

## EDUCATION AND TRAINING PROGRAMMES

One of the principal goals of the CNIO is to increase its training capacity in order to give students and professionals the opportunity to advance their careers in the healthcare sector. During 2018, the CNIO signed several new agreements with Spanish Universities and other institutions, namely with the

*Universidad de Francisco de Vitoria, Universidad Alfonso X el Sabio, University Sapienza di Roma, Universidad Operta de Cataluña, Universidad San Pablo CEU; IES Jose Luis San Pedro, IES Las Musas, Rozona Centro de Formación, Centro Educativo Maria Inmaculada and Fundación Juegaterapia.*

TRAINING PROGRAMMES	PARTICIPANTS IN EDUCATION AND TRAINING PROGRAMMES				
	2014	2015	2016	2017	2018
Training of PhD students	108	105	110	112	<b>109</b>
Post-doctoral training	55	48	51	44	<b>50</b>
Training for MDs	14	25	17	21	<b>12</b>
Laboratory training for MSc/BSc students	73	80	95	99	<b>128</b>
Laboratory training for technicians	21	27	26	20	<b>13</b>

### TRAINING OF BSC/MSC STUDENTS

The CNIO is committed to training junior scientists at the onset of their careers. To this end, the Centre has established a Programme that offers BSc and MSc students the opportunity to obtain hands-on practical laboratory experience by working on ongoing research projects in one of the CNIO groups. The CNIO offers 2 types of short-term laboratory training:

- An annual Summer Training Programme for undergraduate students, from any country, who are in their last years of study in the biomedical field. The Programme encompasses 8 weeks of full-time laboratory training (292.5 hours). During this time, the students actively participate in research projects in one of the CNIO groups. During 2018, 5 students from 2 different countries participated in this programme.
- Additionally, students can apply for laboratory training throughout the academic year by directly contacting the Heads of CNIO individual Research Groups or Units. This year, 128 students participated in these programmes, of whom 8 ended up joining the CNIO as pre-doctoral students.

### TRAINING OF PHD STUDENTS

The training of PhD students in cutting-edge cancer research is of key importance to the CNIO. The Centre offers many opportunities for bright and dynamic university graduates, of all nationalities, to pursue an ambitious PhD project. To attest this, 8 students obtained their PhD degrees in 2018 and 21 others joined the CNIO in the same year. Over 15% of the 109 students working at the CNIO in 2018 were graduates from foreign universities, thus contributing to the internationalisation of the Centre.

Since 2008, the *Fundación "la Caixa"* offers international fellowships to PhD students to enable them to carry out their thesis projects in biomedical research in Spanish centres of excellence. The CNIO was chosen, as one of such centres, to launch a programme for outstanding young pre-doctoral students, from all over the world, who have an interest in pursuing an ambitious PhD project. Since 2013, the former Spanish Ministry of Economy, Industry and Competitiveness (now Ministry of Science, Innovation and Universities) has undertaken efforts to link the "la Caixa"/CNIO International PhD Programme to distinguished research centres accredited as "Severo Ochoa" Centres of Excellence. In 2018, a new call for the doctoral fellowship programme of the "la Caixa" Foundation, named INPhINIT, was launched to recruit outstanding international students: 1 pre-doctoral student received one of these 3-year contracts. The *Fundación "la Caixa"* also launched another call to carry out a doctorate at Spanish universities and research centres; the CNIO was chosen as a host institution. During 2018, 1 pre-doctoral student received this fellowship.

The distribution of students across the CNIO's Research Programmes in 2018 was as follows: 48% of students worked in the Molecular Oncology Programme, 13% in the Structural Biology Programme, 18% in the Cancer Cell Biology Programme, 13% in the Human Cancer Genetics Programme, 1% in the Experimental Therapeutics Programme, 2% in the Biotechnology Programme, and 5% in the Clinical Research Programme.

Thanks to an individual donation received through the 'CNIO Friends' platform, CNIO created the Predoctoral Maria Oliva Contract Programme that offered one position to carry out a thesis at the CNIO. This call is expected to have only this one single edition.

**MANY PEOPLE FORM PART OF HISTORY. ONLY A FEW MANAGE TO CHANGE IT.**

We're offering 57 fellowships to talented researchers of any nationality to carry out a doctorate in the disciplines of Bio and Health Sciences, Technology, Physics, Engineering and Mathematics.

For more information and applications: [www.inphinitlacaixa.org](http://www.inphinitlacaixa.org)



FUNDING OF PHD TRAINING	NO.
<b>SPANISH ORGANISATIONS</b>	<b>89</b>
State Research Agency / <i>Agencia Estatal de Investigación (AEI)</i> . Ministry of Science, Innovation and Universities / <i>Ministerio de Ciencia, Innovación y Universidades (MCIU)</i> (Predoctoral Fellowships)	34
State Research Agency / <i>Agencia Estatal de Investigación (AEI)</i> . Ministry of Science, Innovation and Universities / <i>Ministerio de Ciencia, Innovación y Universidades (MCIU)</i> (I+D Projects)	16
Ministry of Education and Vocational Training / <i>Ministerio de Educación y Formación Profesional</i> (Predoctoral Fellowships)	6
Institute of Health Carlos III / <i>Instituto de Salud Carlos III (ISCIII)</i>	8
"la Caixa" Banking Foundation / <i>Fundación Bancaria "la Caixa"</i> (Predoctoral Fellowships)	11
Spanish Association Against Cancer (AECC) / <i>Fundación Científica de la AECC</i> (I+D Projects)	2
Community of Madrid / <i>Comunidad de Madrid</i>	3
Cris Foundation / <i>Fundación Cris</i>	4
A3Media Foundation	1
CNIO	2
Banco Santander Foundation / <i>Fundación Banco Santander</i>	1
Inocente Inocente Foundation	1
<b>INTERNATIONAL ORGANISATIONS</b>	<b>20</b>
Celgene	1
China Scholarship Council (CSC)	2
Consejo Nacional de Ciencia y Tecnología (Mexico)	2
European Research Council	6
GENCODE	2
Human Frontier Science Program Foundation	1
Marie Skłodowska-Curie actions of the European Commission	2
National Institutes of Health	1
Pfizer	1
Portuguese Foundation for Science and Technology (FCT)	1
Roche	1
<b>TOTAL</b>	<b>109</b>

## POST-DOCTORAL TRAINING

One of the CNIO's prime objectives is to attract young researchers, who have recently obtained their PhD or MD degrees, and to offer them highly attractive research projects at the forefront of cancer research.

In 2018, 50 postdoctoral fellows worked at the CNIO. Notably, about one third of these fellows were from outside of Spain, many coming from very prestigious international institutions.

In 2018, the *Fundación Banco Santander* signed a new annual agreement with the CNIO to continue the highly competitive fellowship programme aimed at supporting outstanding young scientists who have been trained in the UK or in the USA, and who wish to start or continue their postdoctoral training at the CNIO. One young scientist from the Memorial Sloan Kettering Cancer Center (USA) was awarded the *Banco Santander* Foundation-CNIO Fellowship in early 2018.

Thanks to the donations received through the 'CNIO Friends' platform launched in 2016, the third call of the 'CNIO Friends' Postdoctoral Contract Programme, in 2018, resulted in the recruitment of 4 scientists for a 2-year period each. Also, thanks to a 'Juegaterapia-CNIO Friends' Postdoctoral Contract, in 2018, one scientist was able to continue with her project related to paediatric oncology.

FUNDING SOURCES OF POST-DOCTORAL RESEARCHERS	NO.
<b>SPANISH ORGANISATIONS</b>	<b>34</b>
State Research Agency / <i>Agencia Estatal de Investigación (AEI)</i> . Ministry of Science, Innovation and Universities / <i>Ministerio de Ciencia, Innovación y Universidades (MCIU)</i> (Postdoctoral Fellowships)	3
State Research Agency / <i>Agencia Estatal de Investigación (AEI)</i> . Ministry of Science, Innovation and Universities / <i>Ministerio de Ciencia, Innovación y Universidades (MCIU)</i> (I+D Projects)	9
Institute of Health Carlos III / <i>Instituto de Salud Carlos III (ISCIII)</i> (Postdoctoral Fellowships)	1
Spanish Association Against Cancer (AECC) / <i>Fundación Científica de la AECC</i> (Fellowships)	3
Spanish Association Against Cancer (AECC) / <i>Fundación Científica de la AECC</i> (I+D Projects)	2
Spanish Society of Haematology and Haemotherapy	1
Worldwide Cancer Research UK	1
La Marató TV3 Foundation / <i>Fundació La Marató TV3</i>	1
Melanoma Research Alliance	1
CNIO	9
Centre for Molecular Biology "Severo Ochoa" / <i>Centro de Biología Molecular Severo Ochoa (CBMSO)</i>	1
Banco Santander Foundation / <i>Fundación Banco Santander</i>	2
<b>INTERNATIONAL ORGANISATIONS</b>	<b>16</b>
European Commission Framework Programme / H2020	1
Marie Skłodowska-Curie actions of the European Commission	3
Pfizer	1
Worldwide Cancer Research UK	5
AstraZeneca- MedImmune	1
Daiichi Sankyo	1
European Research Council	2
The Paradifference Foundation	1
US Department of Defense	1
<b>TOTAL</b>	<b>50</b>

## POSTGRADUATE PROGRAMMES

In addition, the CNIO — in collaboration with academic institutions across Spain — provides access to a variety of postgraduate programmes that cover the areas of Cellular &

Molecular Biology, Molecular Biomedicine, Biotechnology, Biocomputing, Clinical & Applied Cancer Research, and Therapeutic Targets.

### Official Postgraduate Programmes in Molecular Biosciences

The majority of the international postgraduate trainings offered at the CNIO are developed in collaboration with the Faculty of Medicine and Faculty of Sciences at the Autonomous University of Madrid (UAM). These trainings fall under 4 official Postgraduate Programmes, namely, the Doctorate in Molecular Biosciences, Master's in Biomolecules & Cell Dynamics, Master's in Molecular Biomedicine, and Master's in Biotechnology. CNIO also collaborates with the UAM as a partner institution of UAM's Doctoral School (EDUAM), and is a member of the Management Committee.



### Master's Degree in Biocomputing Applied to Personalised Medicine and Health

The Master's in *Bioinformática Aplicada a Medicina Personalizada y Salud* is organised together with the National School of Health of the National Institute of Health Carlos III (*Escuela Nacional de Sanidad del Instituto de Salud Carlos III, ENS-ISCiii*).



### Official Master's Degree in Clinical and Applied Cancer Research

The CNIO and the CEU-San Pablo University in Madrid (USP-CEU) co-organise a Postgraduate Training Programme in Clinical and Applied Cancer Research: the *Máster Universitario en Investigación Clínica y Aplicada en Oncología*.



### Official Master's Degree in Therapeutic Targets of Cell Signalling: Research and Development

The CNIO collaborates with the Biochemistry and Molecular Biology Department at the University of Alcalá de Henares (UAH) for the *Máster Oficial en Dianas Terapéuticas en Señalización Celular: Investigación y Desarrollo*.



## LABORATORY TRAINING FOR TECHNICIANS

This training programme has been developed for students in Anatomical Pathology, Clinical Diagnostic Laboratory, and Archiving/Recording; it is organised through agreements with 19 institutions that provide secondary education for laboratory technicians in Spain. It provides students with

hands-on knowledge in cellular and molecular biology techniques. The programme consists of 14 weeks (370-400 hours) of laboratory training for students. Of the 13 students who participated in this programme in 2018, 2 were hired by the CNIO.

## TRAINING FOR MDS

In line with CNIO's commitment to bridge the "bench to bedside" gap, the Centre offers 3 training opportunity programmes to MDs and other health care professionals. Training usually consists of a 3-month period during residency.

In 2018, 12 medical residents from 10 different hospitals enjoyed the benefits of rotations within the different Groups and Units at the CNIO.

## ADVANCED TRAINING OF SCIENTISTS THROUGH EXTRAMURAL PROGRAMMES

During 2018, the *Ramón y Cajal* Programme supported 7 scientists. This special initiative, established in 2001 by the former Spanish Ministry of Science and Technology (currently the State Research Agency of the Spanish Ministry of Science, Innovation and Universities) aims to encourage Spanish or foreign scientists working abroad to return to or relocate to Spain. Successful candidates are selected on the basis of their potential capacity to lead independent projects and groups,

or to contribute successfully to the ongoing research in the existing groups. Eight other scientists were funded by similar programmes, including the *Juan de la Cierva* programme (Spanish Ministry of Science, Innovation and Universities, 2 contracts); *Miguel Servet* programme (1 contract) of the Institute of Health *Carlos III*; and the Spanish Association Against Cancer (*AECC*, 5 contracts).

## VISITING RESEARCHER PROGRAMME

The *Jesús Serra* Foundation, part of the *Catalana Occidente* Group, aims to help eminent international specialists work together with CNIO researchers for a few months in order for them to expand their knowledge in areas of common interest. During 2018, Scott Lowe, from the Memorial Sloan Kettering Cancer Centre in New York (USA) was beneficiary of the *Jesús Serra* Foundation's Visiting Researcher Programme.



## 'SCIENCE BY WOMEN' PROGRAMME

Thanks to the 'Science by Women' Programme, launched by the Spanish 'Fundación Mujeres por África', the CNIO has selected Hayet Rafa, from the University of Science and Technology Houari Boumediene in Algiers (Algeria), to carry out a 6-month stay at the CNIO during 2019.

