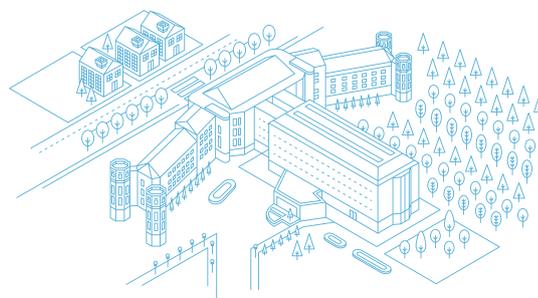


# CNIO FRIENDS

## newsletter

Latest news from the Spanish National Cancer Research Centre



### COLUMN

### ★ CNIO SCIENCE NEWS

## Close to the people

Most of the work conducted at the CNIO falls into the category known as basic research. Our scientists focus on understanding and unravelling the fundamental aspects of cancer. This provides the basis for new developments in the diagnosis and treatment of this disease. Although our science takes place far away from the patient, it doesn't have to be far away from the people. It is important for us to be known, to explain what we do and its purpose, to show society that top level science is taking place in these laboratories, which can compete with major research centres in the world. One of the goals of *CNIO Friends* is to raise awareness and, with a firm step, we are moving in that direction.

We are not alone on this journey. Thanks to the Madrid Health Service (SERMAS) and to the commitment of the hospitals of the Community of Madrid, *CNIO Friends* will be present at the main health centres in Madrid. It is a small gesture – posters, leaflets – a pilot project that we hope to be able to repeat in other cities and regional communities so that more and more people can know who we are, what we do and how they can collaborate with us.

—MARIA A. BLASCO  
Director



A paper published in *Cell Reports* by the DNA Replication Group sets out the fatal consequences of in vivo re-replication for the first time in mammalian organisms, and how this phenomenon can lead to cell malignancy but also might be used to attack cancer cells (1). The Molecular Cytogenetics and Genomic Engineering Unit has optimized a system capable of generating a cellular model of Ewing sarcoma. The technique, based on CRISPR and described in the pages of *Stem Cell Reports*, makes it possible to generate cellular models to analyse the mechanisms underlying the origin and progression of this and other diseases, as well as the search for new treatments (2). The Biological Text Mining Unit has presented in the journal *Nucleic Acids Research* LimTox, an online software tool that allows retrieval and ranking of chemical and biological entities of interest,

interactions between them, the visualization of chemical structures of compound mentions detected automatically in running text, and the generation of entity relation network graphs (3). This Unit, together with researchers at the Center for Applied Medical Research (CIMA), of the University of Navarra, and the Barcelona Supercomputing Centre (BSC-CNS), have published in *Chemical Reviews* the first exhaustive revision of the state-of-the-art methodologies underlying chemical search engines (4). A new technique that makes it possible to follow in vivo and, for the first time, very early stages of melanoma progression in mice, is now allowing researchers at the Melanoma Group to study the process in detail and has even led to the identification of a potential new drug target. The paper is being published this week in the prestigious scientific journal, *Nature* (5).

### 📍 OUR CENTRE

May is melanoma month, and we have just heard the great news that the Melanoma Research Alliance (MRA) had distinguished Manuel Valiente, head of the Brain Metastasis Group, with one of its prizes for young researchers. Over the next three years, this prestigious organisation will fund one of Valiente's projects to investigate brain metastases linked to skin cancer.

Another of our leading researchers in these months has been Luis Paz-Ares, head of the H120-CNIO Lung Cancer Clinical Research Unit, who has been awarded the Lilly Foundation Award for Clinical Biomedical Research, which celebrates its 16th edition this year. The organisation has recognised his contribution to the knowledge of the molecular biology of lung cancer and its treatment.



Isabel Barthelemy, Director of Scientific Management at the CNIO collecting the check from Testo.

Lastly, we would like to welcome Instrumentos Testo, a company that specialises in portable measuring instruments. A few weeks ago, Testo launched a charity challenge to cover a distance of 25,000km, and they have succeeded. Their commitment was to donate the equivalent in euros to *CNIO Friends*, and they have done so. A great thank-you to the company, and to all who participated in this challenge.



## «We have the opportunity to carry out cutting-edge structural biology that can compete with anyone»

Starting September, Rafael Fernández Leiro will lead a Genome Integrity and Structural Biology Group, which will be focusing their efforts on studying the structure and functioning of protein systems involved in DNA replication and repair. Their arrival is the second reinforcement to further strengthen the renewed Structural Biology Programme.

### Please explain why you are using electron microscopy, why is it important in your research?

Electron microscopy enables imaging of molecules almost at the atomic level and, in addition, to observe dynamic and flexible systems that are otherwise difficult to study. This is what happens, for example, with the molecular complexes involved in DNA replication and repair. My group will mainly use high-resolution electron microscopy to study the structures of this molecular machinery involved in processes that are important for cellular functions and to understand how they work. This will allow us to understand their involvement in various diseases, such as cancer, and to explore new therapeutic targets to modify their activity.

### What has driven you to come to the CNIO?

The field of electron microscopy has come a long way in the past few years thanks to technological advances that enable us to do more and to achieve new goals. Now the CNIO has decided to apply this branch

Rafael Fernández Leiro  
Group Leader



of research and thanks to this effort they have created an excellent opportunity for researchers like me. This is exciting because the scientific level is very high and the opportunities for collaborating with other groups at the Centre are many and very stimulating. We have the opportunity to perform leading structural biology that can compete with anyone.

### What are the challenges and objectives you are facing in this new stage?

The CNIO has placed great trust in me with this opportunity to start my group. I hope to be able to meet their expectations by doing good science and contributing to the training of other scientists who join the group. In addition, the structural biology programme has undergone a major restructuring process, implementing new technology in structural biology. I hope that my experience in electron microscopy will contribute to the success of the programme.

## PROFILE



Natalia Flores Sanz  
Women & Sports Program Director (CSD)

When Natalia Flores was eight, nine years old, she played football in the squares and parks in her native Fuenlabrada with her male friends. She was as good as them, including Fernando Torres, but at six in the evening, they went to training with their teams and she was left alone. Back in 1990, it was not easy to find a female team. In spite of the difficulties, Natalia Flores has always achieved what she set out to do. She played with the national five-a-side football team in 2006 for the first time and, since then, she has been called up regularly, being runners-up twice

at the world championships. She has also won the league three times and four Spanish Super Cups. Her sporting career earned her the Silver Medal of the Madrid Federation in 2016, and she has been able to combine it with two University degrees, a master's degree, several coaching qualifications and her job.

The life of an elite athlete – as Flores has shown – has little in common with that of a man. The sporting merits are the same, but neither the recognition nor the remuneration nor the effort outside of the game are comparable.

A little over one year ago she retired to dedicate her time exclusively to the Women and Sports Programme of the National Sports Council of Spain (CSD), which she has been managing since March 2014. From here, Flores promotes policies and initiatives aimed at improving the conditions of women in sport and at promoting gender equality in sport: organising events at schools or at sporting federations. A necessary task that has already begun to bear fruit.

## INVITED SEMINARS

### DISTINGUISHED SEMINARS

5 MAY  
VERA GORBUNOVA  
University of Rochester (USA)

19 MAY  
OSCAR MARÍN  
New Hunt's House King's College (UK)

16 JUNE  
GUILLERMO OLIVER  
Feinberg Cardiovascular Research Institute.  
University of Rochester (USA)

### WOMEN IN SCIENCE OFFICE SEMINARS

23 MAY  
NATALIA FLORES SANZ  
Women and Sports Program Director. National Sports Council of Spain (CSD)

