RÉPUBLIQUE FRANÇAISE
*Liberté Égalité Fraternité*

Inserm
La science pour la santé
From science to health

HR EXCELLENCE IN RESEARCH

# CALL FOR APPLICATION

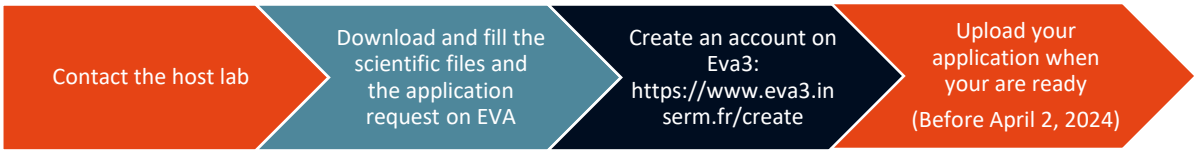
# INSERM CHAIR Recruitment

## From cellular modeling of rare neurodevelopmental diseases to personalized medicine

The Inserm chair recruitments opened to Inserm are intended for researchers with strong potential to manage and lead research teams and participate in national, European or international projects.

This recruitment, based on research and teaching projects, is aimed at researchers with a doctorate or equivalent and a first post-doctoral experience. The position is offered on a fixed-term contract (CDD) with a view to tenure in the Inserm Research Directors personnel at the end of the contract.

Application on EVA: https://eva3-accueil.inserm.fr/sites/eva/chaires/2024/Pages/default.aspx




| | |
|---|---|
| **Supporting institution:** | Inserm : Institut national de la Santé et de la recherche médicale |
| **Name of the head of the institution:** | Pr. Didier Samuel |
| **Academic region:** | Dijon |
| **Location/ Site concerned:** | Genetics of Developmental Anomalies (GAD) Team – UMR 1231 Inserm |
| **Partner institution:** | University of Burgundy - Genomic and Immunotherapy Medical Institute (GIMI) - Dijon - France |
| **Research contact**<br>**Administrative contact** | Dr Antonio Vitobello : antonio.vitobello@u-bourgogne.fr<br>chaires-professeur-junior@inserm.fr |
| **Research fields EURAXESS :** | Cancer research (Medical sciences), Neurosciences. |
| **Keywords:** | |

| | |
|---|---|
| **Job title to be filled:** | Chaire de professeur- De la modélisation cellulaire des maladies rares neuro-développementales vers la médecine personnalisée |
| **Body after tenure:** | Research Director |
| **Anticipated duration of the contract:** | 3 years |
| **Scientific domains/fields:** | Neurobiology – Rare Genetic Neurodevelopmental Disorders |
| **Corresponding specialized scientific commissions (CSS):** | CSS2 : Cancérologie, maladies génétiques,<br>CSS4 : Neurosciences |

| | |
|---|---|
| **Project name:** | From human brain organoid modeling of rare neurodevelopmental disorders to personalized medicine |

| | |
|---|---|
| **Remuneration package** | 3 500€ - 5 000€ according to research experience |
| **Quota** | Full Time |

## Strategy of the host institution:

The Genetics of Developmental Anomalies team (GAD - https://www.gad-bfc.org) is a part of FHU TRANSLAD (http://www.translad.org/en), which is one of the medical and scientific teams at the head of the Genomic and Immunotherapy Medical Institute (GIMI - http://www.gimi-institute.org/en). For many years, Inserm has invested in research on rare diseases (RD) by coordinating major national and international research programs, i.e. the European Joint Program on Rare Diseases (EJP RD) and the "Programme Prioritaire de Recherche Maladies Rares (PPR-RD)". Inserm also coordinates the "Plan France Médecine Génomique 2025" in a care-research continuum designed to allow reanalysis of genomic data from hundreds of thousands of RD patients in the national "Collecteur Analyseur de Données" (CAD) for research purposes. Through the EJP RD, Inserm has implemented a system of governance to ensure that France's strategy remains aligned with the national strategies of the European Commission, the 35 other countries involved, and the other major participants such as industry partners. Inserm is now recognized as a major European player in the field of rare diseases. In Dijon, the UMR1231, which is a collaboration between Inserm and the University of Burgundy (9 teams, more than 270 people), has extensive experience in multidisciplinary research. UMR1231 is a unit that combines fundamental and clinical research and that has a high potential to publish in leading international journals and to transfer its findings rapidly into the clinical setting. This also translates into an excellent fundraising record and the ability to grow, with the recruitment of permanent positions including research fellows and research supervisors.

## Strategy of the host laboratory:

Within the UMR1231, the GAD team is focused on developing an innovative translational research project. The objectives of this new project are to identify new gene-phenotype associations responsible for rare neurodevelopmental disorders (NDDs) and to implement genomic medicine with a focus on new technologies, reducing the diagnostic odyssey, understanding the physiopathology of NDDs, developing expertise in coordinating therapeutic trials, and participating in prominent European projects.

Thanks to its close relationship with FHU TRANSLAD, the national French "Rare Disease Healthcare Network" (AnDDI-rares) and the "Grand Campus BIOME" bioinformatics platform of the University of Burgundy, the GAD team is part of a very dynamic framework dedicated to personalized medicine and rare diseases. The GAD team also hosts the NeuroGeMM team whose work is directed at understanding the neurobiology and the genetics of mammalian brain development in health and disease. Therefore, one of the four scientific axes of the GAD team is devoted to functional genomics and physiopathology, based on mouse and innovative cellular models such as human iPSCs and brain organoids. In this context, the team leads the PPR-RD MultiOmixCare project, including one full-time engineer and one technician who will work full time with the successful candidate. The aim of the recruitment is to support and intensify this work, while consolidating the existing dynamic.

## Summary of the scientific theme:

NDDs are challenging to model *in vitro* because relevant patient-derived tissues are not available. For this reason, our laboratory invested in the implementation of reprogrammed neurons and astrocytes derived from patient-derived induced pluripotent stem cells (human iPSCs), as well as in the 3D cultures of brain organoids, to study the molecular mechanisms underlying pathophysiological changes. Our approach makes it possible to investigate the cellular and molecular changes underlying pathogenic genetic variants in candidate genes of interest. Cutting-edge techniques such as single-cell RNA-seq, spatial transcriptomics, electrophysiology (MEA technology), and epigenomics explorations are currently deployed in our laboratory to characterize neurons, astrocytes and human brain organoids.

The personalized cellular models used in our laboratory will also make it possible to carry out preclinical studies for the screening of molecules in ultra-rare diseases to open up perspectives in the therapeutic trials for patients suffering from NDDs. The recruited researcher will work within the existing framework but is also expected to develop his/her own research on NDDs.

## Summary of the teaching project:

The recruited researcher will be expected to teach classes at the "Environnement et Santé" (E2S - https://e2s.ubfc.fr/) doctoral school of the University of Burgundy, particularly in the field of system biology and cellular models for neurodevelopmental disorders. The recruited researcher will also participate in the teaching of master's students within the Life Sciences and Health Sciences department of the University of Burgundy.

## National Research Agency package:

200k€ + one research engineer and one laboratory technician already available for 5-year term.

## Scientific dissemination/ Open Science :

The recruited researcher will be encouraged to actively promote their results and define the target audience (representatives of patient organizations, healthcare professionals, researchers, industry, funding agencies). He/she is also expected to publish his/her results in high-level international scientific journals and present at international conferences (ASHG, ESHG, etc.).

**Open Science**:

The recruited researcher will comply with the current policies of INSERM and the University of Burgundy regarding Open Science practices, in particular:

- Providing open access to scientific publications and research data under the principle "as open as possible, as closed as necessary", including access to information about the research tools and instruments needed to validate or re-use our data; open access code for the CT designs and models that will be proposed and developed during this project;

- Responsible management of research data in line with the FAIR principles through the use of a data management plan (DMP).

- Deposit of all the scientific productions from the chair in the national HAL archive, like the productions of the host laboratories;
- Publication of "pre-prints" (e.g., via biorxiv.org);
- Pre-registration of studies ("pre-registered reports");
- Data sharing with the whole community via OSF (Open Science Framework);
- Use of GITHUB-type servers for the distribution and sharing of software and data analysis procedures

## Science and society:

GAD team members are fully committed to sharing their research with the public through participation in national events (i.e. The European Researchers' Night, Telethon, Rare Disease Day), local events (e.g. Experimentarium program) and through special GAD initiatives (e.g. lab open house events, visits to primary schools, etc…)

The team is part of an effort to increase the visibility of career paths in genetics (i.e. scientific and medical professions) among secondary school students through laboratory open days, the development of several communication tools such as books and videos, and close collaboration with the PEMR (Plateforme d'Expertise Maladies Rares) and its network of patient associations.

## Selection of candidates:

It is expected the recruited researcher to become rapidly a group leader in the GAD team. So the candidate should demonstrate ability to supervise Ph.D students, post-doctoral fellow and technical support staff. She/he should have the capacity to obtain competitive funding to manage her/his group.

Successful candidates are chosen by a selection commission composed of six to ten members, the majority of whom are specialists in the fields of research concerned.

The commission carries out an initial examination of the applications, focused in particular on candidate experience and skills relative to the research and teaching project presented above. A shortlist of candidates is then selected for interview.
Only candidates selected by the selection committee on the basis of their applications will be invited to interview.

The interviews are followed by a deliberation during which selection commission will discuss the quality, originality and, where appropriate, the interdisciplinarity of the research and teaching projects presented by the candidates, their motivation and their scientific and teaching supervision capacity.

The candidates selected at the end of the selection process will be offered a researcher contract, following approval from the President and CEO of Inserm.

## Contract development and tenure:

The GAD team and INSERM1231 will follow and support the recruited researcher in this chair project in order to offer her/him all the guarantees, so that, no later than two months before the end of the contract, the agent's professional aptitude and tenure track are examined by a tenure commission. If the tenure commission declares the agent fit to carry out the tasks of the body in which he/she is to be granted tenure, the CEO will appoint him/her to the body of research directors reporting to the establishment.

## Required profile:

Education Level **: Phd**

Researcher Profile : R3/R4

*R3 Established researcher A stage in a researcher's career describing those who have developed a level of independence and can described as an established researcher*
*R4 Leading Research A stage in a researcher's career where they can be termed a 'leading researcher'. This would include the team leader of a research group or head of an industry R&D laboratory.*

Your application will be evaluated according to the following criteria:

- Relevance and originality of the project related to the research field
- International exposure in research projects
- Your ability to raise funds
- Participation in editorial and reviewing activities
- Your teaching experience
- Your ability to lead a team…

## Application instruction :

Applications can be submitted online at EVA.
Deadline application: **April 2, 2024.**

*Please complete the scientific file in English.*

*It is imperative to contact the laboratory corresponding to the Chair you have applied for in order to build the project with them.*

Position also open to 'Bénéficiaires de l'Obligation d'Emploi' (disabled persons), as defined in article 27 of law no. 84-16 of January 11, 1984 on statutory provisions for the civil service.