Université Paris-Saclay

Partager

Email destinataire :

Vous devez renseigner un email valide

Envoyer

Une erreur est survenue. Merci de réessayer ultérieurement

Le mail de partage a bien été envoyé.

Ajouter au comparateur

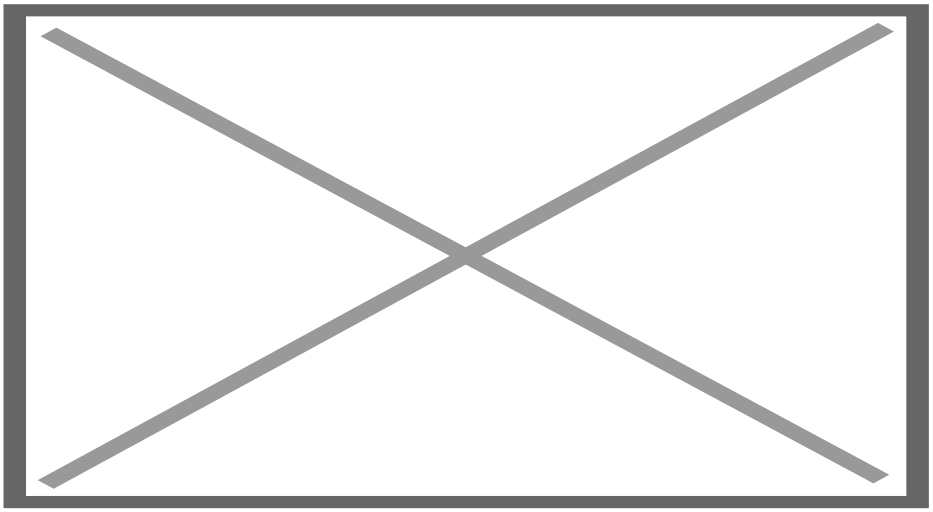
M2 Human Genomics in Biotherapies, Health and Disease (HuGeInBio)

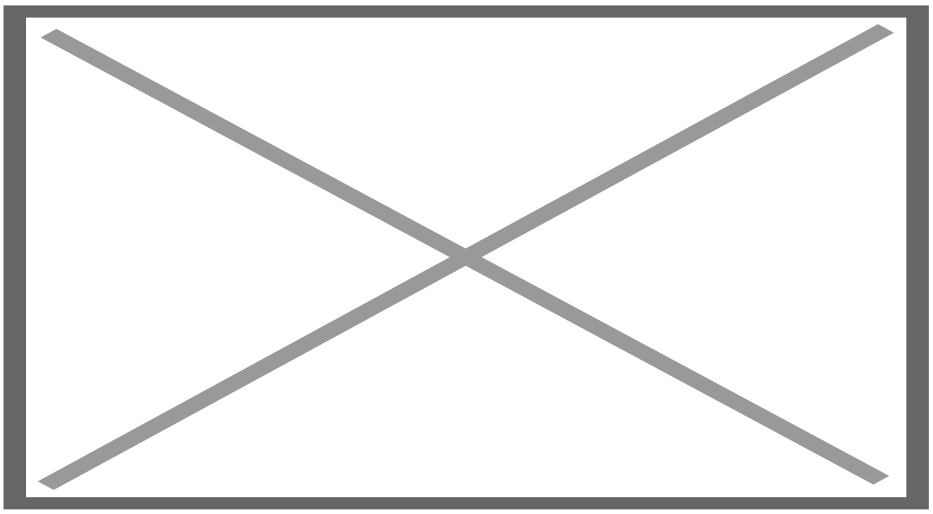
Master
Mention Biologie moléculaire et cellulaire
Régime(s) d'inscription
Formation initiale
Langue(s) d'enseignement
Anglais

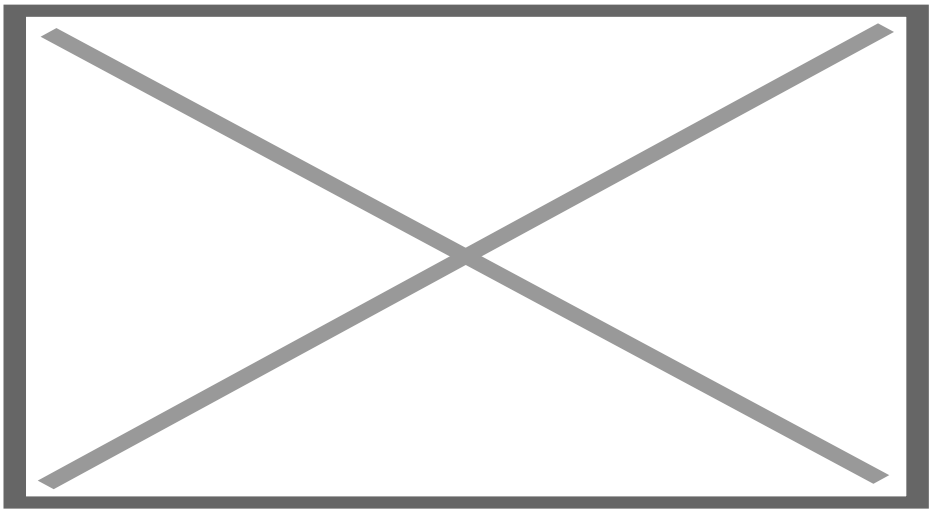
The Master **HuGeInBIO** provides cutting-edge knowledge in **cancer, disease modeling and biotherapies**, with a focus on **genomics** and its **impact on health** and precision medicine. It also covers key areas, as genome editing and large-scale genetic screening for drug development, and fosters awareness of bioethics and entrepreneurship at the crossroads of science, innovation and business. The curriculum blends theory with practice through case studies and real-world scenarios with field professionals.

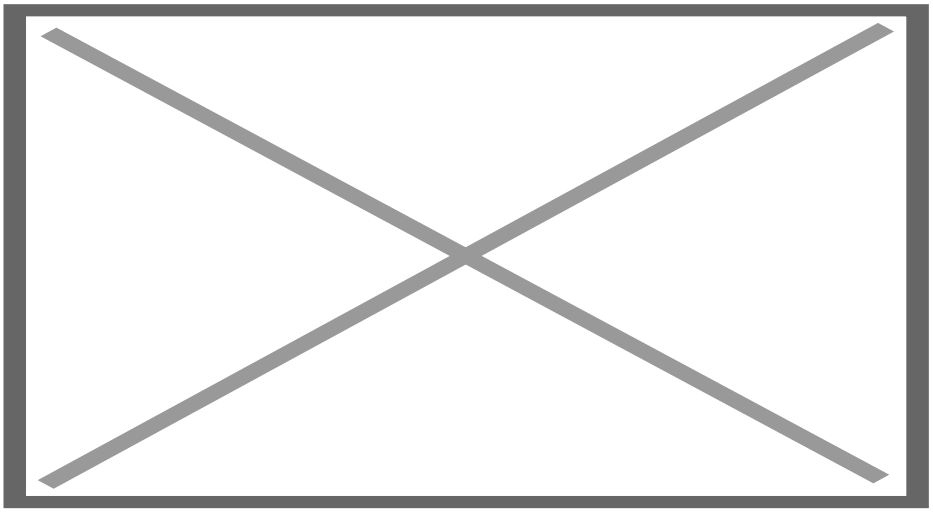
The training program is structured into four blocks. The **Core block** (12 ECTS) provides principal methods in functional genomics, overview in biotherapies and highly specialized methods to characterize heterogeneity of samples and basics in mathematics and computational sciences in biology. The **Research block** (12 ECTS) includes an interdisciplinary project with a M2 in Bioinformatics, focusing on digital tools for data processing and interpretation in biology. It also features practical training in NGS data analysis and a seminar unit on diverse research topics. The **Optional block** (6 ECTS) offers a choice between units on innovation and bioethics or other biology specialties. The **Internship block** (30 ECTS) is dedicated to a research placement in industry or academia.

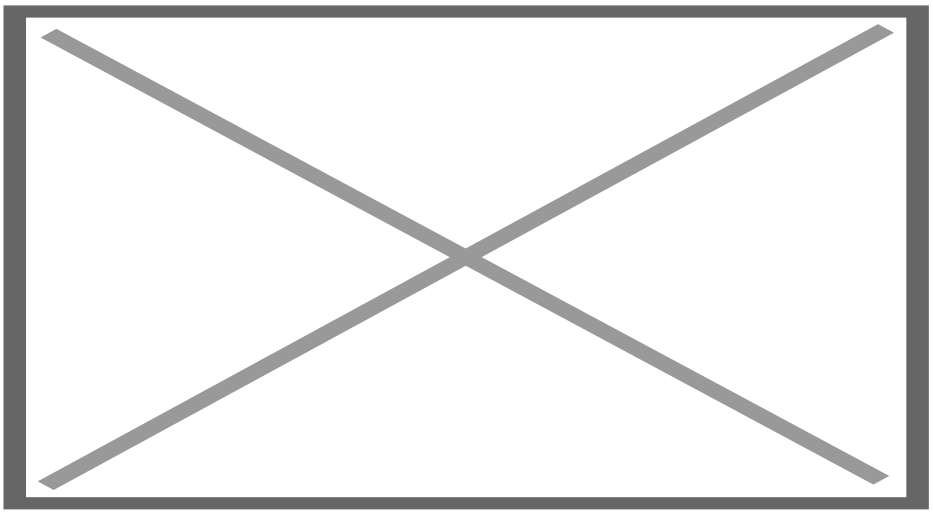
Télécharger la fiche détaillée
Je candidate











Informations

- Présentation
- Admission
- Programme

Présentation

Compétences

Students will learn to **formulate hypotheses**, **design** and **carry out** experimental projects, and generate validated scientific data. They will also develop the ability to **monitor scientific advances** and independently synthesize the state of the art on a given research topic.

Students will be trained to use new **technological tools**, **communicate** scientific data and concepts to both experts and non-specialists, justify methodological choices and interpretations, and critically **analyze scientific information** from articles or conferences in English.

Students will develop **autonomy**, **teamwork**, and time management skills to meet deadlines. They will also learn to **collaborate** with external partners—scientific or non-scientific, national or international—across

various professional contexts.

Objectifs pédagogiques de la formation

This training will provide you with a strong foundation in modern genomics and its applications in research and healthcare. You will develop:

1. **Expertise in structural and functional genomics techniques**, with a focus on single-cell analysis and the study of spatial and temporal cellular heterogeneity in complex biological samples—essential for choosing the right approach to specific scientific questions.
2. **Hands-on skills in implementing multi-omics strategies** from an experimental point of view, enabling you to work confidently in a laboratory setting.
3. **A clear understanding of how genomic data impacts patient diagnosis, care, and treatment**, including the use of large-scale screening tools (such as CRISPR/shRNA or compound libraries) for therapeutic discovery.
4. **The ability to collaborate effectively with bioinformaticians**, guiding data processing workflows and independently performing downstream functional analysis to extract and apply relevant findings to your research projects.
5. **Awareness of the ethical and legal challenges** surrounding precision genomics and the responsible use of genomic data.
6. **An introduction to entrepreneurship in human genomics**, helping you explore the intersection between science, innovation, and business development.
7. **Insight into the broader research ecosystem**, both nationally and internationally, through seminars and courses offered in collaboration with public and private partners—including those from the EUGLOH European University Alliance.

Throughout the program, students will benefit from a cutting-edge research environment in genomics and post-genomics. This Master's program is developed in synergy with Genopole and the GenoTher biocluster, and in collaboration with the Paris Saclay Cancer Cluster.

Débouchés

Professionnels

Ingénieur d'études / de recherche dans un service R&D dans l'industrie ophtalmique
Ingenieur R&D
Responsable de projets R&D
Responsable de projets R et D
Chef de projet

Ingénieur d’études dans les domaines de l’industrie
Ingénieur d’études dans les domaines de la recherche
Ingénieur d'études industrie / recherche publique
Enseignants-chercheurs
Ingénieur.e d’études
Ingénieur.e recherche & développement
Chargé.e de recherche et innovation
Chargé·e de projet
Chef·fe de projet en biotechnologies, biothérapies ou innovation en santé
Ingénieur.e recherche et développement
Ingénieur de recherche ou d'études
enseignant.e-chercheur.se (après un doctorat)
ingénieur.e d'étude
Ingénieur de recherche
ingénieur de projet en santé
ingénieur d'études
Chargé·e de développement
Chargé·e d’études

Poursuite d’études

Doctorat en Chimie / Biologie
Doctorat
Thèse de doctorat
PhD

Admission

Voie d’accès

Sciences de la vie

Capacité d’accueil

Places

20

Public visé et prérequis

Recruitment is open to students who hold a **Master 1 degree in Molecular and Cellular Biology** from Paris-Saclay University, particularly those who have completed the following courses: *Biologie des Génomes, Biothérapies* and *Cellules Souches et Biologie des Cancers*, or those enrolled in the Master 1 *International Track in France – parcours Évry-Paris-Saclay*, or the Master 1 *International Track Sino-French Program*.

Recruitment is also open to students holding a **French degree equivalent to the first year of a Master's in Biology**, with certified English language proficiency.

Additionally, students with a **Bachelor's degree in Science** in relevant fields such as molecular biology, biotechnology, genetics, genomics, or bioengineering are eligible to apply.

Période(s) de candidature

Plateforme Inception

Du 30/01/2026 au 30/06/2026

Pièces justificatives

Obligatoires

Lettre de motivation.

Tous les relevés de notes des années/semestres validés depuis le BAC à la date de la candidature.

Attestation de niveau d'anglais.

Curriculum Vitae.

Facultatives

Dossier VAPP (obligatoire pour toutes les personnes demandant une validation des acquis pour accéder à la formation) https://www.universite-paris-saclay.fr/formation/formation-continue/validation-des-acquis-de-lexperience.

Programme

Matières	ECTS	Semestre	Cours	TD	TP	Cours-TD	Cours-TP	TD-TP	A distance	Projet	Tutorat

Introduction to Mathematics and Computer Science for Biology	3	Semestre 1	15	7.5	
Charger le détail					
UE Biotherapies, in vitro (2D 3D organoids) and animal modeling	3	Semester 1	15	7.5	
Charger le détail					
UE Single cell and spatial multi-omics, high-throughput screening	3	Semestre 1	15	7.5	
Charger le détail					
Advanced Functional Genomics	3	Semestre 1	15	7.5	
Charger le détail					

Matières	ECTS	Semestre	Cours	TD	TP	Cours-TD	Cours-TP	TD-TP	A distance	Projet	Tutorat
Research Seminars	3	Semester 1	15	5							
Charger le détail											
UE Practical course in digital genomics	6	Semester 1	1	16.5							
Charger le détail											
NGS data processing methodology	3	Semester 1		22.5							
Charger le détail											

Matières	ECTS	Semestre	Cours	TD	TP	Cours-TD	Cours-TP	TD-TP	A distance	Projet	Tutorat
Neural stem cells and neurogenesis	3	Semestre 1	15	5							
Charger le détail											
Bioimaging - Biological Digital Image Processing and Analysis	3	Semestre 1	10		15						
Charger le détail											
Innovation and entrepreneurship in biotechnology (IEB)	3	Semester 1	22.5								
Charger le détail											

Matières	ECTS	Semestre	Cours	TD	TP	Cours-TD	Cours-TP	TD-TP	A distance	Projet Tutorat
Ethical issues in biotherapies and precision medicine	3	Annualisé	10	10						
Charger le détail										
Ecological Transition - M2	3	Semestre 1		20						
Charger le détail										
EUGLOH events	3	Annualisé		22.5						
Charger le détail										
UE libre Catalogue S1	2.5	Semestre 1								
Charger le détail										

Matières	ECTS	Semestre	Cours	TD	TP	Cours-TD	Cours-TP	TD-TP	A distance	Projet	Tutorat
Internship	30	Semester 2									
Charger le détail											

Contact(s)

- ### Contact formation

  Support - contact

- ### Marie-Anne DEBILY

  Enseignante

http://www.universite-paris-saclay.fr/formation/master/biologie-moleculaire-et-cellulaire/m2-human-genomics-biotherapies-health-and-disease-hugeinbio