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 2019, the CNIO signed several new agreements with Spanish Universities and other institutions, namely with the Universidad de Alcalá de Henares, Universidad San Pablo CEU, Universidad de Barcelona, Universidad Oerta de Cataluña, Universidad Castilla La Mancha, Universidad de Oviedo, IES Félix Rodríguez de la Fuente, IES Villaverde, IES Principe Felipe, Rocas Educación SL, Centro Profesional Europeo de Madrid, Escuela Técnica de Enseñanzas Especializadas, Colegio Virgen de Mirasierra and Ministerio de Ciencia, Innovación y Universidades.

EDUCATION AND TRAINING PROGRAMMES

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 2019, 6 students from 3 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, 150 students participated in these programmes, of whom 7 ended up joining the CNIO as pre-doctoral 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. Attesting to this, 14 students obtained their PhD degrees in 2019 and 21 others joined the CNIO in the same year. Over 15% of the 100 students working at the CNIO in 2019 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, such as the CNIO. In 2018, a new call for the doctoral fellowship programme of the “la Caixa” Foundation, named INPhINIT, was launched to recruit talented Early-Stage Researchers of any nationality, who wish to pursue doctoral studies in Spanish or Portuguese territory, offering them an attractive and competitive environment for conducting research of excellence. The CNIO was chosen as a host institution. During 2019, 2 pre-doctoral students received this fellowship to join the CNIO.

<table>
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<th>TRAINING PROGRAMMES</th>
<th>PARTICIPANTS IN EDUCATION AND TRAINING PROGRAMMES</th>
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<td>Training of PhD students</td>
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The distribution of students across the CNIO’s Research Programmes in 2019 was as follows: 67% of students worked in the Molecular Oncology Programme, 13% in the Structural Programmes, 3% in the Clinical Programme, 1% in the Experimental Therapeutics Programme, and 5% in the Biotechnology Programme, and 3% in the Biotechnology Programme, and 5% in the Clinical Programme.

In 2019, 49 postdoctoral fellows worked at the CNIO. Notably, about one third of these fellows were from outside of Spain, and some coming from very prestigious international institutions. In 2019, the Fundación Banco Santander renewed the 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. This call will be closed in 2020.

Thanks to the donations received through the ‘CNIO Friends’ platform launched in 2016, the fourth call of the ‘CNIO Friends’ Postdoctoral Contract Programme, launched in 2019, resulted in the recruitment of 4 scientists for a 2-year period each. Also, thanks to a single donation to ‘CNIO Friends’, CNIO launched the Postdoctoral ‘Eva Plaza/CNIO Friends’ Programme that offered a postdoctoral researcher the opportunity to carry out a 2-year postdoctoral stay at the CNIO, to accomplish a research project on triple negative breast cancer. This call is expected to have only this one single edition.
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 la Medicina Personalizada y la Salud is organised together with the National School of Health of the National Institute of Health Carlos III (Escuela Nacional de Salud 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 2019, 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 2019, 20 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 2019, 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. Seven other scientists were funded by similar programmes, including the Juan de la Cierva programme (Spanish Ministry of Science, Innovation and Universities, 3 contracts), Miguel Servet programme (1 contract) of the Institute of Health Carlos III, and the Spanish Association Against Cancer (AECC, 3 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 2019, Scott Lowe, from the Memorial Sloan Kettering Cancer Centre in New York (USA) and Sonia Lain, from the Karolinska Institute in Stockholm (Sweden) were beneficiaries 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 selected Mai Tolba from Ain Shams University (Egypt), to carry out a 6-month stay at the CNIO during 2020.

During 2019, thanks to this Programme, we had the pleasure of hosting Hayet Rafa from the University of Science and Technology Houari Boumediene, Algiers, for a 6-month stay as a visiting scientist in the CNIO’s Melanoma Group.