



The Vall d'Hebron Research Institute (VHIR) is a public sector institution that promotes and develops the research, innovation and biosanitary teaching of the Vall d'Hebron University Hospital. Through the excellence of our research, we identify and apply new solutions to the health problems of society and we contribute to spread them around the world.



In April 2015, the **Vall d'Hebron Research Institute (VHIR)** obtained the recognition of the European Commission **HR Excellence**. This recognition proves that VHIR endorses the general principles of the **European Charter for Researchers and a Code of Conduct for the Recruitment of Researchers (Charter & Code)**.

Thus, there are no restrictions of gender, national origin, race, religion, sexual orientation or age and **candidates with disabilities are strongly encouraged to apply.**

## Predocctoral Researcher Position Clinical Neuroimmunology Group

The Clinical Neuroimmunology Group is part of the Centre d'Esclerosi Múltiple de Catalunya (Cemcat), a reference center for multiple sclerosis (MS) at national and international levels. The Cemcat has a multidisciplinary team with more than 70 highly experienced professionals fully dedicated to clinical care, physical and cognitive rehabilitation, teaching, and research on MS (more information on the group can be found at <https://www.cem-cat.org/>).

The Clinical Neuroimmunology Group searches for a candidate to apply to the Catalan predoctoral researcher recruiting program AGAUR (Agència de Gestió d'Ajuts Universitaris i de Recerca).

The predoctoral researcher will work on a project entitled “*New human induced pluripotent stem cell-based in vitro and in vivo models to study astrocyte pathology and neuroprotective strategies in multiple sclerosis patients*”, that is currently funded by the Instituto de Salud Carlos III.

### Summary of the project:

Multiple sclerosis (MS) has traditionally been considered an autoimmune inflammatory neurological disorder in which the primary event is an aberrant immune response against central nervous system (CNS) autoantigens in predisposed individuals. This leads to infiltration of peripheral blood cells into the CNS and results in inflammatory demyelination and eventually axonal damage. While this probably holds true, in the present proposal we will test the hypothesis that MS patients may have a primary defect in astrocytes that renders these cells dysfunctional and more reactive to the autoimmune attack, making white matter lesions less prone to remyelinate. To this aim, we will generate human induced pluripotent stem cells from patients with primary progressive MS and relapsing-remitting MS in order to investigate human astrocyte pathology in an inflammatory environment in vitro and in vivo, through the development of two new models created by: (i) exposing astrocytes in vitro to cerebrospinal fluid obtained from MS patients with high inflammatory radiological phenotypes; (ii) transplanting human glial progenitor cells into the developing mouse CNS and inducing experimental autoimmune encephalomyelitis. The proteomic signature of astroglial secretome will be examined in vitro, under basal and inflammatory conditions. The genomic signature of MS human astrocytes during EAE progression will be examined in vivo by spatial transcriptomics, to identify differentially expressed genes whose expression may be modulated by small-molecule compounds with the potential to become future neuroprotective therapies for patients with MS.

It is important to remark that the Clinical Neuroimmunology Group cares a lot about teaching, and high-quality training of predoctoral researchers is one of the top group's priorities.

## JOB DESCRIPTION

### Education and qualifications:

#### Required

- Degree in health sciences (biology, biochemistry, pharmacy, biotechnology, medicine, etc...).
- Official Master in health sciences.
- High academic record (>8.0).

### Experience and knowledge:

#### Desired:

- Previous experience in a research lab and authorship in scientific publications.
- Accredited certificate of Animal Research Experimentation.

### Main responsibilities and duties:

- Develop his/her PhD project.
- Participate in the teaching activities of the group.
- Disseminate the results of her/his research in the corresponding meetings and congresses.

### Labour conditions:

- Full-time position (40h/week).
- Period: January 2022 – December 2024.
- Total annual contract cost:
  - First and second year: 21.043,32€.
  - Third year: 22.338,77€.
- Program: AGAUR

### How to apply:

Applicants should submit a full Curriculum Vitae and a cover letter to the following email addresses: [manuel.comabella@vhir.org](mailto:manuel.comabella@vhir.org) and [seleccio@vhir.org](mailto:seleccio@vhir.org)

Deadline: October 16th.