EVALUATION REPORT OF THE UNIT

Maladie d'Alzheimer : marqueurs génétiques et vasculaires, neuropsychologie

UNDER THE SUPERVISION OF THE FOLLOWING ESTABLISHMENTS AND ORGANISMS:

Université Paris Cité

CAMPAGNE D'ÉVALUATION 2023-2024
VAGUE D

In the name of the expert committee[1] :

Bogdan Draganski, Chairman of the committee

Pour le Hcéres[2] :

Stéphane Le Bouler, acting president

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

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

MEMBERS OF THE EXPERT COMMITTEE

Chairperson:	M. Bogdan Draganski Centre hospitalier universitaire vaudois Suisse
Experts :	Dr Philippe Allain : Département de Neurologie, CHU Angers, Angers, France
	Dr Hélène Amieva : Inserm U1219 Bordeaux Population Health Center, University of Bordeaux, Bordeaux, France
	Dr Hanna Chainay : Laboratoire d'Etude des Mécanismes Cognitifs, Université Lyon 2

HCÉRES REPRESENTATIVE

Pr. Bruno Guiard, CMS HCERES

REPRESENTATIVES OF SUPERVISING INSTITUTIONS AND BODIES

CHARACTERISATION OF THE UNIT

- Name: Maladie d'Alzheimer : Marqueurs et facteurs de risque, interventions
- Acronym:
- Label and number: EA 4468
- Composition of the executive team: Dr Anne-Sophie Rigaud

SCIENTIFIC PANELS OF THE UNIT

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

THEMES OF THE UNIT

The main goal of the unit Alzheimer's EA 4468 is to contribute to a better understanding of the mechanisms involved in Alzheimer's disease (AD) and to promote high-quality, person-centred care for patients and carers alike. The Unit consists of a single team with two complementary themes – Theme 1 (coordination: Prof. Olivier Hanon & Pr Eric Sieroff): 'Early markers and risk factors for cognitive decline'; Theme 2 (coordination: Prof. Anne-Sophie Rigaud & Prof. Anne-Marie Ergis): 'Interventions to prevent cognitive decline'.

HISTORIC AND GEOGRAPHICAL LOCATION OF THE UNIT

The unit Alzheimer's EA 4468 was created in 2010. From initially three teams during the first contract period, following the recommendation to follow an integration strategy, the unit consolidated into one team with two different themes. Geographically, the unit is located at the Centre de Memoire d'Ile de France (Centre de Recherche et de Ressources Ile-de-France Sud) in the Geriatrics department at the Broca hospital (Groupe Hospitalier Paris Centre, Assistance-Publique-Hôpitaux de Paris, Université Paris Cité). Additionally, researchers are located at the Institute of Psychology, University Paris Cité.

RESEARCH ENVIRONMENT OF THE UNIT

For its clinical research activities, the Unit Alzheimer's EA 4468 has a Day clinic at the Broca hospital, which represents the technical platform for clinical and neuropsychological assessments, biological sampling (blood, CSF), non-invasive vascular assessments (pulse wave velocity measurement) and assessment of frailty parameters (gait study using a GAITRite ® computerised treadmill). The in-vivo assessment of relevant phenotype characteristics is at the living lab LUSAGE that is based on a computerised system for recording and analysing data from tablets, smartphones, video games (Kinect®, Wii®), various assistive robots (NAO, PARO, Cuti, Spoon) and devices for developing projects based on virtual reality. The tools used to collect and analyse data include eye tracking, sensors, audio and video recording systems, and behavioural analysis software such as Observer®.

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

Catégories de personnel	Effectifs
Professeurs et assimilés	4
Maîtres de conférences et assimilés	0
Directeurs de recherche et assimilés	0
Chargés de recherche et assimilés	0
Personnels d'appui à la recherche	24
Sous-total personnels permanents en activité	**28**
Enseignants-chercheurs et chercheurs non permanents et assimilés	27
Personnels d'appui non permanents	0
Post-doctorants	0
Doctorants	10
Sous-total personnels non permanents en activité	**37**
Total personnels	**65**

Nom de l'employeur	EC	C	PAR
PARIS CITE UNIVERSITE	0	0	0
AUTRE	0	0	23
INSERM	0	0	0
CNRS	0	0	0
Total personnels	0	0	23

GLOBAL ASSESSMENT

The mission of the unit Alzheimer's EA 4468 is to contribute to a better understanding of the mechanisms involved in Alzheimer's disease (AD) and to promote high-quality, person-centred care for patients and carers alike. To fulfil the set objectives, the unit has built a unique methodological framework spanning from the development and validation of biomarkers, and neuropsychological tests adapted to older people with a low level of education and/or different cultures and their digitalisation through studying the effects of pharmacological and non-pharmacological interventions to prevent cognitive decline to ultimately provide assistive robotic technologies in the cognitive domain. The translational aim is supported by validation of this framework in large-scale longitudinal multicentric national cohorts (BALTAZAR, LEOPOLD) demonstrating the framework's output clinical utility.

The unit is aligned along two themes to bring together hospital research units (AP-HP, CMRR), academic laboratories (Paris Cité, Paris Sorbonne), biology laboratories (INSERM), engineering schools (Mines, Télécom) and enterprises (Pal Robotics, SimForHealth, Spoon.ai, Advosens, Toyota, Enchanted tools, AG2R, MondialAssitance, SmartMAcadam, Share (d)). In the reporting period, the overall research output of the unit is excellent. The unit's scientific production is excellent in quantitative terms, but the number of original research articles in high-profile international journals remained relatively low (<10). The unit has excellent to outstanding resources including funding from ANR (projects Tandem, Robadom, Virtualz and Anita), Horizon 2020 (projects E-VITA and Spring), Fondation Médéric Alzheimer et France Alzheimer, Fondation de France projects and a high number of dedicated full-term personnel (7 Research supporting personnel among 50 permanent positions). The activities within several programme hospitalier de recherche clinique (PHRCs) provided access to sophisticated technology including magnetic resonance imaging (MRI), positron emission tomography (PET) and biomarkers analysis in cerebro-spinal fluid. The Living Lab received the European label ENoLL (European Network of Living Labs). The attractiveness of the unit is evaluated as excellent mainly based on the broad network of collaborations at national (RHU SHIVA – CHU de Bordeaux), European and international academic partners (Guyana, Rwanda, Israel). This allows for continuous research funding that is translating in the Unit's excellent to outstanding evaluation of resources. This allowed the creation and maintenance of platforms for research including robotics, virtual reality and spaces dedicated to analysis of digital phenotyping data. The unit's contributions to society are evaluated as excellent to outstanding. The unit has developed numerous interactions with various players in the non-academic world.

Overall, the trajectory of the Unit is positive, despite the fact that tis is the final evaluation before closing.

DETAILED EVALUATION OF THE UNIT

A – CONSIDERATION OF THE RECOMMENDATIONS IN THE PREVIOUS REPORT

In the previous report, the recommendations on scientific focus and activities were to: (1) develop clinical applications (biomarkers); (2) continue the work on recommendations for prevention of cognitive decline and (3). continue to inform the medical specialities – general medicine and emergency medicine. The Unit has adequately and successfully addressed these recommendations by empirical work on longitudinal multi-centre cohorts – BALTAZAR (n = 1067) and LEOPOLD (n = 620) that not only evaluated the clinical utility of plasmatic biomarkers of AD (BALTAZAR) and of reduction of cardiovascular risk, but also resulted in high-profile publications. Similarly, the recommendations about efforts to be made in (4) neuropsychology in order to set up large-scale projects and boost international recognition; (5) continuing experimentation and dissemination of results on the interaction between non-pharmacological approaches, social interventions and new technologies and (6) strengthening the methodological aspects of this research by – testing the relative effectiveness of interventions using randomised controlled trials comparing several types of intervention, were followed with several publications on the topic in specialised peer-reviewed journals and participation in two Horison2020 projects (SPRING and E VITA project). This also includes dedicated work on the topic of prospective memory that resulted in four PhD thesis with corresponding publications.

Regarding the Unit's organisation and life, the previous report recommended to install a system that will ensure the traceability of decisions relating to the life of the unit. This aspect seems not to have been fully addressed by the unit with a dedicated and clear implementation plan.

B – EVALUATION AREAS

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

Assessment on the scientific objectives of the unit

The unit's focus on translational research in neurodegenerative disorders with cognitive decline, which is of strategic relevance in France and Europe, is evaluated as excellent. The significance of the objectives is evident as exemplified by (1) the development and validation of biomarkers, novel adapted neuropsychological tests and their digitalisation; (2) pharmacological and non-pharmacological interventions to prevent cognitive decline and to provide assistive technologies. The unit is well positioned to develop a competitive scientific programme on these thematic lines.

Assessment on the unit's resources

The unit's resources are evaluated as excellent to outstanding. This allows the unit to operate at the interface between neuroscience and its transfer to the clinic. It brings together hospital research units (AP-HP, CMRR), academic laboratories (Paris Cité, Paris Sorbonne), biology laboratories (INSERM), engineering schools (Mines, Télécom), manufacturers and national and European academic partners. The researchers and clinicians of the unit are leaders in their respective fields of expertise as demonstrated by the publication record and invitations to conferences.

Assessment on the functioning of the unit

The unit's decision-making process is evaluated as excellent. The governance is centred on the scientific council consisting of the four Principal Investigators and meeting regularly. It remains elusive if representatives of researchers, technicians and doctoral/postdoctoral students are involved in this process and how decisions are taken.

1/ The unit has set itself relevant scientific objectives.

Strengths and possibilities linked to the context

The relevance of the scientific objectives of the unit are evident given the steadily growing socio-economic burden of neurodegenerative disorders with cognitive decline. Reducing the burden by facilitating early diagnosis and developing new therapies of these disorders will reduce their socio-economic impact on patients and carers, which is a major goal of the Unit research.

Concerning theme 1, the research carried out and promoted by the team on diagnostic markers and risk factors for cognitive decline (plasma, genetic, neuropsychological and MRI biomarkers) uses large cohorts that benefit from longitudinal follow-up. It should be noted that one of these cohorts (BALTAZAR) was set up within the team and is internationally recognised. International collaborations are evidenced by co-publications, which support the high standards set by the team. Regarding theme 2, in the same vein, it is worth noting the work that has been done to promote the Living Lab's international visibility via a European label (ENoLL 'European Network of Living Labs). This accreditation has helped to increase the unit's recognition in the field of gerotechnologies. Within this framework, a solid network of national and international partnerships, including public, scientific, and industrial bodies, has been developed, enabling the unit to carry out projects or collaborate on large-scale projects focusing on the use of technologies in aging. These projects have made it possible to host doctoral and post-doctoral students.

Weaknesses and risks linked to the context

Considering the above described context, the unit has the unique opportunity to further develop even more ambitious clinical research projects. Given the decision not to continue the support of the unit in its current form, the main risk is to lose the uniqueness of such a strong and coherent program benefitting patients with neurodegenerative disorders, their carers and the society as a whole.

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

Strengths and possibilities linked to the context

The unit's resources are evaluated as excellent to outstanding. The team consists of ~50 researchers with different background – clinicians, neuropsychologists, psychologists, engineers, computer scientists, enabling a multidisciplinary approach closely linked to the clinic. Three of them are statutory research professors (1 PU and 2 PU-PH) and 4 hold an HDR.

Weaknesses and risks linked to the context

The needed workforce in the combined domain of teaching and research is insufficient, which poses a threat to impose additional teaching burden to researchers and clinicians.

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

Strengths and possibilities linked to the context

The unit's practices follow the recommendations and standards in ethics and data protection of the University Paris Cité. The supervision of technical and research staff by the PIs is adequate. The unit has invested in gender-neutral policy with a ratio of 2:1 female: male researchers.

Weaknesses and risks linked to the context

There is no detailed information about human resources standards adopted for new unit's members besides the fact that they follow the common policy of the University Paris Cité and that each new member has allocated office space. Similarly, there is no information about procedures linked to environmental and heritage protection. Given the provided sparse information, the committee assume that there is no dedicated training of the research staff in the field of Human Resources, environmental issues, ethics and heritage protection. There is no established policy for supporting female researchers or for initiatives with reference to diversity, inclusivity and promotion of early career researchers.

EVALUATION AREA 2: ATTRACTIVENESS

> ## Assessment on the attractiveness of the unit
>
> The Unit's attractivity is evaluated as excellent. The unit is collaborating in several European projects and consortia. Several researchers have been invited to international conferences ensuring visibility to the Unit's research. The Unit has been successful in achieving numerous grants from public, charity and private organisations, even though most of them come from national funding. The unit possesses a remarkable range of social robots, and a virtual reality platform with various functionalities and domains of application.

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

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

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

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

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

The unit is strongly involved in the European research area. Even though no researcher has been the leader of a European project, the unit (in particular team 2) has been collaborating in several projects: SPRING project on social robots (Project H2020 2019–2023, coordinated INRIA Grenoble, France) and E-VITA project on ICT virtual coaching promoting healthy aging (H2020 2020–2024, coordinated by Universität Siegen, Germany). In addition, the unit is part of European consortia such as European Alzheimer's Disease Consortium (EADC) and European Network of Living Labs (ENoLL). Overall, it appears that the unit responded to numerous national and international calls during the considered period. If European grants have been obtained as above-mentioned, the unit also got national fundings from public (e.g. PHRC, CNSA, Fédération Hospitalière de France), charity (France Alzheimer) or private (e.g. AG2R La Mondiale, Janssen Foundation) sources.

Since 2017, the researchers of the unit have been invited to 6 international conferences. They also organised a thematic session within the European Union Geriatric Medicine Society (EUGMS) in 2017. The Unit possesses an impressive range of social robots (Paro, Nao, Spoon, Cutii, Mirokai...). It also has a virtual reality platform with several functionalities like a virtual patient with Alzheimer's disease, a treatment environment for people with Diogenes syndrome and a treadmill. The acquisition, use, and maintenance of this equipment is facilitated by APHP infrastructure and technicians.

The unit is located within an APHP hospital. Thereby, the staff benefits from supplies, logistics and infrastructure of the APHP. Several measures have been implemented to promote staff wellbeing such as teleworking several days per week and mentorship of newly recruited staff by a senior member of the team.

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

No researcher has been the leader of a European project or consortium. There seems to be scarce research career prospects for young doctors after their thesis. Except for medical doctors, most PhD graduates have to move to other labs or private companies to pursue their career. This lack of possibility of career development in the field of research may have significantly limited the development of the unit. Although the unit has been successful in obtaining funding, few highly competitive international calls have been achieved.

The acquisition, use, and maintenance of this equipment has been facilitated by AP-HP infrastructure and technicians. In the long term, a potential risk could have arisen as no research engineers specifically dedicated to it would have limited the development of such tools.

EVALUATION AREA 3: SCIENTIFIC PRODUCTION

Assessment of the unit's scientific production

The team's scientific output is evaluated as excellent, both quantitatively and qualitatively. It mounts up to 152 peer-reviewed articles, 64% of which in journals with excellent to very high international visibility in the field (e.g. Nature Genetics, Alzheimer's & Dementia; JAMA Neurology, BMJ, Journal of Neurology, Neurosurgery and Psychiatry…). The publication trajectory was peaking in 2017, and then remaining regular over the following 4 years.

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

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

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

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

The unit's members published articles mount to an average of 3.8 peer-reviewed publications per year between 2017 and 2022. The number of peer-reviewed publications involving PhD students or postdocs is of 49 (32%). The unit's members were first authors on 28 publications, i.e. 18% of the team's output and it is noticed that more than 30% of the scientific articles are published in first, last and/or corresponding author. Such a positive balance is the result of a clear commitment on the part of all the team's researchers to the various aspects of scientific activity (e.g. development of networks, large-scale exploitation of the results of studies, preparation of responses to calls for projects) and a fruitful distribution of roles within the team. There seemed to be a shared determination to make this multidisciplinary project a success.

Publications in high-profile international journals suggest that the team's high standards in terms of production quality are very clear. In terms of scientific integrity, all the laboratory's work is subjected to ethical and regulatory authorisation. In particular, it is submitted for approval to the Research Ethics Committee or the Personal Protection Committee, depending on the case. The numbers issued by these committees are included in the publications. Experiments by younger researchers are carried out under the careful supervision of the unit's senior staff. The data and any source codes are archived in accordance with the procedures recommended by the APHP.

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

Although the unit's output is of very high quality, an imbalance between the themes has become apparent, both in terms of the number of publications and the level of publication. Regarding the level of publication, the difference is due to the fact that publications from theme 1 have been published in journal with higher impact factors than those from theme 2. Involvement in open science is not developed in any way in the dossier. It is only mentioned that members of the unit submit their publications to journals offering open access to these publications whenever possible.

EVALUATION AREA 4: CONTRIBUTION OF RESEARCH ACTIVITIES TO SOCIETY

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

The unit's contributions to society are evaluated as excellent to outstanding. The unit has developed numerous interactions with various players in the non-academic world. The unit has leveraged its expertise in the field of aging and neurodegenerative diseases by developing a number of partnerships with public and private non-academic organisations. Its actions are at local, regional and national level.

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

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

The team has interacted, on the one hand, with associations for the elderly in various arrondissements of Paris, in particular Old'Up and Génération 13, and on the other with the town halls of the 13th and 5th arrondissements, where it has organised events to raise awareness of innovative technologies for the elderly. It has developed collaborative contracts with the Ile de France gerontopôle as part of the Rosie and Domirob projects (e.g. a funded thesis). Finally, on a national scale, it has organised each year a stand on innovative technologies for the France Alzheimer Association, as part of the Alzheimer Village.

In addition, several funded research projects (e.g., 2 APHP projects, 1 Conférence des financeurs de la ville de Paris, 1 Région Ile-de-France project, 2 France Alzheimer projects, 3 Fondation de France projects) on societal challenges, in particular helping elderly people to stay at home, involving non-academic partners and in line with the team's research themes, have been launched, strengthened and continued as recommended in the previous evaluation. In addition, a CIFRE thesis was funded as part of a collaboration with the Technosense company.

It is also noteworthy that two artistic projects have been set up: a theatrical performance in France and French Guiana involving Alzheimer's patients, and a project in collaboration with the France Alzheimer association and the Centre Nationale du Cinéma et de l'image animée, aimed at creating a cinema program for Alzheimer's patients.

In the first area, two large-scale products have been developed in a collaborative and participatory approach with elderly people and patients suffering from Alzheimer's disease: a play entitled 'Le bal de la vie', attended by over 1,500 people in France and French Guiana; and the Cinémoire project, which resulted in the publication of material (film extracts and animation guide) for the creation of cinema sessions for patients suffering from Alzheimer's disease. In the second area, as part of the InfoAT, InfoAT-Pro and InfoAidants projects, the team has used a co-creation approach to develop information materials, accessible to people with disabilities and elderly people losing their autonomy, on the characteristics of technical aids, associated services, their mode of use and their indications.

As attested by the 'Production' document provided by the team, the unit has carried out a number of initiatives to disseminate research results to the general public. A reading of this document reveals 54 TV and radio broadcasts and articles in the press. This shows the team's great involvement in sharing knowledge with society, even if it can be seen that there were fewer disseminations at the end of the contract (10 over the 2020–2022 period) than in its first part (44 over the 2017–2019 period).

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

The above-mentioned interactions are often described very succinctly, giving the impression that they are somewhat disconnected from scientific research, since the scientific basis on which they are based is not made sufficiently explicit. The expected or actual spin-offs of the various projects set up could also have been presented more clearly. The very brief description of these various interactions does not make it possible to grasp the precise scientific and societal benefits. These benefits are undoubtedly numerous and essential, but they should be given greater prominence. Furthermore, given the team's expertise and the richness of its interactions with the non-academic world, the committee wonders about the apparent absence of initiatives aimed at professionals in contact with patients suffering from neurodegenerative diseases.

The team focuses on two areas of product development: cultural and social. It is unfortunate that no indication is given in the summary document on the accessibility and durability of the products developed for the cultural world. The development of these products seems to have been very costly, and one wonders how they can be exploited in the future. For example, has the show been recorded and can it be viewed?

In addition, it would have been desirable to specify how many supports were created, what their nature was, and what technical aids and associated services they were aimed at.

It has not been easy to assess the extent to which knowledge has been shared with the general public, or the extent to which it has been involved in social debates. In fact, the auto-evaluation provides no precise information on this dissemination. No summary is provided on the content of the dissemination and its context. It would have been preferable to have a structuring of these disseminations on the one hand according to the different lines of research that the team carries out, and, on the other hand, in relation to the dissemination media, particularly for the 1st contract period when the number of disseminations is very high. Furthermore, it seems that this list also includes actions other than TV and radio broadcasts or articles in the press. These actions should probably be grouped together under a different heading to avoid confusion.

ANALYSIS OF THE UNIT'S TRAJECTORY

The unit's trajectory is positive. The focus of the last evaluation period was on consolidating the excellent clinical research with application and testing in large-scale clinical cohorts to provide innovative and practical solutions allowing for early diagnosis and adequate treatment strategies in individuals with cognitive decline. The unit's teams have developed a wide spectrum of expertise to initiate and perform the multi-centre longitudinal cohort studies and to analyse, disseminate and valorise the obtained results. Similarly, the researchers driving the development and digitalisation of sophisticated neuropsychological tests adapted to individuals at advanced age, different socio-cultural background and cognitive abilities proved to be a future-ready strategy. The innovation and links to the entrepreneurial world were ensured in steadily progression by the theme of robotics and assisted help for individuals with cognitive dysfunction. Besides the excellent clinical research, medical and psychological care achievements, the unit remained open to the grand public with an excellent links to society. Its unique translational profile attracted clinical researchers from France and abroad, which contributed to the positive trajectory of the Unit's visibility.

RECOMMENDATIONS TO THE UNIT

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

Given the decision of the University Paris Cité to close its clinical units, there is the wish expressed by the evaluation committee that this will compromise the very promising dynamics already in place for the care of patients suffering from neurodegenerative diseases. This should be considered when planning the integration of Unit E4468 in the Unit UMR-S 1144-Optimisation Thérapeutique en Neuropsychopharmacologie and the potential collaboration with Hotel-Dieu's team led by Nicolas Castoldi.

Recommendations regarding the Evaluation Area 2: Attractiveness

In the future, whatever the way the researchers will form new teams, a recommendation to strengthen scientific attractiveness and international visibility would be to better capitalise on the very specific expertise of the researchers. The future unit should identify its real 'niche', in order to focus its efforts in developing maybe fewer projects but with greater impact on science. Such an ambitious strategy should improve international visibility and thus scientific attractiveness for PhD students or postdocs willing to acquire very specific scientific skills that scarce other research teams are able to offer.

Recommendations regarding Evaluation Area 3: Scientific Production

As already emphasised above, the scientific output of the unit's members is of very high quality, both quantitatively and qualitatively, and the committee can only encourage them to continue in the same direction in their new research structures. As is it already the case, the committee also encourage them to continue to focus on the quality of support of publications, particularly on the topic of gerotechnologies. Efforts to integrate PhD and postdoctoral students into publications should also be pursued. Additionally, the strategy to publish in journals offering open access should be further developed.

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

The unit has an excellent track record of embedding its research activities in society. It has developed numerous high-quality interactions with the non-academic world, several products for the cultural, economic and social worlds, and is actively involved in debates with the general public. Team members will need to continue their actions and efforts in this area, by better highlighting the benefits of their actions. Wherever possible, more actions aimed at professionals could be set up.

CONDUCT OF THE INTERVIEWS

Assessment based on a dossier. No visit.

PARTICULAR POINT TO BE MENTIONED

None

GENERAL OBSERVATIONS OF THE SUPERVISORS

Le Président

Paris, le 17 Mai 2024

HCERES
2 rue Albert Einstein
75013 Paris

Objet : Rapport d'évaluation de l'unité **DER-PUR250024185** – **Maladie d'Alzheimer : Marqueurs génétiques et vasculaires, neuropsychologie**.

Madame, Monsieur,

L'université Paris Cité (UPCité) a pris connaissance du rapport d'évaluation de l'Unité de Recherche **Maladie d'Alzheimer : marqueurs génétiques et vasculaires, neuropsychologie**.

Ce rapport a été lu avec attention par la direction de l'unité, qui nous a signalé ne pas avoir de correction à apporter, par le vice-doyen Recherche et le doyen de la Faculté de Santé d'UPCité, par la vice-présidente Recherche d'UPCité, et par moi-même. L'ensemble des acteurs UPCité remercie le comité pour son travail d'évaluation.

Le doyen de la Faculté de Santé et moi même nous souhaitons souligner que "Maladie d'Alzheimer : marqueurs génétiques et vasculaire, neuropsychologie" est une unité de recherche propre monoéquipe de l'université Paris Cité, dont la thématique principale est une meilleure compréhension des mécanismes impliqués dans la maladie d'Alzheimer, impliquant une recherche surtout clinique. En lien avec la politique scientifique de l'université, et de la faculté de Santé en particulier, la trajectoie fixée aux URP est de ne pas de perdurer en tant que telles. L'ensemble du personnel a ainsi été accompagné afin de s'insérer dans des unités mixtes de recherche travaillant sur ces thématiques pour le prochain quinquennat.

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

Édouard Kaminski

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