

5 TRAINING PROGRAMS



Training is one of the CNIC's core activities, and the Center has devised a comprehensive training plan, the CNIC-Joven Training Plan that 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 researchers of excellence in the field of cardiovascular research."

HIGH SCHOOL STUDENTS INTERNSHIPS

ACERCATE PROGRAM

The Acércate Program offers the highest-achieving senior high school students in the natural and health sciences an opportunity to experience life as biomedical researchers through a national competitive selection process. The program aims to awaken and strengthen their interest in a career in biomedical research.

Participants spend two weeks at the CNIC, where they learn modern biomedical research techniques, conduct supervised experiments, operate sophisticated scientific equipment, and present their findings, all under the guidance of CNIC researchers.

Fellowships in 2023: 8

4º ESO – CNIC

The Madrid Directorate General of Secondary Education launched the 4th Year ESO + Company Program in the 2008-2009 academic year. This program, classified as a complementary activity, is being adopted voluntarily by an increasing number of schools. Its aim is to bridge the gap between the educational system and the labor market by providing educational placements in companies and institutions. This initiative helps young people become better prepared to make informed decisions about their academic and professional futures, motivating them and equipping them with essential skills.

The CNIC collaborates with the 4ºESO-CNIC Program every year. Last year, 11 life-science students from six schools spent four full days at the CNIC laboratories exploring possible scientific careers.





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 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 pursuing a scientific career.

Fellowships in 2023: 31

CURRICULAR AND EXTRACURRICULAR UNIVERSITY PRACTICAL PROGRAM

The CNIC offers practical training in cardiovascular research to visiting undergraduate students through formal collaborative agreements with Spanish and international universities.

In 2023, 27 students from the following universities completed internships at the CNIC related to their final degree thesis dissertation (TFG) under the guidance of a CNIC supervisor:

- 12 students from the Autonomous University of Madrid
- 3 students from the Polytechnic University of Madrid
- 3 students from the University Carlos III of Madrid
- 3 students from the University Alcalá de Henares
- 2 students from the Complutense University of Madrid

- 1 student from the University Rey Juan Carlos of Madrid
- 1 student from the University of Valencia
- 1 student from the University Castilla la Mancha
- 1 student from the University Francisco Vitoria

In addition, 18 students from Spanish and international universities completed other types of university internships at the Center during 2023 under the guidance of a CNIC supervisor:

13 students from Spanish Universities and 5 international students from Italy, Mexico, Peru, and Tunisia.

PROGRAMS FOR MASTER'S AND GRADUATE STUDENTS

MASTER'S FELLOWSHIP CNIC-ACCIONA PROGRAM AND FUNDACIÓN CAROLINA-CNIC MASTER'S FELLOWSHIP PROGRAM

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

Fellowships in 2023: 12

Other Master's Student Internships

In 2023, another 21 students from the following universities worked on their TFM under the guidance of a CNIC supervisor:

- 11 students from the Autonomous University of Madrid
- 6 students from the Complutense University of Madrid
- 1 student from the University of Alcalá de Henares
- 1 student from University Pompeu Fabra
- 1 student from Umea University, Sweden
- 1 student from Utrecht University, the Netherlands

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 2023: 35

Enrolled at the Autonomous University of Madrid: 29

Enrolled at the Complutense University of Madrid: 3

Enrolled at the Polytechnic University of Madrid: 2

Enrolled at the University of Alcalá de Henares: 1

Graduate students studying for a PhD degree at the CNIC in 2023: 115

The **CNIC PhD Office** is the forum for scientific support, guidance, and growth of all PhD students enrolled on the CNIC Predoctoral Program, independently of their university affiliation or funding source. The office is coordinated by a group leader appointed by the CNIC management.

This office also includes two permanent members (Head of the CNIC Scientific Management office and a manager of the Research Office), and one senior and one junior PhD student, who are elected by the CNIC's PhD students.

In 2023, a two-day course was organized for 24 advanced predoctoral students, led by professional experts, on how to write successful grant and funding applications. The course was divided into four interactive, in-person modules:

How to identify and approach a future supervisor

How to choose an appropriate grant

How to apply for the grant

Benefits of grants and what to do once you receive the award

FRONTIERS IN CARDIOVASCULAR RESEARCH MASTER'S 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.

Attendants on this course are enrolled UAM Master's students, CNIC predoctoral researchers, and participants in the Res@CNIC SEC Program (see below).

UAM Master's students in 2023: 12

PROGRAMS FOR RESIDENT MEDICAL INTERNS

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 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 2023: 25 from the following hospitals:

Complejo Asistencial Universitario de León

Hospital Clínico San Carlos

Hospital Universitaria Central de Asturias

Hospital Universitario Cabueñes

Hospital Universitario de Cruces

Hospital Universitario de Navarra

Hospital Universitario Fundación Jiménez Díaz

Hospital Universitario Ramón y Cajal

Hospital Universitario Virgen de las Nieves

Hospital Universitario Virgen del Rocío



PRACTICAL TRAINING FOR TECHNICAL SCHOOL STUDENTS

In 2023, this program attracted 15 technical school students studying “Pathological Anatomy and Cytopathology”, “Clinical and Biomedical Laboratory”, and “Diagnostic Imaging and Nuclear Medicine” to gain practical experience in the CNIC’s laboratories over a three-month period.

The CNIC has collaborative agreements for this kind of internship with 19 technical training educational centers and with the two DUAL Centers in Madrid offering biomedicine-related courses: Instituto de Educación Secundaria Moratalaz for “Clinical and Biomedical Laboratory” and Instituto de Educación Secundaria San Juan de la Cruz for “Diagnostic Imaging and Nuclear Medicine”.

PROGRAMS FOR 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. One trainee is selected every two years year.

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 at the London School of Hygiene and Tropical Medicine (90 ECTS)

CNIC CONTINUING EDUCATION PROGRAM

CARDIOVASCULAR PATHOPHYSIOLOGY COURSE: FROM SYMPTOMS TO GENES

This course is organized by the CNIC in partnership with the Sociedad Española de Cardiología. The course is aimed at R3, R4, and R5 residents in cardiology and other specialties related to cardiovascular disease, and translational researchers working in the field of cardiology.

Participants receive an overview of the molecular and genetic factors underlying cardiac diseases and gain a current understanding of cardiac physiology through the presentation and discussion of papers authored by CNIC scientists. These sessions are further enriched by contributions from a clinical expert specializing in the topic of each paper.

The XVI edition of this course was held in the CNIC Auditorium on November 24, 2023.

