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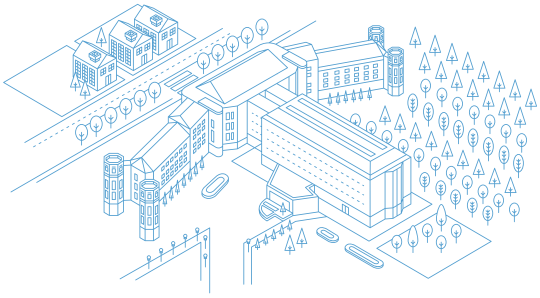
CNIO FRIENDS *newsletter*

Latest news from the Spanish National Cancer Research Centre



COLUMN

Reasons to be optimistic

The *CNIO Friends* initiative has once again this year provided us with a great deal of satisfaction, and your solidarity, support and hard work pushes us even further, in as far as possible, in our mission to advance research cancer. Over the course of 2017, we embarked on numerous activities as part of this philanthropic initiative, such as the publication of *Excelentes*, a book that showcases some of the best portraits by visual artist Amparo Garrido, who has photographed several notable figures hosted at our Centre. The launch of this book was attended by Mago More and José Mota, who were also involved in another of these actions designed to raise our profile. In this case, the two comedians selflessly donated their time to record a sketch that highlights the work of CNIO and the importance of collaborating with us. In addition to these initiatives, we have renewed agreements with our partner firms, we have signed new agreements, and a whole host of activities (concerts, races, dinners...) have been held by dozens of institutions and anonymous citizens to raise money for *CNIO Friends*. All of these events and activities, which are reflected in the Annual Report we have just published, allow us to view the future with optimism. The Annual Report is available at: http://www.cnio.es/ar2017

—MARIA A. BLASCO
Director

CNIO SCIENCE NEWS

The Seve Ballesteros Foundation-CNIO Brain Tumour Group has developed an extremely powerful and versatile mouse model that will improve cancer research and accelerate pre-clinical testing of novel targeted therapies. This model has been developed using the genome editing technology CRISPR-Cas9 combined with the RCAS/TVA system. Their work appears in *Nature Communications* **(1)**. Researchers from the Structural Biology Programme have determined, for the first time, the high-resolution structure of a complex (R2TP) involved in key cell survival processes and in diseases such as cancer. This achievement has been made possible thanks to the use of high-resolution cryo-electron microscopy and was also published in *Nature Communications* **(2)**. One of the most constant and active areas in cancer research is the search for a treatment aimed specifically at the *Ras* gene family, the most common oncogenes and those that initiate many of the most lethal tumours. However, the results of this hypothetical treatment may be far less positive than speculated due to a manuscript published in *Genes & Development* by the Genomic Instability Group. The study shows how cells are capable of surviving even in the total absence of *Ras* genes if another gene, *Erf*, is also lost **(3)**. In a paper published in *Nature Communications*, the Telomeres and Telomerase Group has taken an important step forward by discovering that TERRAs play a decisive role in the assembly of telomeric heterochromatin. The authors discover that TERRAs are able to interact with components of the polycomb complex (PRC), an important epigenetic regulator of gene expression, and in this manner they facilitate the assembly of telomeric heterochromatin **(4)**.

OUR CENTRE

One of our most important partners is *Juegaterapia*. In addition to its laudable work improving the lives of children with cancer, this foundation has a commitment to researching the disease. Two years ago, it made a donation to the CNIO for that very purpose, and a few days ago it presented a second donation for 100,000 euros, raised from the sales of Baby Pelones dolls. The signing of the agreement was attended by singer David Bisbal, as an Honorary Ambassador for *Juegaterapia*, along with its most senior figures: Mónica Esteban, President, and Valle Sallés, Vice President.

When it comes to renewals, we should also mention the educational project CNIO & The City, which has once again been chosen by the Spanish Foundation for Science and Technology (FECYT) to receive funding as part of its Grants Programme for the Promotion of Scientific-Technological Culture and Innovation in 2018.

Signing of the agreement with Juegaterapia./ CNIO

Finally, our researcher Ana Teijeiro, a member of the Growth Factors, Nutrients and Cancer Group, received the 2017 Science Innovation Award for Young Researchers presented by the Pfizer Foundation, for her studies on obesity, non-alcoholic fatty liver disease and hepatocellular carcinoma.

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FOLLOW US

INTERVIEW

«I would like to encourage everyone to collaborate because we will all benefit from the results obtained»

CNIO Friends has launched a scholarships and contracts programme to attract new talent. Two new postdoctoral researchers have now been granted one of these contracts: Carolina Maestre, from the Cell Division and Cancer Group, led by Marcos Malumbres, and Sebastián Thompson, from the Growth Factors, Nutrients and Cancer Group, led by Nabil Djouder.

Sebastián Thompson
Carolina Maestre

What will you be working on with to this grant?

C.M. Receiving this grant will allow me to continue working on the cell division project, which I have been involved with since joining the centre. We have identified a molecule that regulates mitosis and which is involved in the survival of tumour cells during their division, and we think that if we manage to inhibit its function, we could attack tumour proliferation. So our aim is to evaluate the therapeutic relevance of inhibiting this molecule in cancerous cells.

S.T. My field of research is nanotechnology. In recent years, the biggest problem has been in locating nano sized chemical compounds (nanoparticles) in tumours (which is why nanotechnology therapies have not yet been applied in the treatment of human carcinomas). Currently, only 1% of what we inject is reaching the tumour. The rest ends up in the liver or other healthy organs. I am working to find the way of getting more of these nanoparticles to reach the tumours, which would pave the way to apply the latest advances in nanotechnology to the treatment of cancer.

Why are philantropy and initiatives like CNIO Friends important?

C.M. I think these kinds of initiatives are very important because they help to fund research and projects that would not otherwise be developed. Furthermore, in the case of *CNIO Friends*, resources are being allocated to the creation of post-doctoral contracts, which are particularly thin on the ground at the moment. I would like to thank everyone who has collaborated with this initiative, which is allowing me to continue my scientific career in Spain, and I would like to encourage everyone to collaborate, within their possibilities, because in the long run, the results will benefit us all.

S.T.. I think they are important because they can reach scientists in different ways. Initiatives such as *CNIO Friends* can reward certain scientists based on the potential of their projects and the level of innovation. From the perspective of the donor, seeing that their money is being used for a desired purpose, I think, is very enriching and necessary.

PROFILE

Arlene Sharpe
Harvard Medical School

From time to time, the name Arlene Sharpe appears on the Nobel Prize betting lists. And with good reason, since this pathologist and immunologist from Harvard Medical School is one of the pioneers of cancer immunotherapy. On 13 April of this year, she visited CNIO to take part in the Distinguished Seminars lecture series, talking about the PD1 pathway, one of the pillars of immunotherapy that she discovered. Sharpe has invested the majority of her scientific career in investigating the regulation of T lymphocyte pathways, which she never thought would lead to cancer immunotherapy, and which are currently changing the way this disease is tackled. Her brilliant and rigorous career has led her to become the George Fabyan Professor of Comparative Pathology and to head up the Immunology Department at Harvard Medical School. She also directs the cancer immunology department at two of the most prestigious clinical centres in Boston (and the world): the Brigham and Women's Hospital and the Dana-Farber Cancer Institute. Sharpe has also been the president of the American Association of Immunologists, and in the speech she gave at the 2017 annual meeting, she uttered these words, which sum up her passion and commitment: "I really cannot imagine a more exciting time to be an immunologist. We are the start of the pipeline; the reason advances in cancer immunotherapy provide just one example of how investment in basic science research can have an important impact on human's health".

INVITED SEMINARS

DISTINGUISHED SEMINARS

23 MARCH
KIYOSHI NAGAI
MRC Laboratory of Molecular Biology (UK)

6 APRIL
STEFAN KUBICEK
CeMM Research Center for Molecular Medicine (Austria)

13 APRIL
ARLENE SHARPE
Harvard Medical School (USA)

20 APRIL
ADRIAN R. KRAINER
Cold Spring Harbor Laboratory (USA)

WOMEN IN SCIENCE OFFICE SEMINARS

6 MARCH
FÁTIMA BOSCH
Autonomous University of Barcelona (Spain)

24 APRIL
VICTORIA SAMPS
Autonomous University of Barcelona (Spain)