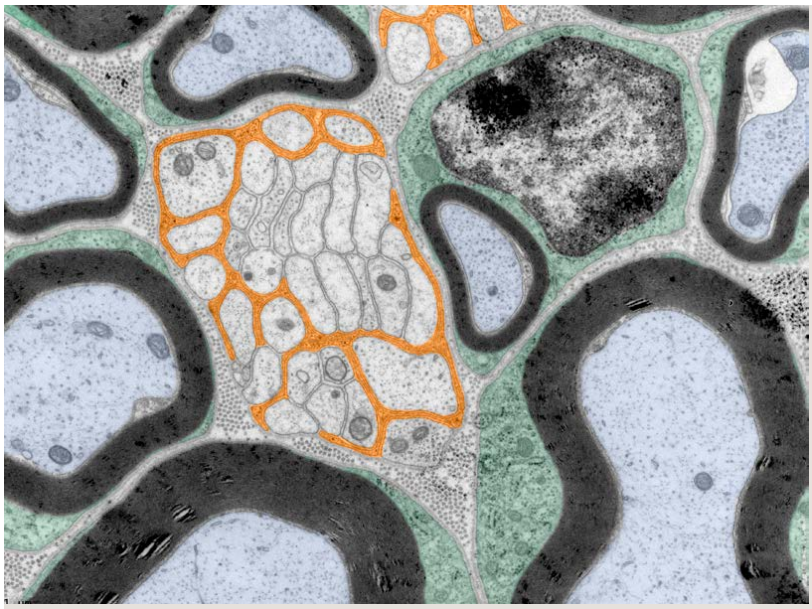
RESEARCH CONTRACT OFFER

Instituto de Neurociencias UMH-CSIC

We are looking for a graduate in life sciences with an interest in neuroscience to work on a project focused on nerve regeneration and axonal myelination (https://in.umh-csic.es/en/grupos/molecular-control-of-neuronal-axon-myelination/).

A Master's degree in neuroscience or biomedicine, as well as a strong academic record, will be highly valued. An initial 9-month contract is offered (gross salary of 1586 euros per month) with the possibility of extension and integration into the UMH neuroscience PhD program.

Interested candidates should send their CV to hugo.cabedo@umh.es before October 3rd, 2025.



Molecular control of axonal myelination

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34

Nerve conduction velocity is inversely proportional to the electrical resistance of the axon and the capacitance of the plasma membrane that surrounds it. To increase nerve impulse velocity some invertebrates (such as squids) decrease resistance of the axon by greatly increasing its diameter. In more complex nervous systems, like higher vertebrates, this would increase by more than a hundred times the volume of the nervous system. To increase nerve conduction velocity without changing the axonal diameter (and nervous system volume) it is necessary to reduce the capacitance by increasing the thickness of the lipid membrane surrounding the axon. This has been achieved in vertebrates by depositing large amounts of the plasma membrane of specialized hypertrophied neighboring cells (oligodendrocytes or Schwann cells). Rudolf Virchow first described this membrane, known as "myelin", in 1854.

In our group, we try to elucidate the molecular mechanisms controlling axonal myelination. Our goal is to use this information to develop new strategies in the treatment of demyelinating diseases such as multiple sclerosis in the central nervous system, and Charcot-Marie-Tooth in the peripheral nervous system. We also use this information to try to improve nerve regeneration after traumatic injuries. In order to achieve our goals we use state-of-the-art technologies such as Next-Generation Sequencing of patient's DNA and genetic modification of mice to generate animal models of disease.