

# 5

## TRAINING PROGRAMS



### TRAINING PROGRAMS AND CONTINUING EDUCATION

Training is one of the CNIC's core activities, and the Center has devised a comprehensive training plan, the CNIC-Joven Training Plan. This global plan includes programs for participants at all levels, from high-school students to postdoctoral researchers and MDs. The CNIC-Joven Training Plan aims to fulfill the personal goal of Valentín Fuster "to attract and train the brightest young people from the earliest ages to create a pool of excellent researchers in the field of cardiovascular research."

In 2019, 473 participants were enrolled on CNIC training programs.

#### HIGH SCHOOL A STUDENTS INTERNSHIPS

##### ACÉRCATE PROGRAM

The Acércate Program offers the highest-achieving senior high school students in the natural and health sciences the chance to experience life as a biomedical researcher, with the aim of awakening and strengthening interest in a biomedical research career.

Participants spend two weeks at the CNIC, learning modern techniques used in biomedical research, conducting supervised experiments, operating sophisticated scientific equipment and presenting the results of their work, all under the supervision of CNIC researchers.

*Fellowships in 2019: 8*

The CNIC collaborates with high schools of the Madrid Community in the following training programs:

**4<sup>º</sup>ESO-CNIC:** Sixteen life-science students from eight schools spent from 4 to 5 days at the CNIC laboratories exploring possible scientific careers.

The CNIC was also visited by 12 year-4 high-school students as part of the Programa 4<sup>º</sup>ESO+CNIC 2019. This program provides educational visits to businesses and observation sessions in a professional setting to students in their final year of compulsory secondary education. The aim is to promote a vocation for science among young students. The 12 students visiting the CNIC came from 7 high schools: IES Fortuny, IES Santa Teresa de Jesús, Colegio Raimundo Lulio, and Colegio Santa Francisca Javier Cabrini in Madrid and Colegio Humanitas de Torrejón de Ardoz, Colegio Gredos San Diego El Escorial, and Colegio Calasanz in Alcalá de Henares.



**Practical experience for Technical School students:** This program brought eighteen technical school students studying “Pathological and Cytodiagnostic Anatomy” and “Clinical and Biomedical Laboratory Science” to gain practical curricular experience in the CNIC’s laboratorios over a three-month period.

Moreover, three students studying “Diagnostic Imaging and Nuclear Medicine” and “Clinical and Biomedical Laboratory Science” spent 10 months at the CNIC as part of the DUAL technical study program. The CNIC has signed collaborative agreements for this kind of interships with both DUAL Centers in Madrid offering courses in the Biomedicine field.

## PROGRAMS FOR UNDERGRADUATE STUDENTS

Internships are offered to university students in the following programs:

### **CICERONE PROGRAM**

The Cicerone Program is open to advanced undergraduate students and Master’s students in biomedicine-related disciplines. Participants extend their scientific training through hands-on experience of laboratory-based biomedical research during the summer recess. In addition to carrying out a supervised research project, the students also attend CNIC seminars and workshops. The aim of the program is to give students first-hand knowledge of biomedical research so that they can make informed choices about the possibility of pursuing a scientific career.

*Fellowships in 2019: 29*

### **CURRICULAR AND EXTRACURRICULAR UNIVERSITY PRACTICAL PROGRAM**

The CNIC offers practical training in cardiovascular research to visiting undergraduate students, including those on Erasmus internships.

Internships in 2019: 70 internships from 12 Universities, 4 of them outside Spain.

## MASTERS AND GRADUATE STUDENTS

### **MASTER’S FELLOWSHIP PROGRAM (CNIC-ACCIONA) AND FUNDACION CAROLINA BBVA-CNIC MASTER’S FELLOWSHIP PROGRAM**

These grants provide funding for students studying for a master’s degree at a Spanish university to conduct their experimental project (TFM) in a CNIC laboratory.

*Fellowships in 2019: 15*

### **PREDOCTORAL (PHD) PROGRAM**

The Predoctoral Program provides a unified framework for all CNIC researchers who are working toward a doctoral degree. All predoctoral researchers are signed up to this program, irrespective of their funding source.



The aims of the program are to ensure uniform quality of predoctoral training at the CNIC and further to ensure fair and equal access of predoctoral researchers to training opportunities.

The Program schedules regular meetings between the predoctoral fellow and his or her thesis committee, composed of the thesis director, another CNIC group leader, and an external expert.

*Graduate students at the CNIC awarded a PhD degree in 2019: 17*

*Graduate students studying for a PhD degree at the CNIC in 2019: 100*

### **INSIGHTS INTO RESEARCH IN CARDIOVASCULAR DISEASE MASTERS MODULE**

This postgraduate course is run by the CNIC as part of the Universidad Autónoma de Madrid (UAM) Molecular Biosciences Master’s Program. This optional module provides a broad overview of cardiovascular biology, including perspectives from basic, clinical, and translational research.

Course participants are enrolled UAM Master’s students, CNIC predoctoral researchers, and participants on the Res@CNIC SEC Program (see below).



## MEDICAL INTERN RESIDENTS

### **RES@CNIC PROGRAM**

The Res@CNIC-SEC Program (in collaboration with the Spanish Society of Cardiology, SEC) offers resident medical interns the opportunity during the first years of their specialization period to learn about the latest techniques in cardiovascular research being used in the CNIC's laboratories, under the guidance of a CNIC scientist. Residents participating in RES@CNIC also receive training in theoretical aspects of cardiovascular research through an expert-led taught module. The Program also seeks to create links and collaborations so that on conclusion of their MIR specialization period, these professionals will have the chance to undertake research projects in their respective Hospitals in partnership with CNIC scientists.

*Participants in 2019: 19*

### **INVESMIR SEC PROGRAM**

The INVESMIR SEC Program offers resident medical interns the opportunity during their specialization period to further their training through a research project in one of the CNIC's laboratories, under the supervision of a CNIC scientist.

An important aim of the program is for participants to establish contacts and collaborations with CNIC researchers that will support them, after completion of their MIR specialization training, in pursuing their own research projects at their centers within the Spanish National Health System. In 2019 two resident cardiologist interns participated in this program.

### **RESEARCHERS**

#### **CARDIO JOVEN PROGRAM**

The aim of this program (also organized in collaboration with the SEC) is to foster high-quality translational research in the cardiovascular area in Spanish National Health System centers through training programs providing theory and practical training for cardiologists with a research vocation.

Specific aims:

- a) To create the figure of the cardiologist-researcher by providing high-quality training in clinical research methods, including statistical analysis and the latest basic research techniques used in cardiovascular biomedicine,



as well as opportunities to explore any clinical area of cardiology in greater depth (sub-specialization).

The program is aimed at cardiologists who aspire to carry out advanced clinical and research work at any center within the Spanish National Health System.

- b)** International training. The program offers a period of training toward a Master's Degree in Epidemiology at the London School of Hygiene and Tropical Medicine (90 ECTS)

#### **POST MIR SEA CNIC PROGRAM**

This program offers 1-or 2-year contract for research into electrophysiology and arrhythmias. This contract is available to a physician completing their resident intern specialization (MIR) in cardiology and to members of the SEC Sección de Electrofisiología y Arritmias.

#### **CONTINUING TRAINING**

##### **CARDIOVASCULAR PATHOPHYSIOLOGY COURSE: FROM SYMPTOMS TO GENES**

The two-day Cardiovascular Pathophysiology Course is organized by the CNIC (Borja Ibáñez) in partnership with the SEC (Julián Pérez

Villacastín). Participants receive an overview of the molecular and genetic factors that underlie cardiac diseases and gain an up-to-date vision of cardiac physiology.

*Venue: CNIC Auditorium*

*Dates: December, 13-14, 2019*

*Attendees: 91*

##### **VASCULAR BIOLOGY COURSE**

Valentín Fuster delivers this lecture series on Vascular Biology: Basic and Clinical Research as part of the Universidad Internacional Menéndez Pelayo (cUIMPB) summer program, sponsored by Ferrer International.

In this course, Valentín Fuster tries to “motivate and teach for the future”. Most of the attendees are cardiologists, although others are experts in internal medicine or other specialties. In 2018, delegates came from more than 15 countries, most of them in Latin America and Europe.

*Venue: Cardona Auditorium*

*Dates: July, 15-16, 2019*

*Attendees: 100*