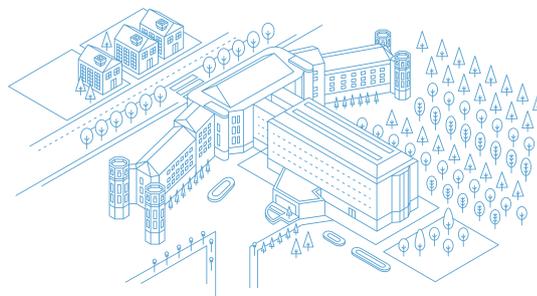


# CNIO FRIENDS

## newsletter

Latest news from the Spanish National Cancer Research Centre



**COLUMN**

### CNIO, the leading cancer research centre in Europe

I would like to celebrate some great news with you today: the international Nature Index has ranked us in the top spot of European cancer research centres, a position that had been held for several years by The Netherlands Cancer Institute. What's more, Nature Index has ranked us fourth worldwide, behind the three main research centres in the United States. In this global classification, CNIO is the only Spanish research centre in the Top 100.

We are very proud to see that, in spite of the difficulties we face to develop high-level science in Spain, the research quality of CNIO does not stop growing on a worldwide scale. We will strive to continue doing so because increased knowledge of cancer and developing treatments to combat it is our main priority.

I would like to thank all of you for your support, as you have enabled us to bring more scientific talent to the CNIO. Through the International Postdoctoral Contract *CNIO Friends* Programme, thanks to your donations, we recruited four young scientists to investigate liver and kidney cancer, brain metastasis, as well as lung, breast and neuroblastoma tumours over the next two years. The new recipients of the *CNIO Friends* postdoctoral contracts are: Rubén Martínez, María Moreno, Neibla Priego and Sarita Saraswati. We wish them all good luck and many exciting discoveries!

—MARIA A. BLASCO  
Director

**CNIO SCIENCE NEWS**

Researchers from the CNIO Prostate Cancer Clinical Research Unit have confirmed the link between the most aggressive prostate cancer and hereditary breast cancer. Identifying these mutations in prostate cancer patients as early as possible is important for them to have access to adequate treatments, but also for their relatives as candidates to family-based cancer prevention programmes.

The researchers have discovered that advanced prostate cancer patients with mutations in the BRCA2 gene have worse outcomes and poor responses to standard treatments. On the other

hand, they will investigate whether these patients will benefit from other therapies that are already being used to treat ovarian and breast cancer.

These are the findings of a pioneering worldwide study, PROREPAIR-B, which has followed up over 400 patients with advanced prostate cancer for five years in search of genetic markers associated with disease evolution and treatment response. The Instituto de Investigación Biomédica de Málaga (IBIMA), the Instituto de Genética Médica y Molecular (INGEMM) and 38 hospitals have participated in the study (+).

**OUR CENTRE**



© Chema Madoz, for CNIO Arte

The International Postdoctoral Contract 'CNIO Friends' Programme has enabled four young researchers to seek new strategies to fight cancer over the next two years. Rubén Martínez will analyse alterations in lung, breast and neuroblastoma tumours; María Moreno will study the CAD protein, which is overactive in all types of cancer; Neibla Priego will look into new therapies against brain metastasis; and Sarita Saraswati will study the causes of fibrosis in order to discover new therapies for treatment of this disease as well as liver and kidney cancer (+).

Last year, we introduced CNIO Arte, a wonderful adventure that brought together science and art

with a philanthropic goal: to support our cancer research through CNIO Friends. On February 19, we presented the second edition with two outstanding protagonists: the physicist Ignacio Cirac and the photographer Chema Madoz. The former is one of the world's most internationally renowned scientists in the field of quantum information, and winner of the Prince of Asturias Prize; the latter is a craftsman, a builder of visual poetry and winner of the National Photography Prize. From their conversations, Madoz has created a work inspired by Cirac's science – which can be seen in the column on the left – of which 30 photo-engravings have been made; these will be put on sale and the profits will go entirely to *CNIO Friends* (+).

Manuel Valiente, Head of the Brain Metastasis Group, has been selected by the European Molecular Biology Organisation (EMBO) to form part of its network of Young Researchers; an exclusive network that brings together the most outstanding young European researchers in the field of life sciences. Valiente will receive EMBO support over the next four years to continue researching brain metastasis. Congratulations! (+)





# “We are improving clinical guidelines to personalise prostate cancer treatment”

We have spoken to Elena Castro, researcher in the CNIO Prostate Cancer Clinical Research Unit, which is headed by David Olmos. She is the first author of the study that has confirmed the relationship between the most aggressive prostate cancer and hereditary breast cancer.

### What are the implications of this relationship?

The most direct implication is that relatives of prostate cancer patients with hereditary mutations in the BRCA2 gene, or in other genes involved in DNA repair, have a greater risk of suffering from prostate cancer, but also from ovarian and breast cancer. These healthy relatives may be able to benefit from prevention and early detection programmes. It should be noted that almost one in three prostate cancer patients – in whom such mutations are found – did not have a previous family history of cancer that might have indicated such genetic alterations, and according to the current clinical guidelines, they did not fulfil the criteria to look for such mutations. Fortunately, the results of our study and those of other researchers are prompting a change in these recommendations.

### How can this lead to improved treatment for prostate cancer patients?

The fact that patients with hereditary mutations in BRCA2 respond to the therapies available for prostate cancer for shorter periods of time underlines the need to develop specific therapeutic strategies for these patients, such as PARP inhibitors or platin-based chemotherapy, which is already being used to treat breast and ovarian cancers with these genetic alterations.



Photo: CNIO

**Elena Castro**  
Researcher in the Prostate Cancer Clinical Research Unit led by David Olmos

### What are the next steps of the study?

Unlike other pathologies, there are currently no biomarkers that can help us predict the most appropriate treatment (among those available) for a prostate cancer patient, so we still treat all patients in the same way. The preliminary results of our study suggest that treating patients that carry BRCA2 mutations with enzalutamide and abiraterone therapies could be preferable to treating them with other known therapies such as taxanes. Our next goal is to validate these results in a wider group of patients.

We have received funding from the United States Department of Defense that will enable us to draw a molecular profiling of the tumours in the 419 patients included in the study, and to associate it with the responses to the treatments received. On the other hand, this funding will enable us to conduct a study on the benefits of early platinum-based therapy in prostate cancer patients that also have deficiencies in DNA repair mechanisms. Platinum-based drugs are medications with limited commercial interest so their use must be exploited through further studies.



## PROFILE



Photo: CNIO

**Jan H.J. Hoeijmakers**  
Erasmus MC (Netherlands)

Within the Distinguished Seminars Series, on January 25, we welcomed an excellent talk by Jan H.J. Hoeijmakers on the protective effect of nutritional interventions in aging produced by DNA damage.

Hoeijmakers is one of the world’s leading experts in DNA repair mechanisms, which are essential for health and disease (damage to genes are the main causes of cancer and many aging diseases). At the beginning of the 1980s, Hoeijmakers cloned the first human genes responsible for this mechanism and discovered their solid evolutionary stability. Since then, his studies have found the bases of some syndromes associated with DNA repair and have identified an important anti-cancer and anti-aging survival response, which means that the energy that the cells normally use for metabolism are used to defend themselves against this damage.

His career has been recognised with many awards, such as the Charles Rodolphe Brupbacher Foundation Prize and the Order of the Netherlands Lion.



## INVITED SEMINARS

### DISTINGUISHED SEMINARS

**18 JANUARY**  
**JEREMY N. RICH**  
University of California (United States)

**25 JANUARY**  
**JAN H.J. HOEIJMAKERS**  
Erasmus MC (Netherlands)

**1 FEBRUARY**  
**MAITE HUARTE**  
University of Navarra (Spain)

**8 FEBRUARY**  
**REBECCA FITZGERALD**  
University of Cambridge Hutchison/MRC Research Centre (United Kingdom)

**15 FEBRUARY**  
**DIDIER STAINIER**  
Max Planck Institute (Germany)

**22 FEBRUARY**  
**RICCARDO DALLA FAVERA**  
Columbia University (United States)

### WOMEN IN SCIENCE OFFICE SEMINARS

**12 FEBRUARY**  
**ROSA MONTERO**  
Journalist and writer (Spain)

