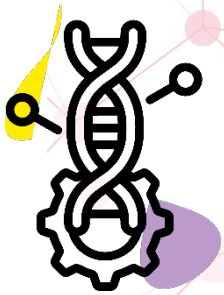
Genetics, Epigenetics & BioHealth



Explore this IDIL Master's track in detail, including its academic objectives, curriculum, research opportunities, admission requirements and career prospects.

TRACK OVERVIEW & LEARNING OBJECTIVES

The EpiGenBio graduate program in Epigenetics, Genetics and Biohealth provides advanced research-orientated training for students to pursue careers in fundamental or applied research in epigenetics, genetics, genomics and biomedical sciences.

Part of the IDIL Intensive Research Graduate Programme at the University of Montpellier, EpiGenBio is designed as a multidisciplinary program that bridges the gap between biological discovery and translational applications. It combines rigorous academic teaching with extensive laboratory immersion and personalized mentoring. The EpiGenBio program is designed to train highly qualified scientists capable of addressing major challenges in modern biology, human health, and biomedical research through a strong "learning through research" approach.

The curriculum covers fundamental and applied aspects of genetics, epigenetics, genomics, genome regulation, 3D chromosome architecture, chromatin biology and dynamics, cellular biology, developmental biology and evolution. Students acquire a solid theoretical background while developing advanced experimental, analytical, and critical-thinking skills through laboratory-based projects and long-term internships.

As part of the IDIL pedagogical framework, students benefit from several dedicated research-training activities, including:

Personal Project (M1): an individual literature-based research project preparing students for their first research internship;
In-Lab modules: short laboratory immersions allowing students to discover new experimental approaches and research environments;
Multidisciplinary Project (M2): an interdisciplinary group project addressing a scientific question through collaborative research and proposal design;
Transversal Training Units (TTU): activities dedicated to the development of professional and transferable skills.

Students are supported throughout the programme by academic tutors and research mentors, who provide personalized guidance regarding scientific training, career development, and internship opportunities.

A major highlight of the programme is the annual “Workshop in Epigenetics” featuring world leaders in the field. This event provides a high-level forum to foster direct scientific discussions between international researchers and students, while offering a dedicated platform for students to explore diverse career paths through interactive sessions with professional from academia, clinical research, the biotech industry and scientific editing. Furthermore, students have access to an extensive network of affiliated national and international host laboratories to complete their internships.

Driven by a research-first pedagogy, EpiGenBo prepares graduates to become the next-generation of scientists and leaders in the field of Genetics and Epigenetics, and Biohealth.

KNOWLEDGE, SKILLS & COMPETENCIES

Students will develop advanced scientific, methodological, technical, and transferable skills, including:

- Consolidate and acquire advanced knowledge in genetics, genomics, and epigenetics, molecular biology, developmental biology, and genome regulation.
- Understanding of current concepts and experimental approaches in chromatin biology and 3D genome organization.
- Critical analysis, interpretation, and discussion of scientific literature.
- Scientific writing (reports) and oral communication skills in an international environment.
- Development of interdisciplinary approaches to complex biological questions.
- Autonomy, creativity, critical thinking, and problem-solving skills.

Extensive hands-on research experience through two long-term laboratory internships.

DETAILED CURRICULUM

- **Semestre 1 (S7)**
  - Functional Genomics (5 ECTS)
  - Developemental Genetics (5 ECTS)
  - Epigenetics and evolution of living species (5 ECTS)
  - Personal project (10 ECTS)
  - In-lab (2 ECTS)
  - Transversal training unit IDIL (4 ECTS)

- **Semestre 2 (S8)**
  - Internship (30 ECTS)

- **Semestre 3 (S9)**
  - Developmental Biology, Stem cells & Biotherapy (5 ECTS)
  - Workshop in Epigenetics (5 ECTS)
  - Genetics & Epigenetics information (5 ECTS)
  - Multidisciplinary team project (10 ECTS)
  - Transversal training unit IDIL (4 ECTS)
  - Explore, understand, learn (2 ECTS)

- **Semestre 4 (S10)**
  - Internship (30 ECTS)

Non-Core :
Students may select Non-Core courses offered by other IDIL tracks, providing exposure to complementary disciplines and fostering interdisciplinary thinking.

In-Labs :
- Short immersive laboratory experiences allowing students to discover innovative methodologies, technologies, and research approaches developed in partner laboratories.

ADMISSION REQUIREMENTS & STUDENT PROFILE

Applicants should possess a strong academic background in genetics, molecular biology and cellular biology. Knowledge of programming, bioinformatics, computational biology, or data analysis is considered an advantage.

Admission requirements include:

- Bachelor degree in the fields of genetics, molecular biology, cellular biology
- CV and motivation letter
- Letters of recommendation from academic referees and/or researchers.
- Academic transcripts, including class ranking when available.

- The programme particularly welcomes highly motivated students with a strong interest in scientific research, curiosity, critical thinking, and an ambition to pursue advanced training in Genetics and Epigenetics.

CAREER OPPORTUNITIES

The primary objective of the programme is to prepare graduate students for doctoral studies and research careers.

Typical career paths include:

- PhD positions in France and abroad;
- Research scientist positions in academic institutions and research organizations;
- Research engineer positions in public research institutes;
- R&D scientist positions in biotechnology, pharmaceutical, and genomics companies;
- Bioinformatics and genomics specialist positions;
- Clinical and translational research careers;
- Scientific consulting, regulatory affairs, and innovation management;
- Scientific publishing and communication.

EpiGenBio graduates will be particularly well prepared for careers requiring advanced expertise in genetics, epigenetics, genomics, and biomedical research.

RESEARCH LABORATORIES & ACADEMIC PARTNERS

EpiGenBio is embedded within the exceptional biomedical research environment of Montpellier, one of Europe's leading centres for life science research.

The programme benefits from close interactions with internationally recognized research institutes and laboratories working in genetics, epigenetics, developmental biology, genome regulation, genomics, and biomedical sciences. Researchers from these institutions contribute directly to teaching, mentoring, and student supervision.

Students have access to a broad network of host laboratories in France and abroad for their M1 and M2 research internships. These collaborations provide opportunities for international mobility and frequently lead to PhD positions in leading academic institutions and research organizations.

The programme also fosters interactions with biotechnology and biomedical companies through seminars, workshops, and networking events, allowing students to discover a wide range of career opportunities in both academic and non-academic sectors.

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