



Consejo Superior de Investigaciones Científicas

Instituto Cajal



POSTDOCTORAL CONTRACT

Differential molecular bases between pathological and functional amyloids

A postdoctoral contract at the Instituto Cajal-CSIC (Madrid) is offered to a researcher with experience in this field willing to execute a postdoctoral stay to investigate about the "**differential molecular mechanisms between the pathological and functional amyloids**". The selected candidate will be integrated in a very stimulating work environment and a very productive moment of the laboratory. We have funding from European projects. **Immediate incorporation.**

REQUIREMENTS

Ph.D. in Sciences (Biochemistry, biology, biotechnology, pharmacy or chemistry). We are looking for a competitive and highly motivated candidate who wants to continue his scientific career and has a significant number of publications in scientific journals of international reference and high impact. **Experience in molecular biology, biochemistry, and protein engineering** is required, particularly in **techniques for identification, activity and structure of amyloids.**

THE LABORATORY

Our laboratory has a strong multidisciplinary component, which combines Microscopy atomic force with engineering of proteins, structural biology, and molecular dynamics to understand the mechanism of action of proteins. The studies will take place at the Cajal Institute, an institution pioneer and leader of research in down town Madrid.

In our laboratory we are interested in understanding the molecular mechanisms responsible for the function of the proteins. Our lines of research are focused on nanomechanics of CPEB (prionoid that controls the consolidation of memory), the neurotoxic proteins (causal agents of neurodegenerative diseases such as Alzheimer or Parkinson), proteasome, and scaffolding proteins (notably in the cellulosome).

THE FIELD: PROTEIN NANOMECHANICS

Proteins are responsible for the vast majority of biological functions and are considered today as bionanomachines whose inner workings are being unveiled using monomolecular techniques (biochemistry of individual molecules). The nanomanipulation is one of them, which allows the application of mechanical forces to individual molecules using mechanical force as a new biochemical parameter. As a result, the protein nanomechanics has emerged in little more than one decade as an extraordinarily active field that studies the mechanical properties of proteins. Atomic force microscopy is one of the most commonly used techniques in the field, a is very useful particularly for the study of proteins that are subject to mechanical stress, with mechanical function and unstructured proteins (such as the neurotoxic proteins or the CPEB prionoid).

We combine this technique with the classical techniques of biochemistry, molecular biology, protein engineering, structural biology, cell cultures and animal models as well as molecular dynamics simulations.

SUBMISSION OF APPLICATIONS

Please send your applications (including CV, cover letter and references, contact data of reference persons) before **September 30, 2017** to Dr. Mariano Carrión Vázquez (mcarrion@cajal.csic.es). Dept. of Molecular, cellular neurobiology and development, Instituto Cajal / CSIC. Avenida Doctor Maple 37, 28002 Madrid. Websites: <http://carrionvazquez-lab.org/es/index.cfm> and <http://cellulosomeplus.eu/en/>.