

EVALUATION REPORT ON THE UNIT:

BrainTech Lab

UNDER THE SUPERVISION OF INSTITUTIONS AND RESEARCH BODIES:

Université Grenoble Alpes - UGA

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

EVALUATION CAMPAIGN 2025-2026
GROUP A

Report published on March, 24 2026

High Council for the evaluation of research and higher education



On behalf of the committee of experts:

Maxime Guye, 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.

MEMBERS OF THE COMMITTEE OF EXPERTS

Chair: Mr Maxime Guye, PUPH, Aix-Marseille Université

Expert: Mr Jean-Louis Dillenseger, PR, Université de Rennes

HCÉRES SCIENTIFIC ADVISOR

Mr Bruno Guiard

REPRESENTATIVES OF THE UNIT'S SUPERVISING INSTITUTIONS AND BODIES

Ms Camille Ducki, Directrice DRCI, CHU Grenoble Alpes
Mr Olivier Palombi, Doyen de la faculté de médecine, UGA
Mr Philippe Roux, Vice-Président Recherche, UGA
Ms Carole Rovere (Observatrice), Inserm
Mr Denis Vivien, Inserm

UNIT CHARACTERISATION

- Name: BrainTech Lab
- Acronym: BrainTech
- Label and number: U1205
- Composition of the executive team: Mr François Berger

SCIENTIFIC PANELS OF THE UNIT

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

THEMES OF THE UNIT

The BrainTech Lab in Grenoble is a translational research unit specializing in the development of innovative neurotechnologies for brain diseases. Its activity is divided into three themes: (i) imaging of brain microstructures using MRI, (ii). development of theranostic micro-nano-implants and, (iii) development and application of these neurotechnologies for precision medicine and targeted therapies.

HISTORIC AND GEOGRAPHICAL LOCATION OF THE UNIT

Until 2015, Brain Tech Lab researchers were part of Clinathec, a joint program between CEA-Leti, Université Grenoble Alpes (UGA), Grenoble University Hospital and Inserm, located at the CEA Minatec Campus. The goal was to locate a translational technology research unit focusing on neurotechnology inside the CEA Leti campus. In 2015, the lab moved out CEA and switched to two different locations in the Saint-Martin d'Hères UGA campus at the Bio B building and inside the nearby Medical University in the Jean Roget building. Today, its activity is still spread over 3 main sites: the university site at Bio B, the hospital site at GIN/Jean Roget and still the CEA site for prototyping micro-nano technologies. The infrastructure of those sites is for biological tests (cell culture laboratories, immuno-cyto/histochemistry platforms, biochemistry, cellular and molecular biology, imaging, and electrophysiology), preclinical tests (animal facility, operating room), as well as for clinical trials. The lab has a link with the clinic through the head of the neurosurgery department of Grenoble University Hospital and the director of the lab (also PU-PH). Another PU-PH, ENT specialist - cochlear implant expert - is also actively participating to the translational activity. The Unit coordinates the Molecular neurosurgery biobank.

UNIT RESEARCH ENVIRONMENT

Brain Tech Lab contributes to the idex Cross disciplinary program "medical device" and to the federation OLIMPIC (Organization for Living Matter and PhysICS) du vivant. Researchers strongly participate to the local innovation and valorization structure, especially Linksum SATT (which support them for 2 projects). In the Grenoble environment, they participate to the animation in the field of translational research, linking clinical and research activity.

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

Catégories de personnel	Effectifs
Professeurs et assimilés	3 PUPH
Maitres de conférences et assimilés	0
Directeurs de recherche et assimilés	0
Chargés de recherche et assimilés	2 Inserm
Personnels d'appui à la recherche	2
Praticien hospitalier	1
Total Sous-total personnels permanents en activité	8
Enseignants-chercheurs et chercheurs non permanents et assimilés	0
Personnels non permanents d'appui à la recherche	0

Post-doctorants	3
Doctorants	4
Total Sous-total personnels non permanents en activité	7
Total personnels	15

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	3	0	0
Inserm	0	2	0
Autres	0	0	3
Total personnels	3	2	3

GLOBAL ASSESSMENT

The Brain Tech Lab is distinguished by its strong involvement in the field of neurotechnologies and innovation. It has demonstrated excellent performance in securing competitive research funding including an ERC Proof of Concept as coordinator, as well as a strong capacity to develop interactions with industry. Integration within the clinical environment represents an additional asset. Nevertheless, the laboratory currently lacks a clear organizational structure. Its relatively small workforce is spread across several sites, with no formal collegiate governance body or structured collective laboratory life, and interactions between members appear limited. The unit also faces insufficient administrative support. Scientific output is good given the laboratory's size but remains uneven across investigators. The prospect of joining the GIN in the next contractual period represents an excellent opportunity. However, the conditions of integration, particularly regarding access to facilities and space allocation, require clarification, and the departure of several principal investigators should be anticipated and managed. Overall, the panel considers that the overall activity of the unit is very good.

DETAILS OF THE EVALUATION OF THE UNIT

A - CONSIDERATION OF THE RECOMMENDATIONS IN THE PREVIOUS REPORT

The previous Hcéres report indicated very good scientific output, attractiveness, and funding. However, it highlighted some organizational shortcomings (laboratory council, internal data protection regulations, sustainable development, gender parity) and, above all, showed that the project was somewhat too ambitious given the size of the laboratory. Regarding the overly ambitious aspects of the project, this last point was addressed by refocusing the project on the exploration and modulation of the therapeutic cerebral microenvironment using physical tools. Regarding the organizational shortcomings, the team's application only mentions that safety aspects have been integrated under the responsibility of a female research fellow (which promotes gender balance). To go further, it should be noted that this research fellow will take over the management of the future team integrated into the GIN.

B - EVALUATION AREAS

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

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

The scientific objectives of the BrainTech lab are organized around three main themes: (i) brain microstructure imaging, (ii) theragnostic micro-nano-implants, and (iii) neurotechnologies for Next-Generation Medicine. The activity is distributed across three sites: Bio B (University), GIN/Jean Roget (Hospital), and CEA. The lab is strongly integrated into the clinical environment notably through the clinical activities of University Hospital Professors (PUPH). However, the internal organization of the lab is insufficiently structured, and interactions among researchers appear limited. The Brain Tech lab has been highly successful in securing funding through various grants, often acting as coordinator or principal investigator. Overall, the unit's scientific objective, organization and resources are very good to excellent.

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 Brain Tech lab conducts ambitious research with a strong focus on neurotechnology. There is a good integration between research activities and clinical practice, particularly through the neurosurgery department, whose head is a member of the laboratory and through the ENT (Ear, Nose and Throat) surgical activity. The Molecular Neurosurgery Biobank is managed by the head of the lab, which represents a significant advantage for data access and processing. Principles of data integrity regarding data management are not specified. Moreover, the activity related to ENT, led by a university hospital professor, member of the lab, is very productive but appears somewhat beside the laboratory's main research themes. The laboratory has secured numerous funding sources, including prestigious grants such as an ERC Proof of Concept (PC and), as coordinator. Over the past five years, the laboratory secured nearly €2 M in competitive national (e.g. SATT Grenoble, French Canceropole) and international (e.g. ERC POC, Eranet nanomedicine and Life Sciences Industry Accelerator – BSGN) funding, with two-thirds obtained as coordinator or principal investigator across the nine awarded grants.

Context-related weaknesses and risks for the four references above

The activity is distributed across three sites to provide access to all biological assays, preclinical work, clinical activity, and technology prototyping. However, the dispersion of sites may hinder cross-cutting interactions within the laboratory as well as overall lab cohesion, particularly given the limited size of the unit. Moreover, the links between the research themes could be further strengthened, with a greater number of co-authored publications. Also, the collaboration outside the GIN is better emphasized compared to those within the GIN that will host lab members during the next contract. The laboratory lacks a clearly defined structure and a collective laboratory life. There is no common committee or shared governance body, and internal communication appears limited. As a result, principal investigators tend to operate largely independently.

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

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

The Brain Tech Lab team conducts highly technological research and takes a resolutely translational approach. It produces high-quality work considering its size, although there are contrasts between its members. Some members have a low publication output notably in light of their current or future status. The team stands out for its commitment to innovation and its strong industrial partnerships. It has been able to attract funding in a particularly competitive environment but should attract more PhD students and postdocs. The unit's scientific results, impact and attractiveness is good.

- 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

The Brain Tech Lab team conducts cutting-edge research focused on three major areas: (i) brain microstructure imaging, (ii) theranostic micro-nano implants, and (iii) neurotechnologies for next-generation medicine. These topics, which have a strong technological dimension (directly for the first two areas and through collaboration for the third), are part of a resolutely translational approach. The team benefits from close collaboration with the clinical community, thanks to the active participation of university hospital members, including the team leader. The unit is highly regarded both internationally and nationally for the quality of its projects. It has successfully obtained funding (n=9, 1.9M€ in total), some in highly competitive programs, including an ERC Proof of Concept grant (2023-2025) led by one of its researchers or an Euramet-nanomedecine grant. Its work, focused on technological innovation -directly for two of its research areas and through collaboration for the third- is distinguished by its proximity to clinical practice. This translational approach is reinforced by the active participation of university hospital members, including the team leader. Due to its technological research, the team has strong connections with companies and a focus on commercialization (two patents granted and two patents filed). The team also carries out projects supported by SATT. Regarding the quality of scientific output, the report lists 34 publications in journals that are generally of very high quality (Q1 - >50% - and Q2). However, the list of publications is somewhat unbalanced (see weaknesses). Due to its technological research, the team has strong connections with companies. Over the period, it has demonstrated a very good ability to capitalize on its research. The team has two patents granted – one covering the implant and its use-case developed in the ERC SNOOPER project, one covering the combination of a nkcc1 protein inhibitor and a microtubule inhibitor for use in the treatment of cancer -, and is in the process of filing two more. The filing of patents could perhaps explain why some researchers publish less.

Context-related weaknesses and risks for the four references above

While the team does mention the filing/granting of patents, the evaluation file does not mention any commercialization of these patents. Of the 34 publications mentioned in the research strengths section, 20 of these articles are co-authored by a PU-PH, specialist in cochlear implants, which are not central to the project (13 of these publications are articles in purely medical journals). In non-purely medical journals, only 8 are signed as First/last or corresponding author. There is also a clear imbalance between publishers and non-publishers. Most of the publications are produced by three people (two PU/PH and one research fellow). One research fellow has only one publication over the period. This phenomenon is also true for non-permanent staff, for which (with one exception), the number of publications by non-permanent staff is quite low. However, one of these PhD students received the "Grand Prix du Coeur" prize in the I-PhD innovation competition. Moreover, although the team demonstrates some attractiveness, as evidenced by the recruitment of three post-doctoral researchers and two PhD students, this number could be further increased to match the project's ambitions. Finally, it is noteworthy that the team is aging, and for the moment it does not appear that certain departures, including one of the leaders of a theme, were anticipated.

EVALUATION AREA 3: INCLUSION OF RESEARCH ACTIVITIES IN SOCIETY

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

The BrainTech lab's connection with the socio-economic sector is a strength. Innovation and interactions with industry are among the lab's priorities, through patent filings and encouragement of startup creation. However, there are only two patents submitted - none licenced to date -, and links with several companies are not clear. Several members have been highly active in science outreach and in addressing ethical aspects related to neurotechnologies. The inclusion of research activities in societies is very good to excellent.

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

One of the laboratory's strengths is its connection with the socio-economic sector. Innovation and interaction with industry are stated priorities. Two patents have been filed over the past five years. A startup, Totem, about micro-nano networks implants will be created in 2025 by contract researchers (PhD candidates and postdocs). Science outreach is significant: ten examples of public-engagement activities, including contributions to major national media outlets, have been provided. Finally, the involvement of lab members in ethical considerations related to neurotechnologies is also emphasized, with initiatives such as The Unesco Chair in the Ethics of the Living and the Artificial (EVA).

Context-related weaknesses and risks for the three references above

No patents have been licensed. Furthermore, the translation of these technologies to the market is particularly challenging due to medical device regulations. The laboratory's strategy addressing these issues has not been specified. Without the licensing of patents to industrial partners capable of conducting the necessary clinical studies, the clinical deployment of the developed technologies may prove difficult.

ANALYSIS OF THE UNIT'S TRAJECTORY

Brain Tech Lab was part of Clinatec and became independent in 2015 after some issues with LETI regarding recognition of work and intellectual property. This separation led them to refocus on exploring and modulating the brain microenvironment, with a focus on brain tumors.

The group is relatively small and has seen a decline in staff numbers, with the loss of a senior researcher, a postdoctoral researcher, and a research fellow since 2021, offset by the addition of a clinical professor and an engineer. However, the workforce is aging, with a 66-year-old research fellow retiring and three clinical professors over the age of 60.

Until now, the small size of the team has been offset by international and interdisciplinary collaborations, including both academic and industrial partnerships. This approach has met with some success, resulting in the development of three innovative technologies that are now pre-industrialized and either already in use at the patient's bedside or about to be clinically exploited.

The team also suffers from being spread across two sites and being completely autonomous administratively. Brain Tech Lab has requested to be integrated into the Grenoble Institute of Neuroscience as a team. Coordination of this team will be transferred to a young Inserm researcher, holding an ERC Proof Of Concept grant.

The future team project within the GIN will be conducted by a new team-leader. The project will focus on three areas related to glioblastoma: 1) continuing their work on microtechnologies for exploring the brain microenvironment, 2) creating a tumoroid avatar integrating single-cell molecular and electrophysiological data, and 3) using the identified factors to develop personalized therapies. Possibilities for collaboration with other GIN teams have just been mentioned.

RECOMMENDATIONS TO THE UNIT

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

The transition of the Brain Tech Lab into a GIN team is an advantage given its relatively small size and the departure of several PIs in the coming years. The organization of this team should be improved compared to the current organization of the lab, particularly regarding interactions among its members, with regular meetings and broader, more inclusive exchanges within the team.

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

The principal investigator of the team joining the GIN is expected to substantially strengthen their scientific output. This is a necessary condition to maintain credibility with research funding bodies and to ensure the sustainability of the unit's attractiveness. Interactions with the other teams within GIN should be clarified, structured, and translated into concrete collaborations.

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

The team must continue its strong commitment to innovation, as well as to the ethical aspects of neurotechnologies.

CONDUCT OF THE INTERVIEWS

DATE

Beginning: 03 December 2025 at 08:00

Ending: 03 December 2025 at 16:00

Interview conducted: on-site (jointly with the evaluation of GIN)

PROGRAMME OF THE INTERVIEWS

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 passé + 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 Ferreira** (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 environment 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 Réunion à huis-clos du jury avec **François Berger (Brain Tech Lab)**

Salle du conseil

14:10-14:30 Réunion 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

GENERAL OBSERVATIONS OF THE SUPERVISORS

DER-PUR270026051 - Brain tech lab

OBSERVATIONS DE PORTEE GENERALE SUR LE RAPPORT **D'EVALUATION**

L'Université Grenoble Alpes prend acte de l'évaluation de l'unité BrainTech Lab. Elle partage l'appréciation portée sur la qualité du projet scientifique, son positionnement original à l'interface entre neurosciences, technologies et clinique, ainsi que sur son implication dans les activités partenariales et de valorisation.

L'établissement prend également note des points de vigilance identifiés par le comité, en particulier en matière de structuration collective, de gouvernance, de dispersion géographique des activités et de soutien à l'environnement de travail.

L'Université considère que la trajectoire de rapprochement avec le Grenoble Institut des Neurosciences constitue une perspective pertinente pour consolider l'insertion scientifique de l'unité et renforcer sa dynamique collective. Elle veillera, avec ses partenaires, à accompagner cette évolution dans des conditions favorables à la lisibilité, à la cohésion et au développement de ses activités.

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



19 rue Poissonnière
75002 Paris, France
+33 1 89 97 44 00

