

TheVall d'Hebron Research Institute (VHIR) is a public sector institution that promotes and develops the research, innovationand 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 aroundthe 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).

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# Laboratory FP or higher 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 laboratory technician to 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 MS human astrocytes during EAE progression will be examined in vitro, under basal and inflammatory conditions. The genomic signature of MS human astrocytes during EAE progression will be examined in vitro 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





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# JOB DESCRIPTION

# **Education and qualifications:**

### Required

Laboratory FP or higher

# Experience and knowledge:

#### Desired:

- Experience in cell cultures of induced pluripotent stem cells.
- Accredited certificate of Animal Research Experimentation.

# Main responsibilities and duties:

- Differentiation of induced pluripotent stem cells from patients with multiple sclerosis into neural progenitors.
- Assist in the generation of human glial chimeric mice and in vivo analysis of oligodendroglial cells and astrocytes

#### Labour conditions:

- Full-time position (40h/week).
- Period: one year and renewable.
- Gross annual salary: 18.589,05 €.
- Program: FIS grant from the Instituto de Salud Carlos III

# What can we offer?

- Incorporation to Vall d'Hebron Research Institute (VHIR), a public sector institution that promotes and develops the biomedical research, innovation and teaching at Vall d'Hebron University Hospital (HUVH), the biggest hospital of Barcelona and the largest of Catalan Institute of Health (ICS).
- A scientific environment of excellence, highly dynamic, where high-end biomedical projects are continuously developed.



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- Continuous learning and a wide range of responsibilities within a stimulating work environment.
- Personal training opportunities.
- Flexible working hours.
- 23 days of holidays + 9 personal days.
- Flexible Remuneration Program (including dining checks, health insurance, transportation and more).

# How to apply:

Applicants should submit a full Curriculum Vitae and a cover letter to the following email addresses: <u>manuel.comabella@vhir.org</u> and <u>seleccio@vhir.org</u>

Deadline: December 15th.