the GIN, reflecting a strong dynamic of innovation and technology transfer. This scientific and technological development is further supported by the unit's infrastructure, with equipment investments reaching 1.3 million and approximately 25% of the unit's resources allocated annually to the technological core facilities, ensuring that the equipment remains adequate, up-to-date, and well-maintained, fully aligned with the unit's research objectives. In parallel, the GIN has taken proactive steps to support its staff and foster a positive work environment. Faced with leadership and management challenges that previously caused high stress and anxiety among personnel, the unit has implemented preventive and curative measures, including mandatory mentor training, individual and collective coaching, and access to the HR and Listening Committees for confidential support. While the results are encouraging and the unit is on a positive trajectory, efforts must continue to prevent new relational or conflictual issues that could undermine the progress already made, ensuring that these measures remain effective.

Finally, the GIN integrates environmental responsibility into its activities through the EcoGIN working group, annual carbon audits, recycling initiatives, and infrastructure improvements, notably the connection of the main building to district heating. These actions collectively reduce greenhouse gas emissions and promote sustainable practices, demonstrating the unit's commitment to combining scientific excellence with societal and environmental responsibility.

Context-related weaknesses and risks for the four references above

The committee identified several areas for improvement concerning governance and internal communication within the unit. In particular, the involvement of platform operational managers in strategic discussions at the executive committee level could be strengthened. Such an evolution would allow decision-making processes

to better consider operational constraints and field realities, while also reinforcing staff engagement with the GIN's technological policy. Furthermore, a more systematic and structured dissemination of decisions taken by the governing bodies would contribute to improved transparency and more efficient circulation of information within the unit.

These governance and communication issues appear to have an impact on interactions between teams. Although some collaborations are already in place, discussions with staff indicate that inter-team exchanges remain limited overall. Enhancing communication between teams could foster the emergence of new scientific initiatives, strengthen synergies, and promote interdisciplinarity. In this context, improved internal communication represents a key lever for fully leveraging the unit's scientific expertise and human resources.

The committee also notes significant challenges related to human resources, particularly with regard to the sustainability of the platforms. On the PIC-GIN microscopy platform, the forthcoming retirement of the tenured staff member currently responsible raises concerns about continuity of service, given the central role of this platform in supporting the unit's scientific activities. Similarly, research platform faces an insufficient staffing level, affecting both permanent and fixed-term positions. While current housing capacity appears adequate, the expected increase in activity associated with the arrival of new research teams may place additional pressure on staff and impact working conditions. More generally, workforce planning does not yet appear sufficiently anticipatory, with approximately 20% of personnel expected to leave the unit within the next five years, which constitutes a strategic issue for the unit's long-term sustainability.

Finally, the committee observes that no clearly identified gender equality representative is currently designated within the unit. Addressing this point would contribute to improved governance and alignment with institutional and national recommendations in terms of equality and inclusion.

EVALUATION AREA 2: THE UNIT'S SCIENTIFIC RESULTS, IMPACT AND ATTRACTIVENESS

Assessment of the unit's scientific results, impact and attractiveness

Overall, the unit demonstrates an **excellent** level of scientific results and impact. This is illustrated by a strong publication record in high-impact journals, sustained involvement in clinical and translational research, active engagement in research valorization, and success in highly competitive European funding programs. Addressing remaining challenges related to doctoral publication output and international attractiveness would further strengthen the unit's visibility, competitiveness, and long-term positioning at the international level.

1/ The unit is recognized for its scientific achievements that meet quality criteria.

2/ The research activities of the unit result in quality scientific production.

3/ The unit participates in the coordination and management of its community.

4/ The unit's scientific production respects the principles of scientific integrity, ethics and open science. It complies with the guidelines applicable in this field.

Context-related strengths and opportunities for the four references above

Over the evaluation period one of the most remarkable achievement relies on the unit's publication record of very high scientific quality. The scientific output is predominantly published in highly selective international journals, including leading journals such as *Science*, *Neuron*, *Science advances, Brain* or *The Lancet Neurology*. A qualitative bibliometric analysis indicates that the majority of publications appear in Q1 journals and no significant reliance on low-quality or predatory journals. The institute's scientific output totals 720 peer-reviewed articles, 1 book, and 6 book chapters, with 48% of articles published in a key authorship position (*first or last author*). PhD student contributions are substantial, with 22% of the articles co-authored by doctoral candidates. This publication strategy is fully consistent with standards of scientific excellence and selectivity, and contributes strongly to the institute's national and international visibility. Building on this strong scientific foundation, the institute has shown a sustained involvement in translational and clinical research, fully aligned with Inserm's mission to promote the transfer of fundamental discoveries towards medical applications. The institute has been involved in a large number of clinical trials, reflecting its ability to interact efficiently with hospital partners, clinical investigation

centers, and industrial stakeholders, and to contribute actively to patient-oriented research. This represents another remarkable achievement over the considered period since several members of the GIN are involved in setting up clinical trials in various fields of neuroscience and neuropsychiatry: depression, movement disorder, obsessive compulsive disorder, stroke and trauma.

The institute has also developed a substantial activity in research valorization. Two patents were filed during the evaluation period, illustrating a structured and proactive intellectual property and technology transfer strategy, although no licensing agreement has yet been secured. In addition, several start-ups have been created or have significantly developed based on research conducted within the institute, highlighting its contribution to innovation and knowledge transfer towards the socio-economic sector. The GIN teams demonstrate strong financial autonomy. Over the evaluation period, the unit secured more than 390 grants, including PhD fellowships or extensions (16%), with approximately 70% led by unit members as principal investigators. Funding sources include national schemes (44%, including ~44 ANR grants), European programmes (25%, including 3 ERC grants), as well as foundations (13%: FRM, AFM-Téléthon, ARC, Fondation de France) and industrial contracts (5%, with SATT-LINKSIUM, Sanofi). Overall, the unit reports a total non-recurrent budget (excluding baseline/core funding) of approximately €9 M/year. These results attest to the high scientific visibility and competitiveness of the institute's teams at the European level.

Context-related weaknesses and risks for the four references above

Despite these very positive indicators, several points of attention deserve to be underlined. In particular, around twenty PhD students did not publish during the course of their doctoral training. This observation may have an impact on the scientific visibility of the institute and on its attractiveness for young researchers. It calls for reinforced actions regarding doctoral supervision, monitoring of thesis progress, and structuring of doctoral projects, in order to ensure optimal conditions for scientific production and career development.

In addition, the institute currently hosts a limited number of international PhD students and postdoctoral fellows, and welcomes very few international visiting scientists. This situation may reflect an insufficient level of international attractiveness, despite the excellent scientific positioning of the institute and its success in European funding. Strengthening the international visibility and attractiveness of the institute—through targeted international recruitment, increased hosting of visiting scientists, and reinforced participation in international networks—appears as a key strategic challenge for the coming period.

EVALUATION AREA 3: INCLUSION OF RESEARCH ACTIVITIES IN SOCIETY

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

The unit's research activities contribution to society is **excellent to outstanding,** with strong and sustained engagement across economic, clinical, ethical, and public-outreach domains. The unit demonstrates a high level of societal impact through successful academic–industrial partnerships, clinical trials, startup creation, and patenting, complemented by active involvement in patient associations, ethics committees, and science dissemination to the general public.

1/ The unit stands out for the quality of its interactions with the cultural, and socioeconomic world.

2/ The unit develops products and services for the cultural, socioeconomic world.

3/ The unit shares its knowledge with the general public and participates in social debates.

Context-related strengths and opportunities for the three references above

GIN members have been actively engaged with the cultural, economic, and social spheres (Standard 1) throughout the past contract period. On the economic front, three start-ups were created and continue to be hosted within the GIN and, several European projects were awarded at the interface between academic and private-sector research. In addition, several GIN members play a central role in ethics committees—an involvement that is expected given that both human experimentation are integral to the work conducted by many teams within the institute.

Regarding Standard 2 (product development and services), GIN members contribute substantially to clinical and industrial translation. The institute is involved in a large number of clinical trials (157 to date) and maintains numerous partnerships with industry, including 51 contracts (6 Cifre), representing 13%of all GIN contractual activity. The dynamic is further reflected in intellectual property production, with 3-8 patents filed, and the creation of 3 start-ups stemming directly from GIN research. FIN members are also deeply committed to patient associations (such as DUGAPE, AFM, AHF…) and regularly participate in events aimed at disseminating scientific knowledge to the wider public. These include theme-focused events (e.g. Epilepsy Day, World Stroke Day) as well as broader outreach initiatives (Brain Awareness Week, Pint of Science). Their engagement with the media—regional and national press, as well as multiple podcasts—demonstrates a strong contribution to Standard 3, highlighting GIN's commitment to communicating scientific advances to society at large.

Context-related weaknesses and risks for the three references above

Several aspects of GIN's cultural interactions could be strengthened. A key weakness identified is the absence of a full-time communications officer. At present, communication efforts rely primarily on a designated member within each team, supported by a part-time communications consultant who is available only one day per week. This limited structure constrains the institute's visibility and reduces its ability to coordinate outreach activities effectively. The committee also acknowledges GIN's strong support for the NeurDocs initiative; however, the exclusion of postdoctoral researchers could represent a risk for community cohesion. This concern is further amplified by the fact that a significant proportion of the postdoctoral population may be international and feel excluded from scientific exchange, as most GIN interactions currently take place in French.

ANALYSIS OF THE UNIT'S TRAJECTORY

Over the past evaluation period, the « Grenoble Institut des Neurosciences » (GIN) has undergone a phase of scientific consolidation combined with significant organizational evolution, reflecting a mature and adaptive research environment. The trajectory of the individual teams collectively illustrates a unit in dynamic transformation, characterized by the strengthening of translational research, strategic regroupings, the emergence of new scientific leadership, and increased integration of complementary expertise.

A major trend across the unit is the consolidation of strong thematic cores together with an expansion toward clinically oriented and translational approaches. Several teams have evolved from primarily fundamental research programs toward integrated strategies combining molecular, cellular, systems, and clinical neuroscience. This is particularly evident in teams working on neurodegenerative diseases (Teams 4, 8, 6 and 10), neuromodulation and motivation (Teams 2 and 5), synaptic dysfunctions (Team 4), and advanced neuroimaging (Team 9). These developments are supported by strong collaborations with CHUGA clinicians, involvement in clinical trials and technology transfer initiatives, reinforcing GIN's positioning at the interface between basic research and medical applications.

The unit has also demonstrated a strong capacity to anticipate and manage major structural transitions. Over the period, two new teams have been created or newly structured within the GIN: one resulting from the regrouping of researchers and clinicians following the retirement of former team leaders (team 2), and one newly established technological team dedicated to wireless neural implants (team 7). These additions have contributed to the renewal of scientific themes and reinforced both translational and technological dimensions of the unit.

In parallel, the unit has proactively addressed leadership transitions. One team leader (team 1 is expected to retire during the upcoming contract period, and this transition has already been formally anticipated through a new co-principal investigator who will progressively assume leadership responsibilities, ensuring continuity of scientific direction, complementary expertise, and sustainability of funding capacity.

The unit has also experienced the departure of the team 8, whose leader and part of its members relocated to an external institute. This transition was accompanied by the redistribution of remaining staff into other GIN teams, allowing continuity of scientific activities within the unit. In addition, two junior teams were closed (teams 3 and 6) and strategically merged into larger structures (respectively with team 11 and 2), to reach critical mass, reinforce complementary expertise, and ensure long-term sustainability. These reorganizations are scientifically coherent.

Another defining feature of the unit's trajectory is the growing importance of technological innovation and platform-based research. Teams specializing in neural implants, advanced MRI, and imaging technologies have developed internationally recognized expertise and strong translational potential. Their progressive refocusing toward well-defined clinical applications, such as stroke, traumatic brain injury, and neuromodulation, will contribute to a clearer strategic orientation of the unit and strengthens its impact.

Human-resources dynamics remain a central challenge for the GIN's future development. While several teams have been able to strengthen their staffing, persistent difficulties affect platform sustainability and workload distribution, particularly within key infrastructures such as the facility and the imaging/microscopy platforms. For the next contract period, around 20% of personnel are expected to leave the unit, in a context marked by an ageing workforce and an unfavourable recruitment climate that limits the ability to rapidly reinforce essential support functions. In this perspective, consolidating GIN's stability, attractiveness and scientific excellence will require the continuation of local efforts, together with a stronger and more proactive commitment from the supervisory bodies (Inserm and UGA) to enable timely recruitment and the stabilization of critical technical positions. The scientific visibility and competitiveness of the GIN have clearly increased over the period, as reflected by high-impact publications, success in national and European funding schemes, prestigious awards, and strong translational outputs. At the same time, the trajectories highlight a shared challenge in international attractiveness, particularly for the recruitment of international PhD students, postdoctoral fellows, and visiting scientists.

Overall, the trajectory of the GIN reflects a research unit that has successfully navigated a period of scientific expansion and organizational adjustment while strengthening both its excellence and translational positioning. One of the main strengths of the unit is its ability to build new teams notably from scientific dynamics that were already emerging within the previous organization. This shows both the vitality of the unit and its capacity to help junior or developing programs reach a more visible, better structured, and more sustainable form. The creation of new teams, the anticipated succession of leadership, the strategic consolidation of structures, and the management of departures collectively illustrate a forward-looking institutional dynamic. The coming contract period will be crucial to consolidate these transitions, secure platform sustainability, maintain coherence across expanding research axes, and further enhance international visibility.

Regarding the specific trajectories of the 3 new teams emerging from the internal reorganization, the experts emphasize their scientific relevance and bright future.

Team "Pathophysiology and treatments for Parkinson's disease and associated disorders"
The creation of this team appears well justified and scientifically relevant within the future organization of GIN. It brings together complementary preclinical and clinical expertise focused on Parkinson's disease and related movement disorders, giving the team a clear translational profile and a well-defined thematic identity. This new configuration is convincing because it seems to build not only on an institutional reorganization, but also on pre-existing scientific interactions and a shared research focus between the groups involved. The committee also notes that the team already has a substantial human-resource base, which is an important asset for a newly constituted group and should help it structure its research program rapidly and gain visibility from an early stage. The scientific program addresses an important biomedical question, namely the mechanisms underlying symptom heterogeneity and variable therapeutic responses in Parkinson's disease, through an approach combining circuit-level analysis, biomarkers, and innovative therapeutic strategies. This is fully in line with GIN's stated ambition to strengthen the link between basic and clinical neuroscience and to increase its translational visibility. The elements presented in the annex further support the credibility of this project, as they document previous activity, publications, and project involvement already consistent with the proposed scope of the team. As with any newly formed group, the main point to watch will be its ability to move beyond the simple addition of individual strengths and to develop a genuinely integrated collective dynamic, reflected in shared outputs and external visibility. Overall, the team appears promising and strategically well positioned, with the potential to become a strong component of GIN in the field of movement disorders, provided that this initial complementarity is translated into a clearly identifiable team dynamic.

Team "Modeling and estimation of subjective states"
The creation of this team appears scientifically promising and well positioned within the future organization of GIN. Its individualization from the "Motivation and neuromodulation in neuropsychiatric disorders" is presented as a way to accelerate the development of Michael Pereira's ERC-funded project, which gives it a clear rationale and a strong basis in competitive research. The project is built around a focused and distinctive scientific ambition at the interface of human electrophysiology, computational modeling, and cognitive neuroscience, with the aim of understanding subjective states and their dysfunction in neuropsychiatric disorders. It occupies an original place within GIN and broadens the institute's scientific scope toward perception, consciousness, metacognition, and pathological doubt, while remaining connected to translational issues in psychiatry and neurology. The committee also notes positively that the team already benefits from dedicated space and from the momentum associated with an ERC, both of which should help support its visibility and development. In addition, the effort to bring together complementary expertise in psychophysics, modeling, human intracranial electrophysiology, and clinical interfaces strengthens the plausibility of the project. At the same time, this remains an early-stage team, and the absence of past activity as an autonomous group means that its future development will depend largely on its ability to turn this strong conceptual and financial basis into a stable collective identity, visible outputs, and sustained recruitment capacity. Particular attention should therefore be paid to the consolidation of the team beyond the initial ERC-driven phase, especially given its small permanent size. Overall, the team appears highly promising, with a strong originality and real potential, provided that this emerging structure can translate its scientific ambition into durable visibility and productivity at team level.

Team "Neuronal Circuit Formation, Development and Repair"
The newly created team appears as a particularly strong and promising development within the future organization of GIN. It results from the convergence of several highly complementary junior teams with recognized expertise in neurodevelopment, axon guidance, regeneration, translation control, and neural interface technologies. This gives rise to an ambitious and original collective centered on neuronal circuit formation, development, and repair. The project is especially convincing because it builds on an already established collaborative dynamic, including shared students, postdoctoral fellows, grants, and publications, rather than on a simple administrative regrouping. The team brings together a rare combination of expertise, ranging from molecular and cellular mechanisms to rodent models, human samples, and the development of wireless and resorbable neurotechnology for recording and stimulating neuronal activity. This gives the team a distinctive profile at the interface of fundamental neuroscience, regenerative biology, and translational neurotechnology, and makes it a major asset for the future scientific identity of GIN. The project also benefits from a strong funding context, including an ERC Starting Grant, ANR JCJC support, and ATIP-AVENIR momentum, which together provide both scientific credibility and structuring capacity. The fact that the members already work in adjacent spaces and will be brought together in the main GIN building is another positive element, as it should facilitate rapid consolidation, day-to-day interactions, and team cohesion. Its future success will also depend on its ability to integrate well into the existing institutional and technological environment of GIN and to make effective use of the shared platforms, facilities, and collaborative setting that are among the institute's strengths. Overall, this new team has the potential to become one of the most original and visible components of GIN, with a strong capacity to contribute both to the fundamental understanding of circuit formation and to the development of innovative approaches for functional repair.

RECOMMENDATIONS TO THE UNIT

RECOMMENDATIONS REGARDING THE EVALUATION AREA 1: SCIENTIFIC OBJECTIVES, ORGANIZATION AND RESOURCES OF THE UNIT

The committee recommends to anticipate the renewal of key staff and strengthen platform staffing, while conducting, in consultation with supervisory authorities, a review of recruitment and workforce planning to ensure service continuity, the quality of activities, and the capacity to handle the expected increase in workload. It would be also important for the unit to implement systematic dissemination of meeting minutes and decisions, in order to improve transparency, information flow and staff engagement with the unit's strategic orientations. Strengthening inter-team communication through the implementation of regular internal seminars would be another challenge. Finally, the unit is encouraged to continue efforts to improve the quality of work life, ensuring a supportive, healthy, and positive environment for all staff.

RECOMMENDATIONS REGARDING THE EVALUATION AREA 2: THE UNIT'S SCIENTIFIC RESULTS, IMPACT AND ATTRACTIVENESS

We recommended to further strengthen both scientific output and international visibility by implementing a structured framework that ensures PhD candidates publish during their three-year doctoral period (with clear publication milestones from the outset, regular progress monitoring, dedicated writing time, and reinforced mentoring/supervision). In parallel, the unit should deploy a proactive strategy to recruit international doctoral students, supported by English-language communication, targeted dissemination through international networks and conferences, co-tutelle/joint supervision schemes, and attractive funding opportunities, in order to enhance its global influence, visibility, and overall attractiveness.

RECOMMENDATIONS REGARDING EVALUATION AREA 3: INCLUSION OF RESEARCH ACTIVITIES IN SOCIETY

The committee commends the unit for its outstanding engagement with society through strong academic–industrial partnerships, clinical translation, intellectual property development, involvement in ethics committees, and sustained public outreach activities. The committee encourages the continuation and expansion of activities targeting industries, patient communities, schools, and the general public, particularly in areas of neurodegenerative diseases and brain health.

TEAM-BY-TEAM ANALYSIS

Team 1: Neurocytoskeleton Dynamics and Structure

Name of the supervisors: Ms Isabelle Arnal & Ms Annie Andrieux (adj.)

THEMES OF THE TEAM

The main objective of the team is to decipher the effects of neuronal MAPs on the cytoskeleton – microtubules (MTs) and actin – under physiological and pathological contexts. The team investigates cytoskeleton dynamics and structural properties in model systems of various complexities (biomimetic assays, cellular), using multidisciplinary approaches (molecular and structural biology, cell biology, advanced light and cryo-electron microscopy)

CONSIDERATION OF THE RECOMMENDATIONS IN THE PREVIOUS REPORT

One recommendation from the last Hcéres visit was to recruit more postdoctoral researchers. During the last period, the team recruited 2 young researchers who worked on setting up in vitro assays for reconstituting actin networks and studying their interaction with neuronal effectors (manuscripts in preparation). One of them also obtained €50k Neurodis funding to investigate the role of Kank1 protein, which is mutated in amyotrophic lateral sclerosis, in MT regulation.

TEAM WORKFORCE: IN PHYSICAL PEOPLE AS OF 31/12/2024

Catégories de personnel	Effectif
Professeurs et assimilés	0
Maitres de conférences et assimilés	2
Directeurs de recherche et assimilés	3
Chargés de recherche et assimilés	3
Personnels d'appui à la recherche	4
Praticien hospitalier	0
Sous-total personnels permanents en activité	**12**
Enseignants-chercheurs et chercheurs non permanents et assimilés	0
Personnels non permanents d'appui à la recherche	1
Post-doctorants	0
Doctorants	3
Sous-total personnels non permanents en activité	**4**
Total général	**16**

EVALUATION OF THE TEAM

Overall assessment of the team

The team has an international visibility due to its unique expertise in cytoskeleton dynamics using a wide range of technics and multi-scale approaches, from in vitro techniques to models. The team has published very important work with the discovery of new concepts in the field. The team develops a solid and very ambitious scientific program on the molecular mechanisms of cytoskeleton dynamics in neuronal development in normal or pathological conditions. Overall, the team is evaluated as **excellent to outstanding**.

Context-related strengths and opportunities

The team aims at understanding the contribution of the cytoskeleton – MTs and actin – in neuronal functions, both in normal and pathological contexts. They investigate cytoskeleton dynamics and structural properties in model systems of various complexities (biomimetic assays, cellular), using multidisciplinary approaches (molecular and structural biology, cell biology, advanced light and cryo-electron microscopy). During the period of evaluation, the team made major contributions in understanding the mechanisms of neuronal cytoskeleton regulation, highlighting the strong expertise of the team in the cytoskeleton field. They discovered that, in contrast with what was known so far, GDP-bound tubulin can polymerize into highly stable MTs, which provides a novel mechanism governing MT stability. They also discovered that MAP6 localizes in the lumen of MTs, representing the first neuronal MT-inner protein (MIP) identified so far in mammals. On the pathological aspect of their research, the team reveals abnormal localization of Alzheimer' disease-related Tau fragments, thanks to a new method the team developed to induce the controlled cleavage at tau at specific sites. Finally, they discovered that the MT-associated protein APC functions as a MT depolymerase, and that this property is essential for its mitotic role. On the human resources side, the team is well structured and solid with an important number of tenure positions for researchers and engineers/technicians. One recommendation from the last Hcéres visit was to recruit more postdoctoral researchers. The team recruited two young researchers who worked on setting up in vitro assays for reconstituting actin networks and studying their interaction with neuronal effectors (manuscripts in preparation). Over the period, the team has produced 24 publications, including more than half of them featuring team members as first or last authors, in internationally recognized journals such as *Science Advances, J. Cell Biol, E. life*. In recent year, the team secured diverse local and national fundings, including 5 ANR grants, 4 Idex grants, 6 from charitable foundations (ARC, FRM, FRC, Neurodis, GIN Fondation), and 2 UGA doctoral contracts. The team is very well integrated in its environment. First it is well integrated within the GIN, with internal collaborations due to its unique expertise. The team is also strongly involved in the development of the imaging facility of the GIN, and has developed advanced microscopy techniques for high resolution studies of the neuronal cytoskeleton. The team also benefits from the access to equipment for structural biology studies in Grenoble area (IBS, ESRF) and elsewhere. The team is also very well integrated in the cytoskeleton community, with the team part of different initiatives (COeN, French Microtubule network, CerCogLabex Initiative), and participating to the animation of its community through the organization of scientifc events (Neurofrance 2022 meeting, workshops on imaging technics, IMABIO 2024, MIFOBIO 2023)

Context-related weaknesses and risks

The team has a unique expertise in cytoskeleton using a wide range of technics and multi-scale approaches. The number of PhD students and long term-post-doctoral fellows is rather modest considering the numbers of tenured researchers.

ANALYSIS OF THE TEAM'S TRAJECTORY

During the next contract, the team will continue to investigate the regulatory mechanisms of the neuronal cytoskeleton. Compared to the previous period, the team will expand their focus on the actin cytoskeleton, drawing on one member's expertise in actin biochemistry. The team will develop a new project on the brain actin regulation by MAPs towards the reconstitution of an integrated neurocytoskeleton, and a project related to the function of tau on actin and on focal adhesion dynamics. The on-going projects will focus on the MIP family, with in particular trying to improve the nanoscale visualization of cytoskeletal arrangements in neurons. They will finally strengthen their disease-related research by collaborating with local clinicians to analyse the functional impact of disease-associated mutations in MAPs.

With the planned retirement of one of the team leaders in 2026, another member of the team will assume the position of co-PI for the upcoming contract. Together with current co-head of the team, the complementary leadership team will combine expertise in actin and MTs, crucial for advancing our understanding of the neuro-cytoskeleton.

RECOMMENDATIONS TO THE TEAM

The next contract will be an opportunity to reinforce the actin aspects of the projects in addition to the expertise in MT dynamics. The team has already the required expertise to develop the proposed projects. The team is one of the few laboratories able to conduct structural and dynamical studies on both actin and MT components at the same time. In the next period, efforts could focus on establishing the position of one member of the team as a co-PI in term of project management and sustainability of funding. The presence of this team member as a UGA personnel may be also a good asset to attract more PhD students.

Team 2: Motivation and Neuromodulation in neuropsychiatric disorders (MNN)

Name of the supervisor: Mr Julien Bastin

THEMES OF THE TEAM

The team investigates the neural and computational mechanisms underlying decision-making, motivation, mood, and behavioral flexibility in humans. Using intracranial EEG, computational modeling, and behavioral paradigms, it studies how large-scale brain networks support adaptive behavior and how their dysfunction contributes to psychiatric and neurological disorders. The research combines clinical collaborations, particularly in epilepsy and DBS, with experimental and theoretical neuroscience approaches.

CONSIDERATION OF THE RECOMMENDATIONS IN THE PREVIOUS REPORT

The previous evaluation expressed concerns about entrusting a newly assembled and heterogeneous team to a young principal investigator, and recommended strengthening leadership and international visibility. These points have been addressed. The team leader obtained a competitive DR2 Inserm position in 2022, confirming his scientific recognition and leadership capacity. During the period, he coordinated a large interdisciplinary group and signed several high-visibility publications as senior author. The team has also consolidated its clinical and computational collaborations and secured substantial external funding. The initial concerns regarding leadership and visibility have been resolved.

TEAM WORKFORCE: IN PHYSICAL PEOPLE AS OF 31/12/2024

Catégories de personnel	Effectif
Professeurs et assimilés	6
Maitres de conférences et assimilés	4
Directeurs de recherche et assimilés	1
Chargés de recherche et assimilés	2
Personnels d'appui à la recherche	4
Praticien hospitalier	4
Sous-total personnels permanents en activité	**21**
Enseignants-chercheurs et chercheurs non permanents et assimilés	0
Personnels non permanents d'appui à la recherche	1
Post-doctorants	2
Doctorants	9
Sous-total personnels non permanents en activité	**12**
Total général	**34**

EVALUATION OF THE TEAM

Overall assessment of the team

The team was formed following the retirement of the former team leaders, bringing together researchers and clinicians previously working on different disorders and experimental scales. It has since structured a coherent and highly ambitious scientific program centered on learning and decision-making. The team conducts exceptional and internationally visible research, addressing fundamental theoretical questions in cognitive and clinical neuroscience, with strong clinical integration, access to rare human models, and an outstanding level of scientific production. Overall, the team is evaluated as **excellent to outstanding**.

Context-related strengths and opportunities

The team benefits from a strong positioning at the interface between fundamental, computational and clinical neuroscience. The integration of neurosurgeons, psychiatrists and cognitive neuroscientists provides access to unique clinical models, including human intracranial recordings, which supports translational research on decision-making and neuropsychiatric disorders. One of the most remarkable achievement of the team relies on the identification of innovative approaches to neurostimulation that are particularly useful for treating sleep disorders in Parkinson's disease. Over the period, the team produced more than 120 publications, including over 30 as first or last authors, in internationally recognized journals such as *Nature Communications*, *eLife*, *JAMA Psychiatry* and *Brain*. The methodological breadth, spanning human, non-human primate and rodent models, combined with computational approaches, offers opportunities for multi-scale investigations and cross-disciplinary interactions. The recruitment of new assistant professors and researchers contributes to the renewal of expertise and supports the development of emerging lines of work. The strong ties with CHUGA, particularly in epilepsy, neurosurgery and psychiatry, create opportunities for clinically grounded research questions and facilitate the development of projects with diagnostic or therapeutic potential. The diversity of technical platforms accessible within the GIN provides favorable conditions for future developments, including the refinement of stimulation approaches and the expansion of computational modelling. The team also demonstrates its strong capacity to attract competitive funding, with more than €8 million secured through national (ANR), European, and clinically oriented programs, as well as industrial partnerships in neurotechnology and neuromodulation.

Context-related weaknesses and risks

The size and diversity of the team create organizational challenges, particularly with respect to the integration and follow-up of early-career researchers involved in large, multi-investigator projects. Maintaining clear supervision structures and ensuring sustained mentoring capacity will remain important given the scale of the group.

The team is currently undergoing internal reconfiguration. The departure of one member, who is developing an independent activity focused on Parkinson's disease pathophysiology in connection with a start-up, represents a thematic evolution rather than a loss of scientific coherence. In parallel, the integration of members from another group brings complementary expertise in synucleinopathies and viral tool development. While scientifically well aligned with the team's core objectives, this integration increases the need for explicit coordination to preserve clarity in scientific priorities and training pathways.

In addition, the emergence of independent trajectories, such as the creation of a new team, reflects the normal dynamics of a group of this size and does not weaken the overall structure. Finally, some research lines, including non-human primate studies or photobiomodulation, are less directly articulated with the core questions on decision-making and neuromodulation and would benefit from clearer strategic positioning.

ANALYSIS OF THE TEAM'S TRAJECTORY

The team has entered a phase of consolidation following its formation through the regrouping of researchers and clinicians previously organized under different leaderships. Over the period, the team succeeded in structuring a coherent scientific program centered on decision-making, mood regulation, learning processes and neuromodulation, supported by strong clinical integration and access to unique human electrophysiological models.

The upcoming contract corresponds to a phase of controlled evolution. The integration of members of a former GIN team constitutes a strategic development that both reinforces the team's experimental capabilities and provides a structuring framework for a group that would otherwise remain below the critical size required for long-term institutional sustainability. Beyond scientific complementarity, this integration is intended to support the development of an autonomous research team in the next evaluation period, while remaining embedded within the current structure.

In parallel, the emergence of new independent teams illustrates the capacity of the group to foster scientific maturation and leadership without compromising its overall coherence. Overall, the trajectory points toward the consolidation of a large translational neuroscience team combining clinical access, methodological diversity and emerging leadership, while placing increasing emphasis on coordination, prioritisation and supervision.

RECOMMENDATIONS TO THE TEAM

The next contract could be an opportunity to further consolidate the articulation between the team's different research lines and to make explicit how the various experimental, computational and stimulation-based approaches contribute to a shared conceptual framework. This clarification would support the long-term readability of the scientific strategy without calling into question its coherence.

Given the size of the team and its ongoing structural evolutions, including the integration of new groups and the emergence of independent trajectories, continued attention to coordination and supervision structures would help maintain effective organization and training conditions.

Finally, maintaining and, where relevant, strengthening interactions with clinical departments and industrial partners may further support the translational dimension of the program and the development of methodological or technological applications.

Team 3: Translation regulation in normal and pathological conditions

Name of the supervisor: Mr Stéphane Belin

THEMES OF THE TEAM

The main objectives of the team are to decipher the role of the translational machinery in neurons and how this complex participates to neuronal growth mechanisms, neurodegeneration and regeneration in the nervous system.

CONSIDERATION OF THE RECOMMENDATIONS IN THE PREVIOUS REPORT

The team made a significant effort to address a criticism raised during the previous evaluation that it will be important for the team leader to try secure talks at international events. Indeed, over the 2019-2024 period, the team leader was invited to give talks in international events such as French Neuroscience Meeting (Strasbourg, France) 2021; Cell Biology of Neurons and beyond (Paris-France) 2023, EMBO Axonal Degeneration and Regeneration (Okinawa, Japan) 2024. In addition, they had been advised to obtain direct evidence that changes in translational complex occur in response to nerve injury and correlate with (and even better cause) specific changes in mRNA translation. Since the last evaluation, the team published three publications demonstrating the modifications of the translational complex i) in-vivo in mouse organs (one scientific publication in Cellular and Molecular lie science in revision), ii) in the injured peripheral nervous system (one publication in Plos Biology in 2023) and iii) after nerve injury in the central nervous system with direct modification of the translatome required for axon regeneration (one publication in Neuron in 2023).

TEAM WORKFORCE: IN PHYSICAL PEOPLE AS OF 31/12/2024

Catégories de personnel	Effectif
Professeurs et assimilés	0
Maitres de conférences et assimilés	0
Directeurs de recherche et assimilés	1
Chargés de recherche et assimilés	0
Personnels d'appui à la recherche	0
Praticien hospitalier	0
Sous-total personnels permanents en activité	**1**
Enseignants-chercheurs et chercheurs non permanents et assimilés	0
Personnels non permanents d'appui à la recherche	0
Post-doctorants	1
Doctorants	3
Sous-total personnels non permanents en activité	**4**
Total général	**5**

EVALUATION OF THE TEAM

Overall assessment of the team

The research program is solid and original, with major conceptual advances in the field of protein synthesis regulation and axon regeneration. The team leader successfully attracted PhD students and postdocs. Overall, the team as reflected by its productivity is considered as **excellent to outstanding** notably considering the size of the team.

Context-related strengths and opportunities

The team leader has developed a strong expertise in translational control analysis in the nervous system. The team is using elegant proteomic analyses in different mouse models to describe mechanism of the translational machinery. To unlock central nervous system (CNS) regenerative properties, many studies have focused on transcriptional regulation. Yet, transcriptional modulation is not sufficient to fully recapitulate axon outgrowth. One of the main achievements of the team during the evaluation period concerns the discovery of a new regulatory mechanism that controls the expression of key proteins involved in regeneration at the translational level, and not at the transcriptional level. They demonstrated that the protein Hungtintin (HTT) interacts with the ribosome machinery and selectively controls a specific subset of specific mRNAs which specific translation is crucial for central nervous systems regeneration in the team 11 (Neuron 2023). The team leader works closely with another researcher of the GIN (team 11), who has a strong expertise in axon guidance and repair in vivo focusing on the visual system. Overall, they have many publications in common, share one ANR grant and are currently supervising jointly one PhD student. Given the fact that both research teams are rather small, sharing expertise and efforts between the two teams is very relevant, and this tight collaboration gave rise to high-profile publications. The team leader works also with another team of the GIN (team: Wireless Neural Implants) on a very new and innovative transversal project to understand the molecular modulation induced by neuronal activity in-vivo, at the cellular level in order to rebuild functional circuits in adult. The publication record over the period included around 6 research articles in high impact journals such as *Neuron, Nat Comm, and PloS Biology* and few reviews. The team leader has attracted PhD students and post-docs, who have mostly published in first author within the team. For example, one post-doc in the team and 1rst author in the Neuron article, received several prizes including in 2024 the price "*Prix des grandes avancées françaises en biologie 2024*" from the French National Academy of Sciences. Finally, the team leader has demonstrated an excellent capacity to secure national competitive fundings (ANR and FRM grants).

In conclusion, the team's work allowed major conceptual advances in the field of protein synthesis regulation and axon regeneration. This work has opened up a new field of investigation based on the discovery on new pro-generative targets of CNS axon regeneration regulated at the translational levels, that could be of great importance for novel therapeutic strategies for CNS regeneration.

Context-related weaknesses and risks

The research team is rather small with only the team leader as a permanent researcher. But the team leader has anticipated this weakness by merging his research group with team 11 for the next contract.

ANALYSIS OF THE TEAM'S TRAJECTORY

The actual team is closing and will merge with team 11 for the next contract

RECOMMENDATIONS TO THE TEAM

none

Team 4: Neuropathologies and Synaptic Dysfunctions

Name of the supervisor: Mr Alain Buisson

THEMES OF THE TEAM

The team investigates early synaptic dysfunctions in Alzheimer's disease through complementary molecular, cellular and translational approaches. It has developed a coherent research programme focused on synaptotoxic mechanisms involving Abeta species, astrocytes and cytoskeletal dynamics. The team demonstrates an excellent level of scientific activity, combining strong technical expertise, sustained publication output and well-identified translational perspectives, supported by interactions with clinical partners and technology transfer initiatives.

CONSIDERATION OF THE RECOMMENDATIONS IN THE PREVIOUS REPORT

The previous report encouraged the team 1) to prioritize its projects according to available technologies, 2) to recruit researchers with strong expertise in imaging and physiology, and 3) to secure external funding. The team has partly addressed these points: it reinforced its technical approaches using the electrophysiology–imaging platforms available at GIN (calcium imaging, super-resolution microscopy…), and also implemented new biochemical tools. Several PhD students and postdoctoral fellows with relevant technical backgrounds were recruited, and competitive funding from national and international programs supported these developments. Prioritization among ongoing projects and long-term staff renewal remain points to monitor.

TEAM WORKFORCE: IN PHYSICAL PEOPLE AS OF 31/12/2024

Catégories de personnel	Effectif
Professeurs et assimilés	2
Maitres de conférences et assimilés	2
Directeurs de recherche et assimilés	2
Chargés de recherche et assimilés	1
Personnels d'appui à la recherche	4
Praticien hospitalier	0
Sous-total personnels permanents en activité	**11**
Enseignants-chercheurs et chercheurs non permanents et assimilés	0
Personnels non permanents d'appui à la recherche	
Post-doctorants	3
Doctorants	10
Sous-total personnels non permanents en activité	**14**
Total général	**25**

EVALUATION OF THE TEAM

Overall assessment of the team

The team investigates early synaptic mechanisms in AD through complementary molecular, cellular, and translational approaches. The research program is coherent and scientifically consistent, with steady production over the period, publications in peer-reviewed journals, and projects with translational potential. The team benefits from a stable structure and access to the technological platforms of the GIN. The main points to monitor for the next contract concern mentoring of early-career researchers and the prioritization of research lines. Overall, the team is evaluated as **excellent**.

Context-related strengths and opportunities

The team presents a well-defined scientific identity centered on early synaptic dysfunctions in AD, supported by recognized expertise in cellular biology, electrophysiology, and advanced imaging. The integration of complementary research lines, from cytoskeletal regulation to astrocytic signaling, provides a solid basis for translational innovation. One major achievement of the team during the period considered is the identification of early AD signatures in feces as a reflection of synaptic and neuronal dysfunction. The publication record over the period included around 20 peer-reviewed articles in international journals such as *Brain*, *Journal of Neuroscience* and *PLoS Biology*. Several publications are led by permanent researchers as first authors, while PhD students are involved in a subset of publications, including a limited number of first-author papers.

The team benefits from a strong local environment at GIN, including technological platforms and collaborations with clinicians and valorization structures. The team contributed to at least one published international patent application, co-filed with academic partners and an industrial partner, reflecting efforts toward technology transfer. The ability to attract external funding is demonstrated by a diversified portfolio combining international and national sources, including an international partnership with Argentina, ANR funding, and technology transfer-related funding (Servier Lab; SATT Linksium). The proximity to CHUGA and the establishment of clinical collaborations open further opportunities for applied research.

Context-related weaknesses and risks

External recognition remains limited, with few awards or visible international leadership roles, despite regular publication output in recognized journals. The age structure of the team is skewed toward senior researchers, with few young permanent scientists, which may affect sustainability in the coming years. Authorship and mentoring practices could be better balanced, as several senior researchers still appear as first authors while few PhD students are in leading positions. One doctoral project was discontinued before completion, and only one of the six defended theses during the period resulted in a first-author publication, suggesting a need to better align supervision, project scope, and student visibility. Public outreach and dissemination activities remain limited and are mainly targeted toward specialized audiences rather than the broader public, although the team addresses questions of major societal relevance. Finally, the number of active projects is high and spans several thematic areas (astrocytes, cytoskeleton, gut biomarkers, photobiomodulation), which may make long-term prioritization more challenging.

ANALYSIS OF THE TEAM'S TRAJECTORY

Over the past contract, the team has consolidated its research on early synaptic mechanisms in AD, progressively extending its focus from amyloid and tau toxicity to astrocytic regulation and cytoskeletal dynamics. This trajectory reflects a maturation of the initial program and an increasing orientation toward translational research, illustrated by patent activity, industrial partnerships, and collaborations with CHUGA. The next period aims to consolidate these developments, with ongoing efforts to validate biomarkers and therapeutic strategies emerging from basic work. The introduction of additional projects, such as investigations of the E/I imbalance involving KCC2, broadens the scope but raises questions about their integration into the core program. The challenge for the coming years will be to consolidate the most promising axes, maintain conceptual focus, and ensure continuity of expertise while facilitating the emergence of new scientific leadership.

RECOMMENDATIONS TO THE TEAM

The team has consolidated a strong position in the field, with the capacity to translate its cellular and molecular discoveries into clinically relevant strategies. In the next period, efforts could focus on reinforcing a limited number of translational axes, particularly those connecting astrocytic mechanisms and cytoskeletal regulation to early diagnostic or therapeutic developments. Clarifying how emerging projects, such as biomarker studies or the KCC2 line, articulate with the core program would strengthen coherence and long-term visibility. Reinforcing mentoring structures and supporting new scientific leadership will be important to ensure continuity and renewal within the team.

Team 5: Physiopathology of Motivation

Name of the supervisor: Mr Sébastien Carnicella

THEMES OF THE TEAM

The PATHOMOTIV team studies motivation and basal ganglia–centered circuits to identify pathophysiological mechanisms and translational biomarkers across Parkinson's disease and addictive disorders. Combining integrative neuroscience, and a strong clinical interface, the team focuses on dopaminergic dysfunction, network plasticity, and deep brain stimulation, bridging preclinical models with human studies.

CONSIDERATION OF THE RECOMMENDATIONS IN THE PREVIOUS REPORT

The previous Hcéres report raised 2 main recommendations. The first one concerned the scientific dissemination that need to be improved. To address this concern, the team presented at Gordon conf on Alcohol (2022), WADD (2023), and at Winter school BR (2024) IBNS (2025). This should now be strengthened. The second recommendation concerned the local collaborations with clinicians that needed to be developed. It is noteworthy that for the next mandate, the clinical team of addictology (CHUGA) will be part of the team, strongly strengthening translational research. Moreover, a strong collaboration was established with a team from CHUGA and an IRGA grant was obtained for the project on PD biomarkers. In addition, Labex Cercog funding was secured to support a collaborative project between preclinical and clinical researchers focusing on mental fatigue, motivation & addicton. Together, these achievements demonstrates that the last recommendation has been fully addressed.

TEAM WORKFORCE: IN PHYSICAL PEOPLE AS OF 31/12/2024

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

EVALUATION OF THE TEAM

Overall assessment of the team

The PATHOMOTIV teams presents an excellent dynamic. The research program is cohesive and innovative, providing significant conceptual and translational advances in the understanding of motivation-related basal ganglia circuits across Parkinson's disease and addictive disorders. Productivity is excellent, with a strong ability to attract funding, PhD students, and postdoctoral researchers, supported by a highly collaborative and well-structured organization. For all these reasons, overall, the team is evaluated **excellent**.

Context-related strengths and opportunities

The PATHOMOTIV team investigates motivation and basal ganglia–related circuits as trans-nosological tools to explore the pathophysiological mechanisms and potential biomarkers of Parkinson's disease (PD), behavioral addictions, and alcohol use disorder. The team's expertise lies in integrative neuroscience.
One major research axis (1) focused on PD and successfully identified a novel biomarker with strong translational and therapeutic potential, as evidenced by a SATT partnership and a patent. This axis involving several collaborations with the GIN as well as outside UGA and France successfully secured fundings and major publications involving PhD students (as first author). The recruitment of an Inserm CRCN in 2022 researcher during the past mandate strengthened the team's development of a second research axis aimed at understanding deep brain stimulation (DBS) and network plasticity in both PD and addiction. On the evaluated period (2019-2024) several papers of his post-doctoral work were published reinforcing his strength, and enabling securing fundings (Cercog, INCA) for this project. This effort effectively bridges Axis 1 with Axis 3, which centers on biomarkers of behavioral addiction in rodent models. This axis on abnormal dopaminergic signaling in addiction has been very productive in terms of publications with an average of one major paper per year with all doctoral students publishing as first author. A very well-structured organisation between PIs can be observed as they all succeed in securing fundings for their respective projects as well as for their research papers. During the last mandate, the team published 3 review articles and 11 original research articles, 9 of which were led by team members as first and/or last authors in high-visibility journals such as *PLoS ONE, Translational Psychiatry, Molecular Psychiatry, Molecular Neurobiology, Current Topics in behavioral neurosciences, Movement Disorders, JCI*… These publications enabled PhD students to obtain at least one significant first-author paper. In parallel, the team has one project currently in maturation with UGA and SATT Linksium, as well as another project in pre-maturation. Regarding funding, as stated above, the team secured regular and substantial funding (>€2 million) from national agencies, including ANR (JCJC, PRCE), INCa, IReSP, and NARSAD, as well as from foundations such as FRC, France Parkinson, and Fondation de France. In addition, an ERANET-NEURON grant is held by the clinician partners.

Overall, the team demonstrates a very positive dynamic, supported by strong collaborations within the GIN, across the regional network, and at national and international levels. The development of a robust clinical component places the team in a unique position to address their hypotheses from preclinical models through to human studies. Team members are fully engaged in GIN's organizational structure (platform management, HR committee, Copil) and the team displays high attractiveness for students and postdoctoral researchers. They have been consistently successful in securing funding for their projects, and internally, the team's supportive environment has contributed to career advancement, including promotions (e.g. PU) and the transition of two IATS members to higher-responsibility roles within GIN platforms.

Context-related weaknesses and risks

The team's research relies heavily on experimentation. As a result, the weaknesses identified in this platform—limited space, reliance on technicians on short-term contracts, and the overall tension and distress reported among staff—directly jeopardize the team's work. We consider this to be the major risk for the group moving forward.

Related to the nature of the research, which involves long and complex experimentation, the time required for publications to be completed and submitted is necessarily extended. It is important to remain vigilant regarding the potential consequences of these delays for PhD students and postdoctoral researchers, particularly in terms of career progression and competitiveness.

ANALYSIS OF THE TEAM'S TRAJECTORY

The team's overarching objective is to elucidate the pathophysiological mechanisms underlying motivation across a broad continuum of conditions, ranging from Parkinson's disease to behavioral and substance addictions. To address this ambitious scientific question, the group integrates a wide spectrum of methodological approaches, from preclinical investigations in rodent and non-human primate models to translational and clinical studies in humans. This multiscale strategy enables the team to bridge mechanistic insights with clinical relevance.

The project is very well structured into four complementary research axes, each led by a dedicated principal investigator, which together ensure a coherent yet diversified scientific program. The recent emergence of the fourth axis, driven by the arrival of clinical researchers, represents a major evolution for the team. This new clinical component has significantly expanded the group's capacity to investigate addiction in human populations, thereby strengthening the translational dimension of the overall project.

The team is in a unique position to validate preclinical findings in real-world clinical settings, to identify and test potential biomarkers or therapeutic targets with direct clinical applicability.

RECOMMENDATIONS TO THE TEAM

To support the continued development of the team and ensure the success of its ambitious translational program, several recommendations can be made. First, maintaining strong integration between the preclinical and clinical components will be essential, particularly now that activities are distributed across two distinct sites.

As the newly developed clinical axis expands, consolidating its resources, enhancing procedures for data management and patient recruitment, and fostering strong interactions with preclinical researchers will further reinforce the translational value of the program. Regular joint meetings, shared seminars, and structured cross-site interactions would help preserve a cohesive scientific dynamic and reinforce the translational continuum.

Considering the team's heavy reliance on experimentation, stabilizing and strengthening the facility should be treated as a priority. Improvements in space, staffing continuity, and working conditions are critical to safeguard the team's ability to conduct long-term experiments and ensure data quality.

Given the lengthy timelines associated, particular attention should be paid to supporting PhD students and postdoctoral researchers in managing publication schedules. Intermediate milestones, or diversified scientific outputs could help mitigate risks to their career progression.

Team 6: Brain aging and repair

Name of the supervisor: Mr Michael Decressac

THEMES OF THE TEAM

The team focuses on the cellular and molecular mechanisms driving accelerated neuronal senescence and the development of severe neurodegenerative diseases. Its research is structured around two main themes: Parkinson's disease and Leigh syndrome. The overarching goal is to understand how cellular aging, mitochondrial dysfunction, and systemic interactions contribute to disease onset and progression, in order to develop therapeutic strategies with true translational potential.

CONSIDERATION OF THE RECOMMENDATIONS IN THE PREVIOUS REPORT

At the time of the previous Hcéres evaluation, the team had relocated from Naples and joined the GIN in June 2018. The team was validated by the Hcéres committee, which classified it as one of the "junior/emerging teams" for this contract. The committee also highlighted the excellent quality of the team's project and expressed its full support and encouragement.

TEAM WORKFORCE: IN PHYSICAL PEOPLE AS OF 31/12/2024

Catégories de personnel	Effectif
Professeurs et assimilés	0
Maitres de conférences et assimilés	0
Directeurs de recherche et assimilés	0
Chargés de recherche et assimilés	1
Personnels d'appui à la recherche	0
Praticien hospitalier	0
Sous-total personnels permanents en activité	**1**
Enseignants-chercheurs et chercheurs non permanents et assimilés	0
Personnels non permanents d'appui à la recherche	0
Post-doctorants	1
Doctorants	1
Sous-total personnels non permanents en activité	**2**
Total général	**3**

EVALUATION OF THE TEAM

Overall assessment of the team

The team's expertise in gene therapy using AAV for neurodegenerative diseases, notably Parkinson's disease and Leigh syndrome, is well recognized. The use of focused acoustic waves to open the blood–brain barrier represents an innovative approach. Beyond research activities, the principal investigator is strongly involved in the management of the microscopy platform (PIG) and carries out numerous teaching responsibilities. The committee highlights the PI's significant commitment to transversal activities that are of direct benefit to the GIN scientific community, reflecting a strong investment in shared resources, training, and collective scientific development. For all these reasons, overall, the team is evaluated **excellent**.

Context-related strengths and opportunities

The team present a strong expertise in mitochondrial biology, in vivo modeling, gene therapy, and the study of inter-organ communication in the context of aging. It operates within a well-equipped scientific environment at GIN, with access to advanced platforms in imaging, molecular biology, virology, histology, rodent behavior, and MRI. In addition, the PI is actively involved in the *Cellular and Molecular Imaging* platform and has made a stereology microscope available to the entire scientific community. This infrastructure enables the execution of technically demanding projects and supports the development of innovative research approaches. The number of publications over the evaluation period is limited, which is directly related to the small size of the team (2.8 FTE). However, it should be noted that one PhD student has published two articles, reflecting a good level of scientific output and a substantial amount of results produced. The successful completion of the PI's HDR in 2023 will allow the recruitment of additional PhD students and is expected to lead to a quantitative improvement in scientific production. Over the period, the PI has been the lead investigator on several grants from foundations (Parkinson Foundation, SAFRA…) as well as on an ANR grant, enabling the development and consolidation of the team's research projects. The presence of local expertise in gene therapy, mitochondrial biology, and focused ultrasound creates opportunities for collaborative projects both within the institute and with external partners. This expertise facilitates the use of advanced experimental tools, the sharing of technical platforms, and the development of integrated approaches that link fundamental mechanisms to potential clinical interventions. The team has integrated well into its scientific and local environment, actively participating in knowledge dissemination and educational activities. Its members regularly engage with the general public and schools, while carefully selecting external requests according to the standards of their host institutions and their area of expertise. When the team leader is not directly involved, they consistently encourage students and technical staff to participate in these activities, considering them valuable for professional development. In addition, the team actively takes part in organized events such as the *Fête de la Science*, where they have welcomed donors and volunteers from AFM-Téléthon, organized visits to GIN laboratories and platforms, and presented ongoing research projects, thereby enhancing both their visibility and societal impact.

Context-related weaknesses and risks

The team is being closed because it does not meet the Inserm requirement for the number of full-time equivalent staff. Continuing activities within the new Bastin team will allow the PI to pursue ongoing projects without the constraint of personnel. The main risk lies in the coherence of research projects within the new team. The committee did not identify any concrete collaborative or joint projects with the new team.

ANALYSIS OF THE TEAM'S TRAJECTORY

The junior team will be closed and will join the Bastin team to continue its projects.

RECOMMENDATIONS TO THE TEAM

The committee recommends paying attention to the absence of shared research topics and, whenever possible, developing collaborations around a joint project to strengthen the coherence of the team.

Team 7: Wireless Neural Implants

Name of the supervisor: Mr Clément Hebert

THEMES OF THE TEAM

The team focuses on the development of neural implants for recording, stimulation, and neurotransmitter sensing. Particular attention is given to wireless and battery-free technologies, high-resolution graphene-based electrodes, and ultrasound-powered sensors. The team aims to create transient implants that support nervous system recovery while combining expertise in neuroscience, materials science, and micro- and nanofabrication.

CONSIDERATION OF THE RECOMMENDATIONS IN THE PREVIOUS REPORT

There were no specific recommendations in the previous report, as the ATIP-Avenir Wireless Neural Interface team was created in June 2019 and only joined the GIN in 2021.

TEAM WORKFORCE: IN PHYSICAL PEOPLE AS OF 31/12/2024

Catégories de personnel	Effectif
Professeurs et assimilés	0
Maitres de conférences et assimilés	0
Directeurs de recherche et assimilés	0
Chargés de recherche et assimilés	1
Personnels d'appui à la recherche	1
Praticien hospitalier	0
Sous-total personnels permanents en activité	**2**
Enseignants-chercheurs et chercheurs non permanents et assimilés	0
Personnels non permanents d'appui à la recherche	0
Post-doctorants	1
Doctorants	4 (dont 2 partagés)
Sous-total personnels non permanents en activité	**5**
Total général	**7**

EVALUATION OF THE TEAM

Overall assessment of the team

The team demonstrates a high level of scientific ambition and has established a coherent and innovative research program focused on next-generation neural implants. The scientific expertise is widely recognized at both national and international levels, and the team holds a unique position in France in the emerging field of ultrasonic neuroelectronics. In addition, the team shows a strong potential for industrial transfer, supported by high-value technological advances and a patented innovation, underscoring the maturity and attractiveness of its technologies for the neurotechnology sector. Overall, the team in evaluated **very good to excellent**.

Context-related strengths and opportunities

The team is recognized for its scientific achievements and expertise in the development of carbon-based neural implants. The PI received the Early Career Research Award in 2022 at the International Conference on Diamond and Carbon Materials, highlighting the international recognition of their work. The team benefits from a particularly favorable environment for scientific and technological development, with access to state-of-the-art infrastructures, including the Plateforme Technologique Amont for micro- and nanofabrication for in vivo recordings and stimulations. National collaborations strengthen the team's research, including Lionel Rousseau (ESYCOM) for the production of flexible and rigid implants and Maxime Lafond (LabTAU) for ultrasound stimulation. The team's expertise is also sought by several companies, including Axorus, Dixi Medical, and Axoft, and it holds a patent on a combination of a field-effect transistor on solution and a piezoelectric component to measure the electric field in physiological environments, highlighting its innovative and translational potential. In addition, the PI contributes to public dissemination through media appearances, including the Bsmart program, further increasing the visibility and impact of the team's work. During the previous period, the team secured significant funding, including an ATIP-AVENIR (€180k, 2020–2025) and a "Pack Ambition Recherche" grant (€180k, 2020–2025). Scientific output remains modest, with one last-author paper and seven co-authored publications. The HDR obtained in 2024 is expected to enable the recruitment of PhD students and increase publication output. Since 2024, the team supervises two PhD students, whereas previously it only participated in co-supervisions.

Context-related weaknesses and risks

The main observed risk lies in the large number of research areas and defined objectives, which exceeds the available human resources. Most projects rely heavily on the PI's expertise rather than on a collective team dynamic, thus limiting the overall capacity to advance all projects simultaneously. At the same time, a significant portion of effort has been devoted to establishing a supportive local and national environment, sometimes at the expense of scientific output, which has prevented the publication of major contributions during the period.

ANALYSIS OF THE TEAM'S TRAJECTORY

The team plans to merge with the team H. Nawabi and S. Belin

RECOMMENDATIONS TO THE TEAM

The integration of C. Hébert into the Nawabi team is coherent and appropriate. The project aims to develop a chip capable of capturing the neuronal chemical imprint at an early stage, when neuronal development is highly active, in order to replicate it in the adult brain and restore regenerative capacity. This approach is particularly innovative, and the committee fully supports the initiative.

Team 8: Neural progenitors and brain pathologies

Name of the supervisor: Ms Sandrine Humbert

THEMES OF THE TEAM

The team's theme is the role of neuronal progenitors and early brain development in Huntington's disease, with a focus on how the mutant huntingtin gene disrupts neurodevelopment and axonal connectivity, and how this relates to later neurodegeneration and potential. Methodologically, the team combines human fetal tissue, knock-in mouse models, and cellular systems to characterize developmental defects in neuronal progenitors and early circuits. Their work aims to identify mechanisms and time windows that could be targeted to prevent or slow disease progression.

CONSIDERATION OF THE RECOMMENDATIONS IN THE PREVIOUS REPORT

The previous evaluation mainly recommended to the team leader to apply for an ERC grant. She followed this recommendation and submitted an ERC application, which was not funded, but subsequently obtained a 2025 ANR Chaire d'Excellence of 2 M€. Such grant is very competitive and explicitly targeted to researchers of "very high level" with selection by an international jury. This French grant is expected to strengthen the groundwork for a future ERC application.

TEAM WORKFORCE: IN PHYSICAL PEOPLE AS OF 31/12/2024

Catégories de personnel	Effectif
Professeurs et assimilés	0
Maitres de conférences et assimilés	1
Directeurs de recherche et assimilés	1
Chargés de recherche et assimilés	2
Personnels d'appui à la recherche	5
Praticien hospitalier	0
Sous-total personnels permanents en activité	**9**
Enseignants-chercheurs et chercheurs non permanents et assimilés	0
Personnels non permanents d'appui à la recherche	0
Post-doctorants	4
Doctorants	3
Sous-total personnels non permanents en activité	**9**
Total général	**18**

EVALUATION OF THE TEAM

Overall assessment of the team

The team led by Sandrine Humbert has outstanding scientific profile with a strong, original theme at the interface of neurodevelopment and neurodegeneration, centered on Huntington's disease. The productivity is outstanding, with publications in top ranked journals including Science, successful attraction of PhD students and postdocs, resources including ANR Chaire d'Excellence. The PI has outstanding outreach including presidency of the French HD foundation and outstanding prizes including Marie-Paule Burrus Prize, Foundation for Medical Research Senior Prize, Fondation de France. Overvall the team is evaluated **excellent**.

Context-related strengths and opportunities

During the evaluation period, the team produced 11 research papers with 6 papers led by team members as corresponding or last/co-last authors. Some publications are in top ranked journals (Science, Neuron, Elife). The team has trained three Ph.D. students and 4 postdoctoral researchers. The team obtained more than 1,5 Meuros of resources (4 ANR including 1 as coordinator, FRM and FRC as coordinator) and very competitive funding from ANR Chaire d'Excellence that underlines the team leader's international standing. The team has also an excellent contribution to the scientific community, local collective tasks and teaching activity in cell biology and neuroscience. The PI obtained outstanding prizes including Marie-Paule Burrus Prize, Foundation for Medical Research, France; 2022, Senior Prize, Fondation de France. The team benefits from an excellent scientific interaction with a practicing clinician-scientist (PUPH, Paris Brain Institute, ICM) as she is following one of the most important HD patients French cohort. The original positioning at the interface between brain development and Huntington's disease, together with access to unique human material, knock-in models, and state-of-the-art imaging and cellular tools, creates strong opportunities for internationally leading work as well as a clear translational potential of linking early developmental defects to later neurodegenerative pathology.

Context-related weaknesses and risks

The recent history of interpersonal conflict and a deleterious atmosphere at the former GIN environment, has constituted a major weakness for the team which adversely affected students, postdocs and researchers under the team leader's supervision and created reputational and career risks. Furthermore, the team lacked permanent engineers or technicians, whose presence would have supported several laboratory projects. The absence of dedicated permanent staff to assist the associate professor—who carries a heavy teaching load—has negatively affected the team's activity, as well as that of the non-permanent staff.

ANALYSIS OF THE TEAM'S TRAJECTORY

The deleterious local environment at GIN and its impact has been addressed by the team's relocation to the Paris ICM Institute, which should provide a more supportive and visible setting for future. The team leader moved with one post-doc and one PhD Student (thesis defense: 25/11/2025). The co-direction of the team with a PUPH, at Paris Brain Institute, ICM is a very good decision as it will allow to benefit from a close interaction with him. Their project should open the door to the discovery of therapeutic targets and biomarkers for preclinical studies.

One CEA researcher reallocated its time as following: 50% PIC GIN, 50% team 1 "Neurocytoskeleton Dynamics and Structure". One engineer, PhD student and an associated professor from UGA joined team 12 "Intracellular Dynamics and Neurodegeneration" to complete their projects.

RECOMMENDATIONS TO THE TEAM

Maintaining the very strong integration between clinical and scientific activities while continuing to deliver research of the highest quality and impact. As the entire team was unable to move to Paris, it is important that this staff be supported by the GIN and the UGA to ensure the continuity and quality of their research activities.

Team 9: Functional Neuroimaging and Brain Perfusion

Name of the supervisors: Mr Benjamin Lemasson & Mr Thomas Christen (adj.)

THEMES OF THE TEAM

Advanced Magnetic Resonance (MR) acquisitions and models for brain lesions (MOEBIIUS).
The main research topics of the team include (i) the development and validation of new MRI (Magnetic Resonance Imaging) acquisition methods, (ii) the development of imaging biomarkers for evaluating therapeutic response, particularly in brain tumor and stroke models, (iii) the use of multiparametric MRI as an early indicator of the effect of anti-angiogenic therapies and (iv) the application of artificial intelligence for medical image analysis and the development of software tools to facilitate the clinical and preclinical use of these innovations.

CONSIDERATION OF THE RECOMMENDATIONS IN THE PREVIOUS REPORT

Three recommendations proposed in the previous report were first to Increase the number and quality of doctoral supervisors. The team has now 13 doctoral students for 13 permanent staff (FTE). To address this point, training programs for both supervisors and students have been set up. The team was also asked to improve the organization, communication, and quality of professional life for team members. Solutions have been implemented (annual retreats, weekly meetings, monthly thematic meetings) that even affect the team's strategic direction and decision-making. Finally, refocus the team's research directions were formulated. To answer this, permanent researchers have engaged in discussions to jointly define the team's common objectives: "Develop the next generation of magnetic resonance acquisitions and models to improve the diagnosis and care of patients with stroke and head trauma".

TEAM WORKFORCE: IN PHYSICAL PEOPLE AS OF 31/12/2024

Catégories de personnel	Effectif
Professeurs et assimilés	4
Maitres de conférences et assimilés	6
Directeurs de recherche et assimilés	4
Chargés de recherche et assimilés	4
Personnels d'appui à la recherche	4
Praticien hospitalier	5
Sous-total personnels permanents en activité	**27**
Enseignants-chercheurs et chercheurs non permanents et assimilés	1
Personnels non permanents d'appui à la recherche	4
Post-doctorants	1
Doctorants	14
Sous-total personnels non permanents en activité	**20**
Total général	**47**

EVALUATION OF THE TEAM

Overall assessment of the team

The team appears to be extremely dynamic and composed of highly complementary staff. The research questions are relevant and the work carried out is the subject of excellent scientific output and a will to transfer to industry. The team also benefits from a very good technical and scientific environment. Several members of the team are also heavily involved in research coordination (management of the GIN, creation of the IABM learned society, etc.). Overall, the team is evaluated **excellent to outstanding.**

Context-related strengths and opportunities

It is a relatively large team composed of 9 full-time researchers (Inserm and CNRS), 15 practitioners or university hospital staff, and at least 6 research support staff. The researchers also have highly complementary skills (biologists, medical imaging, Artificial Intelligence), and from a geographical point of view, the team is well located between the GIN and the CHU, with access to MRI platforms in both clinical and preclinical settings. The team is also extremely attractive to doctoral and postdoctoral students. The team stands out for its original and complementary *in vivo* preclinical and clinical research which has yielded remarkable results. In particular, the team has identified an early metabolic biomarker for Parkinson's disease in both mouse/primate models but also in patients. The publication level of the teams is very high with about 400 journal papers over the period. However more than three-quarter are published in clinical journal by the university-hospital medical staff. On the other hand, a little less than hundred have resulted from research work with almost 60% as first/last/corresponding authors. The journals are of part of the reference journals in these specific subfields as MedIA for medical image processing, Radiology for MRI findings or Annals of Neurology, Journal of Clinical Investigation, Lancet Neurology and JAMA for clinical studies). The team is strongly committed to including doctoral students in publications. The team is also very good at raising funding at various levels.

The team also handled the departure of their team leader (appointed director of the GIN) extremely well, democratically appointing a duo of young researchers. Scientific output is very good, with also a good focus on industrial applications though partnerships in various forms (Cifre PhDs, scientific advisoring of international industries e.g. Bruker or hiring of the past students in their industry). The team has very good national visibility in terms of promoting science. Various members are involved in responsibilities at a local or national level. The team leader is also one of the instigators of the IABM conference and the learned society of the same name. He is its first president.

Context-related weaknesses and risks

The team will have to deal with the departure of permanent researchers in the coming years. However, management is fully aware of the problem and is trying to anticipate these departures.

ANALYSIS OF THE TEAM'S TRAJECTORY

The team is internationally recognized for its work in the field of MRI (particularly perfusion MRI and functional MRI). The team was an early adopter of AI solutions in medical imaging, both in terms of their use and development. In order to refocus its research topics, the team is concentrating on two clinical applications: strokes and head injuries. This applies to all stages of the treatment of one of these pathologies (new acquisition techniques, triage of detected cases, therapy guidance, and longitudinal follow-up). This clinical focus is clinically justified by the participation of specialists in neuroradiology, neurology, anaesthesiology, and intensive care within the team. The scientific objective is therefore to propose innovative MRI acquisition methods (preclinical and clinical), but also to develop, test, and validate advanced image analysis methods incorporating AI. One of the team's strengths is precisely its ability to bring together the access to preclinical and clinical data, the medical expertise, and the scientific expertise in one place. One of the team's ambitions is to further strengthen its AI expertise by establishing closer links with Inria and submitting an application to create a joint Inria/Inserm team.

In summary, the clinical questions and objectives are clearly defined. The human, technical, and financial resources appear to be adequate, with complementary expertise that will be strengthened by the potential creation of a joint Inserm/Inria team.

RECOMMENDATIONS TO THE TEAM

Although the team highlights its strong expertise in AI, its achievements are mainly based on the use of fairly conventional models or techniques for learning or data formatting. To realize its ambitions, it would benefit from tackling more original or ambitious issues in the field of artificial intelligence. The potential creation of the joint Inserm/Inria team could bring original questions and solutions to the field of AI.

Team 10: Cellular Myology and Pathologies

Name of the supervisors: Ms Isabelle Marty & Mr Julien Faure (adj.)

THEMES OF THE TEAM

The team specializes in neuromuscular diseases with a particular focus on disturbances in skeletal muscle calcium release. The methodological approaches used include genetics, cellular and molecular biology, muscle functional assessment, and calcium imaging.

CONSIDERATION OF THE RECOMMENDATIONS IN THE PREVIOUS REPORT

Following recommendations of previous Hcéres reports, the team has implemented a number of measures. It first increased the recruitment of foreign students with 2 Master and 2 PhD students from 4 different countries (Italy, Chile, Canada and Senegal). It also recruited two new researchers (one CR and one MC) whose projects are consistent with the team's project. Finally, it significantly, increased the number of publications led by team members in high-profile publications such as Molecular Biology of the Cell, Molecular therapy, Molecular Therapy Nucleic Acid, Acta Neuropathologica Communication.

TEAM WORKFORCE: IN PHYSICAL PEOPLE AS OF 31/12/2024

Catégories de personnel	Effectif
Professeurs et assimilés	1
Maitres de conférences et assimilés	3
Directeurs de recherche et assimilés	1
Chargés de recherche et assimilés	2
Personnels d'appui à la recherche	3
Praticien hospitalier	1
Sous-total personnels permanents en activité	**11**
Enseignants-chercheurs et chercheurs non permanents et assimilés	0
Personnels non permanents d'appui à la recherche	1
Post-doctorants	0
Doctorants	4
Sous-total personnels non permanents en activité	**5**
Total général	**16**

EVALUATION OF THE TEAM

Overall assessment of the team

The team ranks among the leading groups in France in its area of expertise and benefits from excellent international visibility. The publication output is strong, with a consistent record of publications in well-regarded journals within the field. The team demonstrates proficiency with a wide range of state-of-the-art tools and methodologies. It also makes substantial contributions to transversal activities that support and strengthen the GIN as a whole. Given its size and level of expertise, the team could further strengthen its attractiveness to PhD candidates and postdoctoral fellows. Overall, the team is considered **excellent**.

Context-related strengths and opportunities

The team has a strong expertise in skeletal muscle biology and is actively engaged in translational research and therapeutic development, as well as in the diagnosis of neuromuscular disorders. It also maintains a close and effective collaboration with the medical biology department of Grenoble Hospital. The team expertise and activity had a pivotal role in the national labeling of the University Hospital Reference Center on Neuromuscular Diseases of Grenoble University Hospital. A centre that is also part of a European Reference Center on Neuromuscular diseases. The team has achieved significant results by characterising how gene modifications affect muscle function and by identifying potential therapeutic strategies. The team has successfully developed and characterised a new preclinical model of RyR1 deficiency. It has a recognised expertise in primary cell cultures, and viral vector gene transfer to study in vitro and in vivo gene expression, that is an asset for the GIN - the team is responsible for the GIN virus production facility. The team expertise also extends to preclinical functional and behavioral testing to assess muscle strength and function. The team has been successful in securing significant fundings through AFM-Téléthon Strategic consortium "MyoneurALP" and specific grants (total funding of almost 3M during the last 5 years). The team has demonstrated a good level of scientific productivity, with research of excellent quality in high-visibility journal (Acta Neuropathologica Communications, Molecular Therapy, Journal of Science and Medecine in Sport, Molecular Biology of the Cell). Over the last 5-year period, the team authored 62 peer-reviewed publications, including 11 as lead authors (9 excluding reviews). The team's reputation is evidenced by the number of invited talks.

Context-related weaknesses and risks

PIs of the team are involved in numerous teaching, administrative, and collective duties (management, virology, etc.). However, the team is aware of this risk of scattering and the team's trajectory takes this aspect into account.

ANALYSIS OF THE TEAM'S TRAJECTORY

Over the past few years, the team has expanded its expertise in gene editing in cells and rodent models, viral vectorization, and cell culture. It has also established collaborations with a biotech company and other teams at GIN to broaden its range of skills, with a view to developing a multiscale approach that includes subcellular components. The ultimate goal is to progress toward clinical trials, an ambitious objective that will require substantial resources. The project is well structured considering the team's current strengths but would benefit from the recruitment of more PhD students and postdoctoral researchers. The transition in team leadership is timely, particularly in light of the former leader's increasing responsibilities as deputy director of the laboratory.

RECOMMENDATIONS TO THE TEAM

The team has developed a strong and well-recognized expertise in its field. It demonstrates the potential to further strengthen its publication profile, including in leading journals. Its attractiveness could also be further enhanced, notably through a gradual increase in the number of PhD students and postdoctoral researchers.

Team 11: Central nervous system: From development to repair

Name of the supervisor: Ms Homaira Nawabi

THEMES OF THE TEAM

The team works on molecular and cellular mechanisms of neuronal circuit formation in order to rebuild functional neuronal circuits following an injury

CONSIDERATION OF THE RECOMMENDATIONS IN THE PREVIOUS REPORT

The team had opened for 3 years at the time of the last Hcéres evaluation. The committee recommended to the team leader to get her HDR and to publish her work. In this regard, the team leader successfully obtained her HDR in 2022. Her team also published: 4 research articles (Dev Cell, Neuron, Nat Comm, Front Mol Neuro), 3 collaborative articles (Science, Plos Biol, J Cell Sci), 4 reviews (Neural Regen Research, Inflamm Regen) and 2 books chapters (Proteomics, Multi-Omics and Systems Biology in Optic Nerve Regeneration-2024; Reference in biomedical science 2020).

TEAM WORKFORCE: IN PHYSICAL PEOPLE AS OF 31/12/2024

Catégories de personnel	Effectif
Professeurs et assimilés	0
Maitres de conférences et assimilés	0
Directeurs de recherche et assimilés	1
Chargés de recherche et assimilés	1
Personnels d'appui à la recherche	1
Praticien hospitalier	0
Sous-total personnels permanents en activité	**3**
Enseignants-chercheurs et chercheurs non permanents et assimilés	0
Personnels non permanents d'appui à la recherche	1
Post-doctorants	1
Doctorants	4 (dont 2 partagés)
Sous-total personnels non permanents en activité	**6**
Total général	**9**

EVALUATION OF THE TEAM

Overall assessment of the team

The team is a leading group in France in the field of neuronal development and regeneration and benefits from an excellent international visibility. The team has provided new concepts in the field, which are illustrated by outstanding publications in high-impact journals. Overall, the team is evaluated as **excellent to outstanding**.

Context-related strengths and opportunities

The team is interested in neuronal circuits formation during development and after an insult in the adult nervous system focusing on optic nerve and spinal cord injuries. Reconstructing functional neuronal circuits is one of the major challenges of central nervous system repair. As of today, the underlying mechanisms of CNS regenerative failure start to be uncovered but there is still no cure to repair the mature CNS. Axon guidance is considered to be active only during development. Based on its recent publication (Nat comm. in 2022) where the team shows that guidance-associated molecules are expressed in the major nuclei of the adult visual system, the team discovered that the axon guidance process is active in the adult brain in regenerative conditions. Indeed, manipulating the Slit/Robo guidance pathway enables regenerating axons to reinnervate their brain target associated to functional recovery (Dev Cell 2024). This article is a clear demonstration that axon guidance is not a process limited to development but it should be considered in the mature nervous system to drive axons to their partners in order to allow function recovery. This work places the team at the forefront of the field as we are the pioneers to reinterpret axon guidance modalities in a mature nervous system. This article has been highlighted by Nature Reviews in Neuroscience editor. The team leader has published 4 main research articles, most of them in collaboration with team 3 who has a strong expertise in cutting-edge proteomic analyses. Combination of these two complementary expertises gave rise to several interesting new concepts in the field of neuronal circuit formation during regeneration.

Finally, the team leader has demonstrated an excellent capacity to secure international and national competitive fundings (ERC starting, ANR and FRM grants).

Context-related weaknesses and risks

The research has two permanent researchers including the PI, but no permanent position for research assistant. As the group is funding this technical support position, there is a huge turnover. The group is wasting time and resource to teach them the cutting-edge technics they are using in the lab. As the technicians leave the lab, the lab is losing the memory of technics. As the team is going to merge with team 3 who has a research assistant, it should be a less significant issue.

ANALYSIS OF THE TEAM'S TRAJECTORY

The teams 3, 7 and 11 decided to merge for the new contract. They have individually produced major achievements in the field of circuit repair and regeneration of CNS, and have already collaborate, which is illustrated by joint publications, grants and PhD students. The new team will develop an ambitious transdisciplinary project based on the interactions among the 3 former PIs. Combination of the complementary expertise of the three PIs will be a real asset for the team.

RECOMMENDATIONS TO THE TEAM

The decision of merging the three teams makes sense and will reinforce the dynamics and will help developing projects by share funding and technical human resources. We can expect that this group will have a major impact in the field of CNS repair. The team's projects are built in a way to be highly translational. Efforts could focus on how the 4 axes will be prioritized in term of funding and human resources. This will clarify the distribution of the team's projects between fundamental and translational research.

Team 12: Intracellular Dynamics and Neurodegeneration

Name of the supervisor: Mr Frédéric Saudou

THEMES OF THE TEAM

The research team focuses on the cellular and molecular mechanisms underlying neurodegenerative diseases, particularly Huntington's disease. Their work explores intracellular dynamics, axonal transport, and novel therapeutic strategies derived from fundamental discoveries.

CONSIDERATION OF THE RECOMMENDATIONS IN THE PREVIOUS REPORT

In response to the previous Hcéres recommendations to strengthen interactions with the private sector, the team has significantly increased its translational engagement. This goal was successfully achieved with the establishment of HuntX Pharma, a deep-tech company dedicated to developing small-molecule therapeutics for neurodegenerative diseases. In parallel, the ERC Advanced Grant obtained in late 2019 enabled the development of projects that seems now nearing completion, with publications expected in 2025–2026. Although none of the current post-doctoral researchers and PhD students have yet published, this is consistent with the timeline of their ongoing work—most listed PhD students having only recently started their PhD.

TEAM WORKFORCE: IN PHYSICAL PEOPLE AS OF 31/12/2024

Catégories de personnel	Effectif
Professeurs et assimilés	1
Maitres de conférences et assimilés	1
Directeurs de recherche et assimilés	0
Chargés de recherche et assimilés	1
Personnels d'appui à la recherche	0
Praticien hospitalier	0
Sous-total personnels permanents en activité	**3**
Enseignants-chercheurs et chercheurs non permanents et assimilés	0
Personnels non permanents d'appui à la recherche	1
Post-doctorants	4
Doctorants	6
Sous-total personnels non permanents en activité	**11**
Total général	**14**

EVALUATION OF THE TEAM

Overall assessment of the team

Overall, the scientific quality, international visibility, and translational impact of the team justify an overall evaluation **excellent to outstanding**. The team shows a high level of scientific excellence supported by a coherent and long-standing research program in neurodegeneration and Huntington's disease, combining fundamental and translational neuroscience, high-impact publications, and sustained success in competitive funding. The main limitations identified are contextual rather than scientific, linked to a difficult institutional environment.

Context-related strengths and opportunities

The evaluation of this team is strictly based on the written documentation provided, as the team chose not to present or discuss its scientific activity during an oral hearing. The team benefits from a strong and long-standing international reputation in the field of neurodegeneration, axonal transport, and intracellular signaling. Its research program combines fundamental and translational neuroscience with a clear focus on Huntington's disease and related disorders. The scientific vision is highly coherent and builds upon a consistent line of research developed since the early 2000s, first at the Institut Curie and later at the Grenoble Institute of Neurosciences. The research theme is both original and clinically relevant, aiming to elucidate the molecular mechanisms underlying axonal transport defects and to design novel therapeutic strategies capable of restoring neuronal health. The team makes use of advanced cellular and molecular tools, imaging approaches, that are fully adapted to the proposed objectives. Over the evaluation period, the team produced 23 peer-reviewed publications, including 7 as last author, and doctoral candidates contributed to 8 papers; however, this corresponds to only 50% of PhD students having published during their doctorate, highlighting room to further strengthen publication output across the whole cohort. Importantly, these outputs demonstrate excellent journal quality and international visibility, with publications in leading journals such as Science Advances (4), eLife (2), Cell Reports (3), Science (1) and Nature Communications (1). The team secured a €4.5M budget, with 48% from European funding and 20% from national competitive calls, demonstrating strong competitiveness and the ability to attract substantial external resources which was decisive in maintaining research continuity and in recruiting post-doctoral fellows and PhD students. This funding success testifies to the international recognition of the team's expertise and creativity. A particularly notable achievement is the translation of basic research discoveries into innovation, illustrated by the patent WO2020/170208 on inhibitors of acyl-thioesterases for the treatment of Huntington's disease. This patent served as the foundation for the creation of the spin-off company HuntX Pharma, co-founded by the team leader. HuntX Pharma has rapidly emerged as a promising deep-tech startup developing small-molecule therapeutics aimed at correcting axonal transport defects. The company has already raised significant seed and non-dilutive funding, received national innovation awards (i-Lab, i-Nov), and is progressing toward Phase I clinical trials by 2026. Beyond its scientific achievements, the team contributes actively to public outreach and societal engagement, organizing workshops for high-school students during Brain Awareness Week and regular meetings with patient associations. This reflects a strong commitment to open science, public engagement, and the dissemination of scientific knowledge. Overall, the team presents major strengths in scientific excellence, translational innovation, and international visibility. The combination of high-impact publications, successful funding, and societal engagement provides a solid foundation for future growth.

Context-related weaknesses and risks

The most significant weakness arises from the difficult institutional and interpersonal environment within the GIN over the last five years. Conflicts among senior scientists, lack of communication, and perceived inequitable access to resources have negatively impacted team morale and efficiency. These difficulties also led to delays in publication and an increased administrative burden. A related risk concerns the insufficient institutional support from Inserm and the University Grenoble Alpes (UGA) during this period. Students and post-docs reportedly received limited assistance from occupational health services or human resources, and these conditions may have affected both scientific productivity and mental well-being. Furthermore, the decision not to renew the team within Inserm U1216 due to internal tensions and lack of institutional alignment introduces uncertainty regarding future hosting arrangements. This situation creates stress for staff and complicates long-term planning. Although the team leader has been fully acquitted of all disciplinary charges following an independent investigation, the reputational aftermath may continue to weigh on external collaborations or recruitment in the short term. The priority moving forward is to re-establish a stable environment that enables scientific continuity and the protection of young researchers.

ANALYSIS OF THE TEAM'S TRAJECTORY

The trajectory of the "Intracellular Dynamics and Neurodegeneration" team is scientifically outstanding. Over more than two decades, the team leader has built a coherent research program bridging basic cell biology, neurodegeneration, and translational neuroscience. The move from the Institut Curie (2000–2014) to GIN (from 2014) allowed the integration of complementary expertise and the development of cutting-edge imaging and functional assays. The team's discoveries have contributed to shaping current understanding of axonal transport regulation and its implication in neurodegenerative diseases, particularly Huntington's disease. The group has established a strong publication record in high-impact journals, reinforcing its leading position in the field. An important turning point was the establishment of HuntX Pharma, which embodies a successful translation from fundamental discovery to therapeutic innovation. This trajectory illustrates a rare ability to integrate academic excellence with entrepreneurship, providing a model for technology transfer in neuroscience. Despite recent difficulties, the scientific productivity, mentorship quality, and innovation capacity of the team remain high. Several manuscripts are currently under submission, and the training of young researchers continues under condi-

tions of scientific rigor and motivation. In summary, the team's trajectory reflects a mature, internationally recognized research program that combines high scientific standards, translational ambition, and societal relevance.

RECOMMENDATIONS TO THE TEAM

The team should prioritize identifying a hosting structure (within or outside UGA) that shares a similar scientific vision and provides a stable, supportive environment with access to core facilities, enabling the team to pursue its development in a serene and sustainable manner. The team should rapidly publish the results of its ERC-funded projects and actively disseminate recent scientific achievements in order to restore confidence among partners, collaborators, and institutional stakeholders. The committee also recommend maintaining a strong academic core focused on mechanistic research, while developing synergistic projects with the company to maximize both scientific and societal impact.

Team 13: Neurotechnology and Network Dynamics

Name of the supervisor: Mr Blaise Yvert

THEMES OF THE TEAM

Three axes are defined.1) developing BCI for patients unable to speak, 2) preclinical validation of recording and decoding devices in minipigs during vocal production, and 3) ethical reflection with philosophers and with patient associations to evaluate the needs and expectations of patients regarding neurotechnology and BCIs.

CONSIDERATION OF THE RECOMMENDATIONS IN THE PREVIOUS REPORT

One major recommendation was the recruitment of a computer engineer for data processing. The team managed to recruit non-permanent staff. The team has been requesting agencies (University, Inserm) to provide a permanent position, to no avail. This produces an unstable situation, as an engineer recruited for a short period may leave with their expertise, leaving the team again in a precarious situation. This situation is independent from the team. The recommendation to publish higher-profile papers has not been fulfilled. The mentioned "top" papers, are either a commentary (not a scientific paper), or 2 papers in which the team appears to have produced a minor contribution. Only one well-cited publication (J Neural Engin) has been produced in 2020.

Regarding funding, the team obtained one ANR as coordinator and one as partner, a PHRC, and an Impact Santé as partner (734k€ for the team), thus following the recommendation to secure funding.

TEAM WORKFORCE: IN PHYSICAL PEOPLE AS OF 31/12/2024

Catégories de personnel	Effectif
Professeurs et assimilés	0
Maitres de conférences et assimilés	0
Directeurs de recherche et assimilés	1
Chargés de recherche et assimilés	0
Personnels d'appui à la recherche	1
Praticien hospitalier	1
Sous-total personnels permanents en activité	**3**
Enseignants-chercheurs et chercheurs non permanents et assimilés	0
Personnels non permanents d'appui à la recherche	3
Post-doctorants	1
Doctorants	4
Sous-total personnels non permanents en activité	**8**
Total général	**11**

EVALUATION OF THE TEAM

Overall assessment of the team

The team is small, with 1 permanent researcher and is not very attractive: no recruitment of permanent researchers during the period, no postdoc recruited. Over the period, 4 PhD defended their thesis, one without publication as first author. The projects of the team are to look in parallel at speech and vocalization in humans and minipigs, respectively, using high density and biocompatible technologies and BCI (to be used in patients unable to speak). The project is extremely ambitious, in a very competitive international context. The level of publications, notably as first or last author is weak, whilst the level of funding is very high. Hence, there is no return on investments. It is noteworthy that the team is implicated in the CDP Grenoble-Neurotech and the Labex GIMeD. Overall, the evaluation of the team is **good** (the fair level of publication is compensated by the high level of funding).

Context-related strengths and opportunities

The team has an excellent technical expertise for electrophysiology and processing of electrophysiological signals notably thanks to an ARC and 1 PH, maintaining a relationship with the clinic. Recordings in minipigs are a very good opportunity to obtain translatable results. The team has also a very good links with clinical teams to access patients. In the past, recordings were obtained in patients with epilepsy. One patient is still used to build the speech decoder. Over the period, the team secured 2 major financial supports, the SpeechBCI PHRC project (1.5 M/5 years although the amount for the team is not indicated), and the FBI Impact Santé project for the preclinical research in minipigs (3M€ over 4 years - 734k€ for the team). The team has apparent good links with patient associations (Perce Neige, ALIS) to assess the needs of locked in patients, but this is difficult to quantify. Finally, the team is involved in ethical considerations regarding the use of BCI in patients. Such work is necessary, it is a strength to be further developed.

Context-related weaknesses and risks

The team lacks the critical mass to run two difficult projects simultaneously. It includes one DR Inserm, one PH (0.2), one IE Inserm, and one ARC and non-permanent staff (2 ITA, 1 PD, and 3 PhD students). In terms of Brain Machine Interface, the group of the Understanding the Foundations of Human Speech Lab in UCSD is considerably advanced in decoding speech for communication restauration in locked in patients. They already use Neuropixels probes in the OR. They have access to more patients.

The group of the Translational NeuroElectronics Lab from UCI is running a clinical trial with transistor-based grids, while the team leader wishes to use conceptually similar technologies in minipigs as preclinical evaluation.

Another risk is being located on three sites. One may fairly ask what will happen? Will it be possible to run experiments in the future with the ongoing reorganization?

ANALYSIS OF THE TEAM'S TRAJECTORY

The team follows the same trajectory, focusing on technological developments to decode speech for clinical translation. The first project is to develop a BCI for locked in patients. The second concerns a preclinical study of the former in minipigs (development of BCI and decoding the signal). The third aspect is to further explore the ethical considerations for the use of BCI and patients' needs with associations.

RECOMMENDATIONS TO THE TEAM

Given the small size of the team, a very ambition project with two highly competitive research axes is unlikely to succeed. The minipig project does not face the same level of competition. It is well funded for the next years. The team should focus on this project (provided that it is doable in practice - see above the questions regarding the access). Although funded and appealing, speech decoding is not competitive, and certainly not doable by only one PI-team who is also involved in another ambitious project.

The project on ethics is important and thus encouraged.

CONDUCT OF THE INTERVIEWS

DATE

Beginning: 04 December 2025 at 08:00

Ending: 04 December 2025 at 17:00

Interview conducted: on-site or remotely

PROGRAMME OF THE INTERVIEWS

03 Décembre 2025

8:30-8:45 Huis Clos du comité en présence de CS Hcéres
Salle du conseil

8:45-09:00 Présentation du processus d'évaluation par le conseiller Hcéres et du comité d'experts
Amphithéâtre du GIN

9:00-12:50 Présentation des deux Unités, de leurs équipes et de leurs thématiques de recherche (réunions publiques) *Amphithéâtre du GIN*

- **09:00-09:35** : Présentation de l'unité Brain Tech Lab par **M. François Berger** (passé)(20 min de présentation + 15 min de discussion)
- **09:40-10:20** : Présentation de l'unité GIN par **M. Emmanuel Barbier** (passé + trajectoire)(20 min de présentation + 20 min de discussion)

10:20-10:35 *Pause*

- **10:35-11:00** : Présentation de la thématique « Neurocytoskeleton Dynamics and Structure » par **Mmes Isabelle Arnal et Annie Andrieux et M. Adrien Antkowiak** (10 min sur le passé + 5 min sur la trajectoire + 10 min de discussion)
- **11:05-11:30** : Présentation de la thématique « Neuropathologies and Synaptic Dysfunctions » par **M. Alain Buisson** (10 min sur le passé + 5 min sur la trajectoire + 10 min de discussion)
- **11:35-12:00** : Présentation de la thématique « Physiopathology of Motivation » par **M. Sébastien Carnicella** (10 min sur le passé + 5 min sur la trajectoire + 10 min de discussion**)**
- **12:05-12:25** Présentation de la thématique « Brain aging and repair » par **M. Mickael Decressac** (10 min sur le passe + 10 min de discussion**)**
- **12:25-12:50** : Présentation de la thématique « Brain, Behavior and Neuromodulation » par **M. Julien Bastin** (10 min sur le passé + 5 min sur la trajectoire + 10 min de discussion)

12:50-14:00 *Pause déjeuner*
14:00-18:40 Suite des présentations des équipes
Amphithéâtre du GIN

- **14:00-14:25** Présentation de la thématique « Functional Neuroimaging and Brain Perfusion » par**Ms. Benjamin Lemasson et Thomas Christen** (10 min sur le passé + 5 min sur la trajectoire + 10 min de discussion**)**
- **14:30-14:55** Présentation de la thématique « Cellular Myology and Pathologies » par **Mme Isabelle Marty et M. Julien Fauré** (10 min sur le passé + 5 min sur la trajectoire + 10 min de discussion**)**
- **15:00-15:25** Présentation de la thématique « Neurotechnology and Network Dynamics » par **M. Blaise Yvert** (10 min sur le passé + 5 min sur la trajectoire + 10 min de discussion**)**
- **15:30-15:42** Présentation de la thématique « Pathophysiology and treatments for Parkinson's disease and associated disorders (PLaNet-PD) » par **Mme Véronique Coizet** (7 min sur la trajectoire + 5 min de discussion**)**

15:45-16:00 *Pause*

- **16:00-16:20** Présentation de la thématique « Wireless Neural Implants » par **M. Clément Hébert** (10 min sur le passé + 10 min de discussion**)**

- **16:25-16:45** Présentation de la thématique « Translation regulation in normal and pathological conditions » par **M. Stéphane Belin** (10 min sur le passé + 10 min de discussion***)***
- **16:45-17:05** Présentation de la thématique « Central nervous system: From development to repair » par **Mme Homaira Nawabi** (10 min sur le passé + 10 min de discussion***)***
- **17:10-17:22** Présentation de la thématique « Neuronal Circuit Formation, Development and Repair (NEuroREhab) » par **Mme Homaira Nawabi et M. Stéphane Belin** (7 min sur la trajectoire + 5 min de discussion***)***

17:25-17:40 *Pause*

- **17:40-17:52** Présentation de la thématique « Modeling and estimation of subjective states (MESS) » par **M. Michaël Perreira** (7 min sur la trajectoire + 5 min de discussion***)***
- **17:55-18:07** Présentation de la thématique « BMP in the Vascularization of the CNS (BVasC) » par **Mme Sabine Bailly et M. Nicolas Ricard** (7 min sur la trajectoire + 5 min de discussion***)***
- **18:10-18:22** Présentation de la thématique « ADvanced Methods in Innovative Radiotherapies (ADMIR) » par **Ms. Jean-François Adam et Camille Verry** (7 min sur la trajectoire + 5 min de discussion***)***
- **18:25-18:37** Présentation de la thématique « Translational systems and nanomaterials for neuropathological μenvironment recovery (RT-SNOOPER) » par **Mme Gaëlle Offranc-Piret** (7 min sur la trajectoire + 5 min de discussion***)***

18:40 *Fin de la première journée*

04 Décembre 2025

09:00-10:30 Visite des plateformes
10:30-12:45 Entretiens avec les différentes catégories de personnel
(Amphithéâtre du GIN pour le GIN et salle du conseil pour BTL : entretiens en parallèle avec jury divisé en 2)

- **10:30-11:15 :** Entretien du jury avec les Doctorants / Post-doctorants
- **11:15-12:00 :** Entretien du jury avec les Techniciens / Ingénieurs / Personnels administratifs
- **12:00-12:45 :** Entretien du jury avec les Chercheurs (sans les chefs d'équipe)

12:45-13:45 *Pause déjeuner (préparation des questions pour DU et tutelles)*
13:45-14:05*R*éunion à huis-clos du jury avec **François Berger (Brain Tech Lab)**
Salle du conseil

14:10-14:30*R*éunion à huis-clos du jury avec **Emmanuel Barbier (GIN)**
Salle du conseil
14:30-15:30 Réunion à huis clos du jury avec les représentants des organismes de gestion/tutelles
Salle du conseil
15:30-16:30 Réunion privée du comité de visite en vue de la préparation du rapport (huis-clos)
Salle du conseil

16:30*Fin de la visite*, départ des membres du jury

PARTICULAR POINT TO BE MENTIONED

No presentation: team SAUDOU and team HUMBERT

During the visit, the committee had the opportunity to identify interpersonal tensions between the facility staff and one research team, which appear to be primarily related to non-compliance with rules and procedures. Such tensions are potentially highly detrimental, especially in a context where facility workforce is already under strain due to staff shortages and contractual precarity. The last members of the team Saudou reported ongoing tensions between the Saudou team and the rest of the institute, notably regarding access to shared infrastructures, which may contribute to work overload and staff fatigue. While this situation may improve, the continued availability of UGA personnel remains uncertain at this stage.
While the situation may improve with the departure of the Saudou team, the issue remains sensitive for the Université Grenoble Alpes (UGA) staff, as no formal discussion has yet been initiated between the different parties concerned to clarify responsibilities, access rules, and longer-term arrangements.

GENERAL OBSERVATIONS OF THE SUPERVISORS

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HCERES

March 11, 2026

Object: Evaluation report of GIN – observation letter

The GIN wishes to express its sincere appreciation for the quality and depth of the evaluation carried out by the HCERES committee chaired by Prof. Olivier Nicole. The report provides a clear and constructive analysis of the GIN's strengths and challenges. It will be used as a guide for our strategic developments, both on a scientific and an organizational level.
The GIN welcomes the recognition of its "*excellent overall performance, combining high scientific productivity, strong impact, and a clear translational trajectory*" as well as its "*remarkable competitiveness and financial autonomy*". The GIN also acknowledges that "the new GIN leadership has taken on board the vast majority of the points raised during the last evaluation and has made restoring trust, internal dialogue, and collective cohesion", a key point to foster the development of scientific innovation, and that *"a strong publication record in high-impact journals, sustained involvement in clinical and translational re-search, active engagement in research valorization*", which is a point of credit to all the staff at the laboratory.

The report also highlights that "*significant challenges related to human resources, particularly with regard to the sustainability of the platforms*." and underscores the strategic importance of further anticipating workforce planning. To address these human resource issues, we have already asked our supervisory bodies, firstly, the development of a multi-year vision for the positions that the supervisory authorities can make available to the GIN as part of a partial replacement of all current and future retirements and, secondly, the development of a mechanism for consolidating permanent contracts based on our own resources. We are also considering how to give platforms and technical facilities a more prominent role in strategic decision-making, alongside the steering committee. In addition, following the committee visit, we identified two gender equality representatives. Their names have been communicated to our supervisory bodies.

The GIN also acknowledges the lack of animation directed towards the postdoc community. Seminars presented by PhD students and scientists inside or outside GIN are already in English. As described in the GIN report, reviving internal seminars led by postdocs, permanent researchers or engineers is already underway. The point related to the level of doctoral publication outcomes is subject to careful consideration. While aiming for high level publications requires the integration of data beyond the often too short three-year PhD contract, GIN agrees that clear publication milestones from the outset and regular monitoring from the PhD supervisors and CSI members will help improve doctoral publication levels. The committee suggests several ways to develop the international visibility and the attractiveness of the GIN, including defining a proactive strategy to recruit internal PhD students/postdocs, and the development of co-supervision schemes with colleagues abroad. These proposals are aligned with and complement those of the GIN. For example, in 2024, GIN appointed an International SAB who evaluated the GIN projects. The GIN also plans to launch an international call to recruit

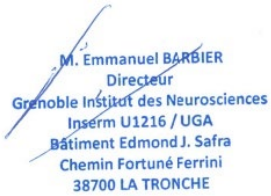
new researchers through mechanisms such as “chargé de recherche Inserm” or “Junior Professor Chair” (CPJ), invitations to foreign researchers to undertake short stays or sabbaticals, drawing on resources made available by the university or the national “Choose France” program, of which the GIN is a recent beneficiary, or developing the GIN’s response rate to European calls for tenders and international ANR.

Regarding the activities of the team “Neurotechnology and Network Dynamics”, the GIN disagrees with the HCERES committee's evaluation. The FBI project lead by that team plans to use technologies that contrast with what is developed elsewhere and in particular in the teams mentioned by the committee. Thus, the research proposed by the team is truly original. The small size of the team is compensated by solid collaborations for both its preclinical and clinical projects and support from several high-level facilities and the team managed to prepare all the regulatory aspects of a fully implantable speech BCI clinical trial for which the ANSM/CPP authorizations are pending, a trial unique in Europe. The international Scientific Advisory Board recommended the team for their “cutting-edge projects that are at the heart of GIN's translational agenda”. While GIN acknowledges that European regulatory constraints on implantable neurotechnologies have slowed down the number of scientific publications, it nevertheless considers this project to be highly structuring for the laboratory, at the interface between several areas of expertise in Grenoble combining physics, mathematical electronics, biology and neurology. In addition to its scientific and clinical interest, this project also deserves to be developed in the name of French and European sovereignty.

Regarding internal communication, as recommended, we initiated in January the publication of the minutes of the steering committee. We will rely on the GIN Intranet to make available all the minutes of the GIN’s committees. As praised by the committee, the GIN will pursue its activities targeting industries, patient communities, schools, and the general public, particularly in areas of neuro-degenerative diseases and brain health, and agrees that the absence of a full-time communications officer is a key weakness. Our next series of events, which we are beginning to prepare for 2027, will consist of duly celebrating GIN's 20th anniversary.

The GIN thanks HCERES once again for the quality of its analysis and for the constructive spirit that guided this evaluation. The GIN, with all its members and those of the teams joining it, whose commitment to research is warmly acknowledged here, is fully and collectively engaged in developing ambitious research projects.

Emmanuel Barbier, director of the Grenoble Institut Neurosciences



Le Vice-président recherche
de l'Université Grenoble Alpes,
Philippe Roux

Evaluation of universities and schools
Evaluation of research units
Evaluation of the academic formations
Evaluation of the national research organisms
Evaluation and International accreditation

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Hcéres

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