

UIMP

Universidad Internacional
Menéndez Pelayo



CSIC

CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS

MCIB

Master in Molecular and Cellular Integrative Biology

Science

**Organized in collaboration with
the Spanish National Research Council**

OFFICIAL UNIVERSITY DEGREE

Master/90 ECTS

Madrid

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MCIB

Master in Molecular and Cellular Integrative Biology

Official University Degree

Postgraduate Programme

3 semesters

(October to March of second year)

Location

Centro de Investigaciones Biológicas (CIB-CSIC)

Ramiro de Maeztu, 9

28040 Madrid, Spain

The Master MCIB will provide an advanced training in molecular and cellular life sciences to graduate students in a cutting-edge scientific environment. The school, co-organized by the Spanish National Research Council (CSIC) and the International University Menéndez Pelayo (UIIMP), will focus on training the students in Molecular and Cellular Integrative Biology.

MCIB integrates innovative experimental and/or computational technologies to characterise biological systems at the molecular, cellular, and tissue levels, in order to understand how component properties at one level in the dimensional scale (nano to macro) determine system behaviour at a higher level of complexity. These integrated studies, with natural and minimal synthetic systems, will help to elucidate fundamental principles of biological function and provide a basis for novel biotechnological and biomedical applications.

MCIB is currently organised at a single CSIC location (CIB), establishing a unique -pioneer-in-house research training experience. This novel concept will integrate both students and CIB scientists as a collective action of the whole research centre, bringing together a wide range of experimental expertise and know-how. Students will be exposed to the scientific activities developed in-house, based on synergies among research programs in molecular and cellular biosciences, using front-line technologies and research strategies (i.e., chemical, molecular/cellular and synthetic approaches) to study essential processes and systems with environmental or medical relevance.

MCIB is based on the Max Planck International Research School for Molecular and Cellular Life Sciences established at the Martinsried campus, which has been adapted and scaled to the Spanish research system.

Objectives

The MCIB students will achieve advanced training in a number of topics related to fundamental biology and front-line technologies, environmental biology and biomedicine, which will be analyzed within an integrated research program –the hallmark of MCIB– combining chemical structural, molecular, cellular, synthetic and systemic approaches.

Structure and Timing

The Master will run for 3 academic semesters starting in October until March of the second year. It comprises **90 ECTS credits**, organised in 3 different academic modules, a master research project and a final dissertation/exam.

MCIB will adopt an **innovative format** in which the students will progress rapidly from intensive course instruction to research in their master projects. Most of the MCIB activities will be in English, although Spanish will also be used, as required.

The program will begin with a **course semester** in which the students will be exposed to a broad spectrum of scientific questions and front-line technologies covering areas from fundamental (chemical, structural, molecular and cellular biology) and environmental biology to molecular medicine.

Scientific training will be complemented by a variety of opportunities including lecture series, seminars, courses and participation in research conferences. In addition, a comprehensive **training program in transferable skills** will also be organized to prepare the graduate students for the challenges of a professional career in academia, industry or elsewhere.

This general interdisciplinary training will be combined with a **degree of specialization taking place at the supervisor's laboratory** thereby providing both a broad and an in depth training to the students.

Teaching Programme

Module I: **Foundations of MCIB** (30 ECTS; semester 1)

Code

101972 Research Topics and Programs in MCIB (15 ECTS)

Lecture series covering the core research programs at CIB (chemical and structural biology; molecular cell biology; environmental biology, and molecular and cellular medicine).

101973 Advanced Methods in MCIB (10 ECTS)

Introduction to state-of-the-art techniques and methods in MCIB.

101974 Laboratory Rotations (5 ECTS)

These rotations will help students to choose the laboratory where they will carry out their master research projects (TFM).

Module II: **Frontiers at MCIB** (15 ECTS; semesters 1, 2 and 3)

Code

101975 Special Seminars and Workshops (15 ECTS)

The students will actively participate in a series of special seminars (five per semester) and workshops (one per semester) covering advanced topics in MCIB, including the integrated analysis of molecular machines, molecular/synthetic/systems biotechnology, cross-disciplinary studies from chemistry to medicine, etc. The M2 faculty will consist of internationally recognized leading scientists.

Module III: **Career Development and Technology Transfer Skills Program** (15 ECTS; semesters 1, 2 and 3)

Code

101976 Career Development and Technology Transfer Skills Program (15 ECTS)

The students will be offered lectures and workshops covering a wide-range of research-related topics including scientific communication, quantitative reasoning, scientific writing, oral presentations, project managing, technology transfer, etc. They will provide a unique opportunity to acquire skills that are not routinely communicated in a laboratory environment.

Module IV: **Master Research Project** (TFM) (30 ECTS, semesters 2 and 3)

Code

101977 Master Research Project (TFM) (30 ECTS)

The research project will be carried out along the 2nd and 3rd semesters of MCIB and will be supervised by a senior member of the corresponding laboratory together with the MCIB advisory committee.

Management Board

The practical organization and teaching of MCIB is coordinated within the Centro de Investigaciones Biológicas (CIB) and supervised by the Spanish National Research Council (CSIC) and the International University Menéndez Pelayo (UIMP).

MCIB Directors

Rafael Giraldo Suárez

Research Professor

Centro de Investigaciones Biológicas (CIB)

Spanish National Research Council (CSIC)

Germán Rivas Caballero

Research Professor

Centro de Investigaciones Biológicas (CIB)

Spanish National Research Council (CSIC)

Faculty

A broad selection of research groups at CIB, internationally recognized for their innovative research, will form the core faculty of MCIB, actively contributing to the training and education of the enrolled students. Using state of the art approaches, faculty members aim to answer essential questions relevant to basic and applied biological and biomedical research.

MCIB Coordinators

All coordinators are CSIC tenured scientists at CIB

Patricia Boya

José Fernando Díaz

Enrique J. de la Rosa

Carlos Fernández Tornero

Ana Martínez Gil

Miguel Ángel Peñalva

María Dolores Pérez-Sala

Alicia Prieto

José L. Rodríguez

Cristina Vega

Supervision

The supervision of the students will be done directly by a mentor and an advisory committee consisting of at least three members.

To ensure a balanced committee its members should come from a research area other than the one of the direct supervisor.

The supervisor, together with the advisory committee, will directly report to the MCIB program coordination committee that constantly will monitor student development and progress.

Assessment and rules of attendance

The MCIB committee will evaluate the dissertation and the oral presentation of the Master Research Project. The Master Degree will be awarded to the students that successfully completed the three modules, and pass the qualifying exam at the end of their research project.

Students have a maximum of two examination sittings per year to pass each course and must complete all the credits in the programme within three years.

Issuing of Degrees

At the end of the course successful students will be awarded the official **Master Degree in Molecular and Cellular Integrative Biology** issued by the Chancellor of the UIMP.

Career opportunities

After completing the teaching modules and the Master Research Project, students will have acquired a number of skills that enable them to develop their future activity, both in academia and in the industry/hospitals, not only as active researchers in molecular and cellular life sciences but also as research managers:

- > Training in cutting-edge approaches and technologies on integrated molecular and cellular life sciences.
- > Critical thinking in the development of new ideas or hypotheses.
- > Communication skills to disseminate scientific research results to peers and society.
- > Assimilation of the scientific terminology of the different biological disciplines.
- > Skills to document and report research results according to scientific standards.
- > Transferable skills and management of research projects.

Admissions Requirements

For admission to the Master, students must have an official university degree from an institution of higher education in a country included in the “*European Higher Education Area*” (EHEA). This degree must be valid to access Master education in the issuing country.

Students with an equivalent degree issued by institutions outside the EHEA can be accepted without an explicit, official recognition of qualification after proving the equivalence of the education level and that the given degree gives access to Master education in the country of the issuing institution. The admission of these students does not mean that their degree is recognized in any context other than the admission to the Master.

MCIB is offered to graduate students in Life Sciences, Chemistry, Physics, Mathematics, Engineering and Computer Sciences.

Foreign students are encouraged to apply. Students must be fluent in English (B2 or equivalent level).

Admission criteria:

- > Academic transcript. The average grade on the academic transcript will be taken into account: 65 points.
- > Curriculum Vitae: 15 points.
- > Applicant's profile and its suitability to the aims and content of the Master: 5 points.
- > Personal interview: 10 points.
- > Other merits: 5 points.

All applications will be transferred to the academic Directors of the Master that, together with the Coordinators, will select the alumni according to competitive criteria based on merits.

The selected candidates will be timely contacted by UIMP to proceed with the registration.

Pre-registration and Registration

Maximum number of students: 20.

Pre-registration dates: April - May.

Registration date: June - July.

If there are open slots left, a special preregistration and matriculation period will be opened up in September.

Applications for admission are made through the site Preinscripción on – line accessed from the web of UIMP (www.uimp.es/preins/index.php). The documents should be attached in JPG or PDF format.

Required documentation:

1. **Authenticated photocopy of National ID card**, in the case of Spanish citizens, **or of passport or identity document**, in the case of foreign nationals.
2. **Authenticated photocopy of Degree** giving access to the University Master's.
3. **Personal academic transcripts** (original or authenticated photocopy).
4. **Curriculum Vitae**, so as to facilitate the assessment of other merits appropriate to the admissions profile.
5. **One passport-size photograph.**

Students with a non-homologated foreign degree, or one which is in the process of being homologated, are also requested to provide:

1. **A document from the university** where they have studied attesting to the fact that the courses completed qualify the student for access to post-graduate study in the university's home country.
2. **Personal academic transcripts** indicating the official duration of one's studies in academic years, the course of studies followed, classes taken, and the grades and credits earned in each class.

IMPORTANT: *Academic documents presented are to be legalized and translated into Spanish, where necessary. The requirement for legalization shall not be enforced for documents issued in member states of the European Union, or from states having signed the European Economic Space Agreement.*

Admission of the candidates will be decided by an Academic Commission. The University will duly notify students regarding acceptance to the Master's individually, after which they will have to formally register.

The original documentation required must be provided to the Secretary of Students only if the Academic Committee of the Study supports the request.

Registration

At the time of registration, the following fees apply:

- > Registration fee: price per ECTS. Price does not include the cost of academic visits.
- > Administrative fee, in the first registration.
- > Office expenses, per year.
- > School insurance (under 28 years old), per year.

Other charges:

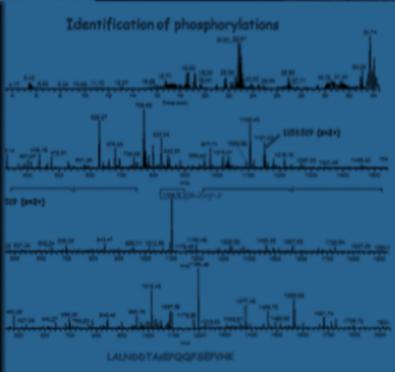
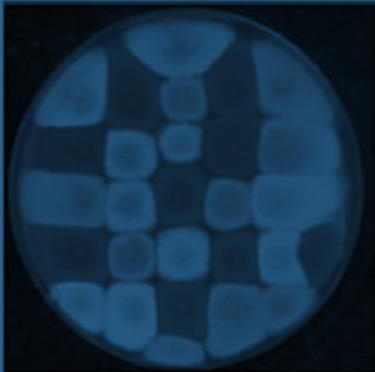
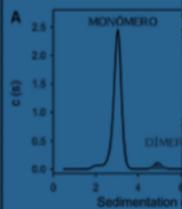
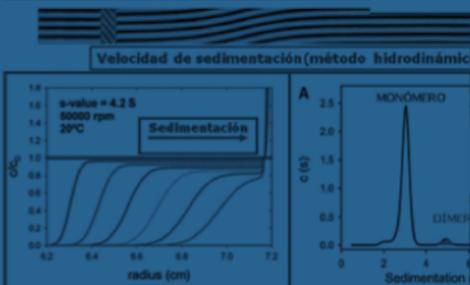
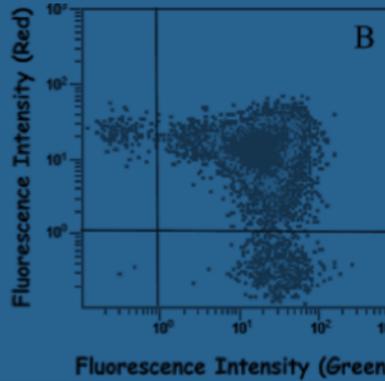
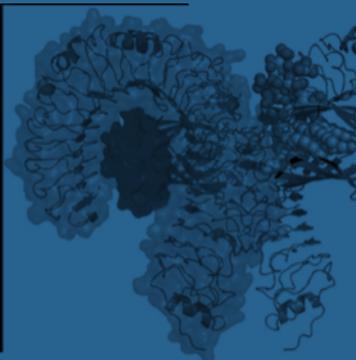
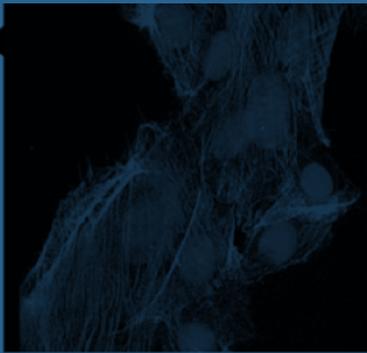
- > Personal academic certification.
- > Issuance of Master's Degree.

NOTE: *Registration and administrative fees, and deadlines for each academic year, are published on the website of the UIMP, upon approval by the Ministry of Education, Culture and Sport.*

UIMP Grants

UIMP offers grants for students admitted to university Master's programs according to academic merit.

The requirements and applications forms are available on www.uimp.es



MCIB

Master in Molecular and Cellular Integrative Biology

INFORMATION

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Code Master: P03K

TRANSPORTISTA OFICIAL



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