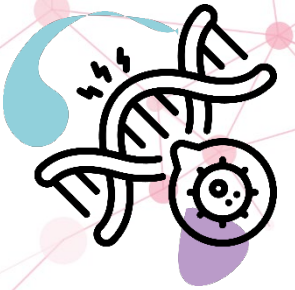
Fundamental & Translational Cancer Research



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 "Fundamental and Translational Cancer Research" track aims to provide students with a multidisciplinary education that will enable them to become active participants in cancer research. Through courses taught by researchers and physicians, as well as the variety of internships offered in the many host laboratories in Montpellier, students will have the opportunity to acquire the knowledge and skills needed to become familiar with and launch a career in basic and/or translational cancer research.

The goal of this track is to enroll French and international students in similar proportions in order to foster international exchange. In this context, instruction within this track is delivered entirely in English during both the first and second years of the Master's program.

As part of the IDIL (InterDisciplinary In Lab) program, of which it is a component, students will be fully immersed in the world of research, partly through 6-month internships in both the first and second years of the Master's program. On the other hand, they will have access to "in-lab" course units that allow them to discover, within various research institutes themselves, experimental approaches and innovative technologies presented by researchers and engineers—which they can then implement during their internships or in their future research projects.

KNOWLEDGE, SKILLS & COMPETENCIES

The Master's program in Fundamental and Translational Cancer Research – IDIL program, within the Master's degree in Biology-Health at the University of Montpellier, provides students with a strong multidisciplinary background in cancer research and biomedical sciences. Students develop advanced knowledge of cancer biology, including the molecular and cellular mechanisms underlying tumor initiation, progression, metastasis and therapeutic resistance. They acquire a comprehensive understanding of tumor microenvironment, cell signaling, genomics, immunology and molecular oncology.

Thanks to two long internships, students develop practical expertise in a broad range of experimental approaches and laboratory techniques used in biomedical and cancer research.

They learn to design experiments, collect and analyze data, and critically interpret experimental results with scientific rigor.

The program enables students to formulate scientific hypotheses and develop appropriate experimental strategies to address complex biological questions.

Students strengthen their ability to critically analyze scientific literature and integrate knowledge from different fields of biology and health sciences. They develop autonomy in planning and conducting research projects, while learning to manage objectives, deadlines and experimental constraints.

Teamwork and collaboration are fostered through practical training and research projects, enabling students to work effectively in multidisciplinary environments. Students develop strong scientific communication skills through oral presentations, scientific discussions, written reports and the dissemination of research findings.

The program also promotes critical thinking, problem-solving, creativity and adaptability when facing scientific and experimental challenges.

Students acquire rigorous and responsible research practices, with particular attention to reproducibility, research integrity, ethics and good laboratory practices. They also develop organizational skills, scientific curiosity and the ability to work independently while contributing effectively to a research team.

Overall, the program equips students with the scientific knowledge, technical expertise and transferable skills required to pursue careers in cancer research, biomedical sciences and related academic or industrial fields.

DETAILED CURRICULUM

- **Semester 1 (S7) (30 ECTS)**
  3 Mandatory CORE UNITS (TOTAL 14 ECTS)
  - Cell Biology… (5 ECTS)
  - Genetic bases of Cancer… (5 ECTS)
  - Research Hub … (4 ECTS)

  UE IDIL (TOTAL 6 ECTS)
  - 1 Transversal course Unit from IDIL program (2 ECTS)
  - 1 Non core Unit (2 ECTS)
  - 1 In lab Unit (2 ECTS)

  Personal project (10 ECTS)

- **Semester 2 (S8) (30 ECTS)**
  Research internship (30 ECTS)

- **Semester 3 (S9) (30 ECTS)**
  3 CORE UNITS to choose among (TOTAL 15 ECTS)
  - Principles of Cancer Biology (5 ECTS)
  - Cancer Therapy… (5 ECTS)
  - Genome integrity and Cancer (5 ECTS)
  - Immuno-Oncology (5 ECTS)
  - Integrated Physiopathology (5 ECTS)

  UE IDIL (TOTAL 5 ECTS)
  - 1 Transversal training Unit (1 ECTS)
  - 1 Non core Unit (4 ECTS)

  Multidisciplinary project (10 ECTS)

- **Semester 4 (S10) (30 ECTS**
  - **Research internship… (30 ECTS)**

ADMISSION REQUIREMENTS & STUDENT PROFILE

To be admitted to the program, students must have earned a bachelor's degree that has provided them with a solid foundation in biochemistry (structural and metabolic), cellular and molecular biology, and genetics. A basic knowledge of immunology would be appreciated.

Students must avec a level in English around B2-C1 allowing them to be able to read articles, write reports, performed oral presentation and lead scientific discussion in English

CAREER OPPORTUNITIES

Upon completion of this master's program, students will be eligible to apply for a doctoral scholarship that will enable them to pursue a program leading to a doctoral degree.
Upon completion of this master's program, students will also be able to apply for research engineer positions in academic or private laboratories within the broad field of cancer research.

In both case, our students will be able to apply to PhD program or research engineer positions in France and worldwide.

RESEARCH LABORATORIES & ACADEMIC PARTNERS

The "Fundamental and translational cancer research" -IDIL Master Program is locally associated to the SIRIC (Integrated Cancer Research Center) in Montpellier gathering all teams performing Cancer research in the different Research Units in Montpellier (IRCM, IGF, IGH, IGMM, CRBM, CHU, ICM ...). This facilitate the diffusion of information regarding internship offers and scientific meetings related to cancer research.

At the level of the "Région Occitanie" and "Nouvelle Aquitaine", The program is associated to the Cancéropôle Grand Sud-Ouest, gathering laboratories from Poitiers, Limoges, Bordeaux, Toulouse, Montpellier and Perpignan. This gives M2 students the opportunity to participate in an annual international conference on cancer research. In addition, through the Canceropôle GSO, the students can have access to more internships offers and be informed or other scientific meetings.

Many lectures are given by researchers belonging to different labs in Montpellier affiliated to national research organisms (INSERM, CNRS).
Offers for internship can also come from connections we established in the part years with private companies established in Montpellier (ex Sys2Diag).

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For more information: https://idil.edu.umontpellier.fr/en/master-idil/les-parcours/