

CORE TRAINING | BIOMEDICAL SCIENCES



- **10 credits must be obtained from Core training** (out of your total 20 ECTS required)
- You need to choose a **minimum of 3 modules** (each worth 1.5 or 2 ECTS) and **9 ‘Chapitres choisis’** (0.5 ECTS each).
- There is no upper limit to the number of credits that can be obtained from Core training. Other credits obtained from conferences, from courses and workshops, from volunteering, and from attending PhD retreats are all capped at 3 ECTS.

Modules and “Chapitres choisis”

- See below for further details regarding the available modules and “Chapitres choisis”
- Registration to a module or chapitre choisi is opened 1-2 months prior to its start date
 - An email to announce the registration and deadline will be sent by Dylan Walser (Dylan.walser@unige.ch)
- The Chapitres choisis are part of the Faculty seminar series:
 - <https://www.unige.ch/medecine/fr/recherche/seminaires-facultaires-et-de-departement/jeudis-de-la-faculte-chapitres-choisis-5/>



Teaching activities

- The doctoral school does not currently provide a list of teaching activities and interested students should look for opportunities independently. Public announcements to recruit tutors are made on regular basis within the University.
- Before starting a teaching activity, we recommend contacting your program coordinator to confirm the number of ECTS that can be gained.

Supervision of an intern

- PhD students are strongly encouraged to supervise interns. However, PhD students should first contact the doctoral school prior to the supervision and provide the following documents:
 - A letter of motivation, detailing the proposed project (context, aim, strategies, duration...) and how it is distinct from the PhD (the intern should have their own project and cannot be used as a “technician” for the PhD student).
 - A letter of support signed by the PI where they agree to the supervision.
- At the end of the internship, the intern should send the doctoral school both:
 - A scientific report which includes a short introduction, results section and discussion (various lengths and format accepted; PhD student can correct report prior to submission). In the report, the name of the PhD student should be mentioned as a supervisor.
 - Their evaluation of the supervision by the PhD student (confidential and to be sent independently by the intern).
- As a general guideline, a 2-month student supervision will equate to 1 ECTS (up to a maximum of 3 ECTS total).

Modules :

CELL INTERACTION (MBM1)

1.5 ECTS



Dates: Friday, September 22nd, Wednesday, September 27th, Friday, September 29th, Wednesday, October 4th, Friday, October 6th, Wednesday, October 11th (reserve date 13.10) from 2pm to 4pm CMU/Room to be announced.

ORAL EXAM : Tuesday 31st of October 2023 (backup date 1.11)

The number of participants is limited to 8 students

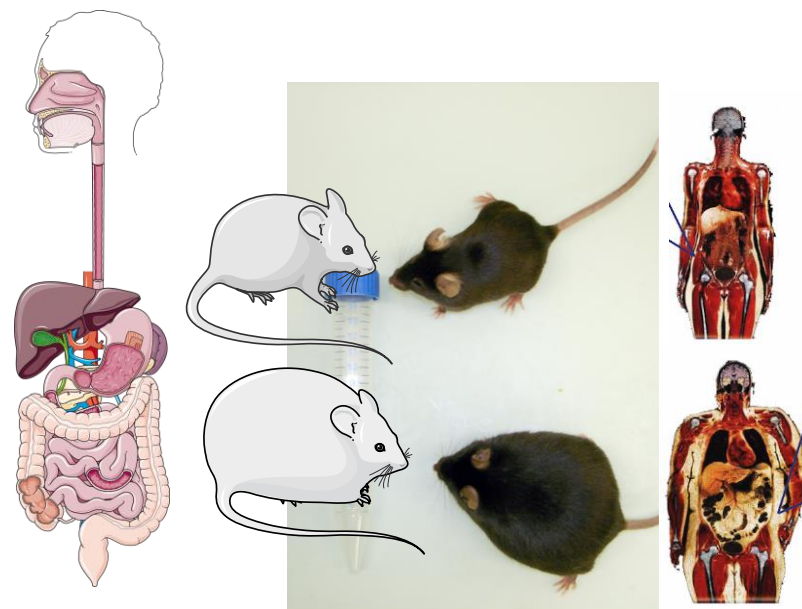
- « Introduction; Cell-Cell Adhesion, Actin Cytoskeleton », Dr. B. Wehrle-Haller
- « Integrin adhesion & signalling », Dr. Michael Bachmann
- « Using informatics tool to study 3D proteins structures », Dr. B. Wehrle-Haller
- « Hyaluronic-acid –binding cell surface receptors », Dr. Pietro Cacialli
- « Bacterial-adhesion and host Interactions », Dr William Kelley
- «Direct Communication via Gap Junctions », Dr. Filippo Molica

The course aims to introduce students to the biology of cell-cell and cell-matrix interaction, from pathogen-host to cell-cell communication, and from molecular and genetic factors to tissue function and disease. The course involves attending 6 sessions held in a three –week period, guided by experts in their respective fields.

Each session lasts about 2 hours and is focused on discussing current knowledge and techniques used in studying cell interactions, using as reference pre-assigned research articles relevant to the chosen topics. It is important for students to read the material before class and to actively engage in the discussions. Student evaluation is achieved through a 30 minutes oral examination on one out of 6 papers associated with the course subjects .

Module in Metabolism

- Human and mouse anatomy in context of metabolism; October 2023 - 8 Sessions, **2.5 ECTS**
- Importance of gut microbiota;
- Fat metabolism;
- Pancreas and mechanisms of insulin secretion;
- Liver and muscle in glucose homeostasis;
- Muscle physiology
- Lipids
- Clinical overview on the metabolic diseases



Lectures by leading experts in the respective areas :

P. Maechler, A-C. Gavin Perrin, M. Foti, V. Schwitzgebel Luscher, T. Brun, S. Konig and M. Trajkovski

Practical work – Mouse anatomy, dissection/surgery, overview on the metabolic facilities

Organisers: Mirko Trajkovski and Pierre Maechler

Module in metabolism 2023 (MBM2) 2,5 ECTS



Session

1. Monday 09.10 – 9-12am	Mirko Trajkovski + lab
2. Monday 09.10 – 2-5pm	Mirko Trajkovski + lab (practical work)
3. Wednesday 11.10 – 9-12am	Pierre Maechler and Thierry Brun
4. Monday 16.10 – 2-4pm	Anne-Claude Gavin Perrin
5. Tuesday 17.10 – 9-11am	Valerie Schwitzgebel Luscher
6. Wednesday 18.10 – 10-12am	Michelangelo Foti
7. Friday 20.10 – 9-11am	Christelle Veyrat-Durebex (Overview on the metabolic facilities)
8. Friday 20.10 – 2-4pm	Stéphane König

Discussion/Exam: Tuesday 31.10 – 1-5pm Mirko Trajkovski and Pierre Maechler

Organizers: Mirko Trajkovski and Pierre Maechler

The module will have eight sessions and will include lectures given by the PIs; practical (hands on) work by the students; overview on the most important literature in this area; and overview on the clinical aspects in diagnosis and treatment of several metabolic diseases. The main goal is to familiarise the students with the basic principles governing regulation of the energy homeostasis and metabolism in health and disease, and will be accomplished by addressing the following specific subjects:

- Human and mouse anatomy in context of metabolism; emphasis on the main metabolic organs;
- Importance of gut microbiota in regulation of energy homeostasis;
- Fat metabolism – different shades of fat, characteristics and importance;
- Function of the pancreas with emphasis on the insulin secretion;
- Importance of liver and muscle in the overall glucose homeostasis;
- Importance of the brain in regulating the energy homeostasis;
- Clinical overview on the metabolic diseases

Introduction to applied statistics for health data analysis(MBM3)

2 ECTS



9 Sessions (from 2:15 to 5:00 pm, weekday: Monday), focusing on:

- Descriptive statistics and introduction to statistical software
- Statistical hypothesis testing and inference and confidence intervals
- Parametric and non-parametric tests
- Correlation and principle of linear regression models
- Statistical power and sample size
- Interpretation of results, bias and how to mitigate them
- Reporting statistical analyses

Professeure Delphine COURVOISIER, Service qualité des soins, Direction médicale et qualité, HUG

Contact : Delphine COURVOISIER (delphine.courvoisier@unige.ch)

Number of course participants: minimum 6, maximum 28.

The aim of this course is to provide basic knowledge of statistical inference, methods to describe data, to test hypotheses and to characterize associations between variables. This aim includes a correct interpretation of the results of the analysis. The course has about 1/3 of theory and 2/3 of practice with statistical software. Students are encouraged to bring their own laptops to the course.

Current topics in applied statistics for health data (MBM4)

2 ECTS



7 Sessions (from 2:15 to 5:00 pm, weekday: Tuesday), focusing on:

- **Regression models**
- **Missing data and imputation**
- **Confounding and multivariable models for adjustment**
- **Effect modification and mediation**
- **Longitudinal data and mixed linear models**

Professeure Delphine COURVOISIER, Service qualité des soins, Direction médicale et qualité, HUG

Contact : Delphine COURVOISIER (delphine.courvoisier@unige.ch)

Number of course participants: minimum 6, maximum 28.

The aim of this course is to provide a hands-on approach to regression, especially in the context of observational studies. This includes theoretical and practical lectures on missing data, and how to impute them, and confounding. In addition, tests for mediation and effect modification (eg. Gene x environment effect) will be presented and applied.

The course has about 1/3 of theory and 2/3 of practice with statistical software (R software). Students must bring their own laptops to the course.

Protein purification and identification by Mass Spectrometry (MBM5)

2 ECTS



Dates: October 31 **13h00 - 14h00**
 November 7, 8, 14, 15, 21 **13h00 - 17h00**

Organizers: Oscar Vadas, Alexandre Hainard

Session comprises both : **1) Theoretical presentations by students and tutors**
 2) Hands-on experimental part

Methodologies:

- 1) Cell lysis, centrifugation / **Protein purification** by affinity chromatography / Enzymatic activity test and SDS-PAGE analysis
- 2) In-gel protein digestion for **Mass Spectrometry** data generation and analysis

Theoretical part:

- 1) Protein engineering and purification strategies
- 2) Principles of a mass spectrometer analyzer and mass spectrometry applications

Evaluation: Student individual **presentations** and redaction of a **scientific report**

Participation is limited to 8 people

IMMUNITY (MBM6)

2.0 ECTS



Monday November 6, 2023 at 2 - 5.30 pm; (CMU)

Paul WALKER : Cancer and the Immune System: From immunosurveillance to immunotherapy.

Monday November 13, 2023 at 2 - 5.30 pm; (CMU)

Jörg SEEBACH : NK cell biology, Xenotransplantation, Immunodeficiency, immunosuppression/biologicals/immunoglobulins as treatment for autoimmune diseases

Monday November 20, 2023 at 2 – 5.30 pm; (CMU)

Christoph SCHEIERMANN: The circadian immune system - a new paradigm

Monday November 27, 2023 at 2 – 5.30 pm; (CMU)

Denis Migliorini: Engineered immune cells as cancer therapeutics

Monday December 4, 2023 at 2 – 5.30 pm; (CMU)

Federico Simonetta: Transplantation (allogeneic HSCT , GvHD, GvT); Immunoregulatory cellular therapies; Tregs; Peripheral tolerance

Monday December 11, 2023 at 2 - 5.30 pm; (CMU)

Examination

The course will take place with a minimum of 6 and a maximum of 12 participants. Exact times and rooms are subject to confirmation. The aim of the course will be to present selected areas of basic and applied immunology over 5 themed sessions. The interdependence of innate and adaptive immune interactions will be stressed, and a selection of protective and pathologic immune processes will be discussed. Students are expected to attend all sessions and to actively participate. Assessment will be made both during the courses (some reading will be required beforehand) and in a final exam.

Communicating your science: how to make the message stick! (MBM7)

1.5 ECTS



Dates:

First full course: November 23rd and 30th, 9.00 am to 6.30 pm (1 hour lunch break), Monica Gotta and Miriam Stoeber

Second full course: May 3rd and 10th, 9.00 am to 6.30 pm (1 hour lunch break), Monica Gotta and Sofia Barbieri

Participation is limited to 8 people

Organizers: Monica Gotta, Sofia Barbieri and Miriam Stoeber

Goals of the course:

- Communicate persuasively your work in an oral presentation.
- Create slides that respect fundamental design and principles and present data appropriately.
- Experiment strategies to continue improving your presentation skills.
- Write a title and a concise abstract that tells your scientific story.
- The participants will bring a 5 minutes presentation of their research project to the first day of the course.



Effective scientific writing (MBM8)

1.5 ECTS

Dates: 10.01, 17.01, 24.01, 31.01 from 2 – 6 pm / 07.02 (Exam), 14.02 (feedback session) from 2 - 5pm.

Organizers: Patrick Meraldi and Intidhar Labidi-Galy

The course will be limited to 8 students maximum and 3 minimum.

The aim of the course is to give PhD students the basics of effective scientific English writing. The course will focus on the redaction of abstracts based on prominent cancer biology papers. The course will also study how to use and not to use ChatGPT when writing scientific documents. Prior knowledge in cancer biology is not required.

Effective Scientific writing (MBM8)

BEFORE:

The DNA replication is an error prone process in which DNA mismatch repair (MMR) plays a crucial role in maintaining the genome stability. The dimeric MutS protein found in E.coli is able to bound to DNA strand and initiate the repair mismatch with a mechanism that is still partial unclear.

In this study, we define the dimeric crystal structure of the MutS protein from E.coli using a multiwavelength anomalous dispersion experiment. We used the protein crystal structure to elucidate the mechanisms of DNA binding, scanning and repair in MMR.

The MutS dimer is the physiologically relevant form but we founded that only one of the monomer is able to bind to GT mismatch and to ADP. The DNA interaction mainly occurs by nonspecific major groove DNA-binding. We observed that only one of the monomer has specific mismatch-binding domains located on the minor groove side of DNA.

We hypothesized that after the binding to the mismatch site, the MutS dimer is retained on the DNA strand until a strand-discrimination signal is found. This signal is mainly lead by different charges interactions mechanisms.

We already know that in human two homologs of the MutS dimer exist: MHS2/MHS3 or MHS2/MHS6. The MSH3 or the MSH6 monomers of the MutSa protein are responsible for the mismatch discrimination.

Furthermore, the crystal structure of the protein that we provide made possible to localize the mutations in those domains that could be associated to cancer predispositions such as HNPCC (hereditary non-polyposis colorectal cancer).

247 Words

AFTER:

DNA replication is an error prone process that requires mismatch repair to maintain genomic stability. The dimeric E. coli protein MutS binds to DNA and initiates mismatch repair via an unknown molecular mechanism. Here, we defined the dimeric crystal structure of MutS to elucidate the DNA binding, scanning and repair mechanisms. We find that in the MutS dimer, only one monomer binds to GT mismatches and ADP via the minor groove side, while the other monomer forms nonspecific major groove DNA-interactions. We hypothesize that after binding to the mismatch site, the MutS dimer is retained on the DNA strand until a strand-discrimination signal is found. These findings fit with the existence equivalent MutS heterodimers in humans: MHS2/MHS3 or MHS2/MHS6. The crystal structure of the protein also reveals the location of mutations associated to cancer predispositions such as hereditary non-polyposis colorectal cancer.

141 words

Preclinical Imaging Course 2024 (MBM9)

1.5 ECTs



Dates: 19, 20, 21 and 23 of February 2024

Organizers: Dr Didier Colin (PIPPA), Olivia Bejuy (CIBM)

Participants: maximum 10

Evaluation: MCQ

Location: Small Animal Preclinical Imaging Platform (PIPPA) & Center for Biomedical Imaging (CIBM), HUG, Bâtiment des Laboratoires, 6th floor.

There is no prerequisite to follow this module.



This module will provide principles and advanced concepts in state-of-the-art techniques used in animal preclinical imaging. Students will learn proper practices in animal imaging and image analyses in Computed Tomography (CT), Magnetic Resonance Imaging (MRI), Positron Emission Tomography (PET), Single-Photon Emission Computerized Tomography (SPECT) and Luminescence/Fluorescence Optical Imaging. Multimodal imaging methods will also be discussed. Theory will be supported by hands-on sessions on the equipment.

Course outline: 3 sessions of 1 day each. Morning (10h-12h): theory sessions; afternoon (13h30-17h): hands-on sessions with imaging scanners and image analyses. 1 exam session of 1h.

Total duration: **4 days**

- Day 1: General introduction on preclinical imaging, Computed Tomography (CT) and Optical Imaging
- Day 2: Magnetic Resonance Imaging (MRI)
- Day 3: Positron Emission Tomography (PET) & Single-Photon Emission Computerized Tomography (SPECT)
- Day 4: MCQ Evaluation (1h)

Medical Genetic (MBM10)

1.5 ECTS



From 14pm to 4pm room E09.2753.A

Prof. E. Zdobnov (Département de Médecine Génétique et Développement)

- Thursday 28 feb. 2024: Introduction **by Prof. S.E. Antonarakis / Prof. E. Zdobnov**
- Monday 4 march 2024: Genetic Variation **by Dre E. Kriventseva**
- Thursday 7 march 2024: Mendelian Disorders **by Prof. S.E. Antonarakis**
- Monday 11 march 2024: Cytogenetics **by Dre F. Bena**
- Thursday 14 march 2024: Technology **by Prof. E. Zdobnov**
- Monday 18 march 2024: Complex Disorders /Traits **by Prof. E. Zdobnov**
- Thursday 21 march 2024: Comparative Genomics **by Dre E. Kriventseva**
- Monday 25 march 2024: Epigenetics **by Prof. Guillaume Andrey**
- Thursday 28 march 2024: Exam **by Prof. E. Zdobnov**

Number of course participants: minimum 6, maximum 12.

VIROLOGY (MBM11) 2 ECTS



Organizers: Manel Essaidi-Laziosi and Sophie Clément

Rooms : TBA

Students : 6 minimum, 10 maximum

Date	Time	Course	speaker
18 th of April 2023	1:30pm-3:30pm	Presentation of the course General introduction to virology	Manel Essaidi-Laziosi
	3:30pm-5:30pm	Virus detection tools	Sophie Clément
25 th of April 2023	1:30pm-3:30pm	Quasispecies	Caroline Tapparel
	3:30pm-5:30pm	Practical part – Influenza virus and emergence of antiviral resistance	Manel Essaidi-Laziosi
2 nd of May 2023	1:30pm-3:30pm	Emerging viruses	Isabella Eckerle
	3:30pm-5:30pm	Practical part – Emergence of SARS-CoV-2 VOCs	Manel Essaidi-Laziosi
16 th of May 2023	1:30pm-3:30pm	Anti-viral immunity	Mirco Schmolke
	3:30pm-5:30pm	paper presentations	Manel Essaidi-Laziosi and Sophie Clément
25 th of May 2023	1:30pm-3:30pm		Exam

Data Management & Laboratory Information Management System (LIMS)(MBM12)

1 ECTS



<i>Dates (2024):</i>	Day 1 : Monday April 22 th	1.30 pm – 4.30 pm
	Day 2 : Tuesday April 23 th	1.30 pm – 4.30 pm
	Day 3 : Wednesday April 24 th	1.30 pm – 4.30 pm
	Day 4 : Thursday April 25 th	1.30 pm – 4.30 pm

Room: CMU (tbd)

Exam: MCQ & practical exercise + participation to all sessions is mandatory

Participants number: Minimum 4 & maximum 12 students

This course aims to introduce students to the data management as it is asked by the FNS. In addition, a specific training to the Laboratory Information Management System (LIMS), eLabNext, implemented at the Medical Faculty, as well as the YARETA repository, will be provided.

Day 1: General presentation about data management

Day 2: Introduction to YARETA & the LIMS systems

Day 3: eLabNext & YARETA training hands-on session *(please bring your own laptop)**

Day 4: Feedback discussion & Exam *(please bring your own laptop)**

Responsible [Coralie Fournier](#), [SmartLab](#) project manager.

Speakers : Floriane Muller, Jean-Blaise Claivaz, Hugues Cazeaux & David Gold

**We have two computers available for loan. If you need it, do not hesitate to contact [Coralie Fournier](#).*

Developmental Biology (MBM13)

1.5 ECTS



Every Wednesday of May (8, 15, 22 & 29 May 2024); room CMU E09.2753.A, from 2pm to 5pm.
(4 sessions) + 20 min ORAL EXAM (5th of June)

Prof. P. Herrera, Dr. F. Thorel (dépt. de médecine génétique & développement CMU).

Optional: see and practice with mouse embryo injections to generate transgenic mice (@transgenic core facility)

- The course will only take place with a minimum of 6 and a maximum of 8 students.
- Attendance at all sessions is mandatory

Topics:

- Transgenics and mouse molecular genetics
- Limb development
- Regenerative medicine : ES and IPS cells; cell reprogramming
- Pancreas development and regeneration

Immuno & Metabolic Aspects of Cardiovascular Disease (MBM14) 2,5 ECTS



Dates: from May 2d to June 13th, 2024, from 2pm to 5pm

Contact: Dr. Sandrine Morel, Dr. Filippo Molica. Dept. of Pathology and Immunology

PhD students are required to attend all sessions. For some sessions, students will have to read articles. Number of students : 5-10.

- **Session 1 (Thursday May 02):** Vascular Physiology and Atherosclerotic Diseases (Dr. Filippo Molica and Dr. Sandrine Morel).
- **Session 2 (Tuesday May 07):** Fundamental Basis of Vascular and Cardiac Anatomic-Pathology (Dr. Christophe Lamy and Prof. Marie-Luce Bochaton-Piallat)
- **Session 3 (Tuesday May 14):** Cardio-Metabolic Diseases (Dr. Christophe Montessuit).
- **Session 4 (Tuesday May 21):** : Lymphatic Circulation and Immunity (Prof. Stéphanie Hugues).
- **Session 5 (Tuesday May 28):** Circadian Rhythm, Inflammation and Cardiovascular Diseases (Prof. Christophe Scheiermann).
- **Session 6 (Tuesday June 04):** Auto-Immune Diseases and Cardiovascular Risks (Prof. Gaby Palmer).
- **Session 7 (Thursday June 06):** CerebroVascular Accidents (Dr. Sandrine Morel).
- **ORAL EXAM**

Thursday June 13. Each student will have to discuss the topic of one of the sessions. The topic of the exam will be announced to each student at the end of the last session. Active participation during all the sessions will count towards the final note.

Bioimaging Course 2024: Imaging techniques in life and biomedical sciences (MBM15)

1.5 ECTs



Dates: June 10- June 13 (4 days)

Organizers: Dr. F. Prodon (contact), O. Brun, Dr. B. Maco, Dr. D. Moreau, Dr. D. Colin, O. Bejuy

Participants: maximum 9

Evaluation: MCQ

Room: TBA

This course can be an advantage for the module “Image Processing and Analysis (MBM17)”, but it is not a prerequisite.

This module will focus on state-of-the-art techniques in bio-imaging and will provide underlying principles and advanced concepts in electron & light microscopy, high-content imaging and preclinical imaging, thus covering a wide range of observation scales from ångströms (molecules) to centimeters (whole animal). Multimodal and multiscale imaging methods will be discussed. The aim is also to understand the basics **by a practical work** with the help of the equipment available in the different core facilities of the University of Geneva.

This course will take place in 4 sessions of 1 day each (total duration of this module: **4 days**). Hand-on sessions will be organized in order to recess the theoretically taught content (morning: theory, afternoon: practice).

- General introduction, F. Prodon (day 1)
- Light microscopy (fluorescence microscopy) : widefield vs confocal microscopy, F. Prodon (day 1)
- High content screening, D. Moreau (day 1).
- Electron microscopy techniques (SEM, TEM, etc...), B. Maco (day 2)
- Preclinical imaging (MRI, CT, PET, etc.), D. Colin and O. Bejuy (day 3).
- Evaluation (day 4)

Image Processing and Analysis (MBM16)

2 ECTS



Dates: Courses on June 24, 25, 26 and 27, 2024 from 13h30 to 17h30.
Exam on June 28 from 13h30 to 17h30.

Room: TBA.

Limited to 10 students.

Organizers: Nicolas Liaudet and Dimitri Moreau

This module will be an introduction to image processing and analysis, nevertheless preliminary knowledge in microscopy and in sample preparation are an advantage (cf. Histo-pathology and Bioimaging modules). Modern imaging techniques are generating an increasing amount of data, however switching from qualitative observations to quantitative information remains a difficult step. This is even more critical when results must be published.

Participants will be taught basic theoretical background prior to hands-on software applications:

- fundamentals of image processing and analysis, Nicolas Liaudet and Sergei Startchik
- electron microscopy (3D, FIB, correlative, etc.), Bohumil Maco
- optical microscopy (IHC and fluo. analysis, nucleus detection, etc.), Nicolas Liaudet and Sergei Startchik
- high content screening (workflow, phenotypic analysis, etc.), Dimitri Moreau

HISTO-PATHOLOGY (MBM17)

2.5 ECTS

Dates: from September 4 to October 4, 2024

Contact: Prof. Marie-Luce BOCHATON-PIALLAT Dpt of Pathology and Immunology

Prof. M. Foti Dpt of Cellular Physiology and Metabolism; Dre P. Soulié Dpt of Cellular Physiology and Metabolism; Dre J. Perrin-Simonnot Dpt of Cellular Physiology and Metabolism; Dre. S. Clément Dpt of Clinical Pathology; Dr J-C Tille Dpt of Clinical Pathology.

This module is not opened to MD-PhD students. PhD students are required to attend all sessions.
Number of students : 12 max

Dates: Introduction Wednesday September 4, 6 half-day sessions Monday and Thursday (September 9, 12, 16, 19, 23, and 26), exam October 3 and 4.

- **INTRODUCTION (1 session, 2 hours)**
- **HISTOLOGY (2 sessions, half-day)**
Study of primary tissues (epithelium, connective tissue, muscles, vessels, nervous tissue, lymphoid tissue) and some typical organs.
- **HISTOPATHOLOGY (2 sessions, half-day)**
Study of the main concepts of general pathology (cell death: necrosis and apoptosis, inflammation, tissue repair, tumor) and some representative organs with typical pathological alterations.
- **RESEARCH APPLICATIONS (2 sessions, half-day)**
Study of different microscopic approaches (optical, immuno-fluorescence, confocal and electron microscopy) and their applications in research (immunogold, immunohisto/cytochemistry, live imaging).
- **ORAL EXAM**
Description of slides at the microscope & discussion on research application



PROJECT DEVELOPMENT in GENE EXPRESSION REGULATION (MBM18) 2,5 ECTS



- Monitors: Prof. Martine Collart (MIMOL), Prof. Guillaume Andrey (GEDEV), Prof. Simon Braun (GEDEV), Prof. Pei-Hsuan Wu (GEDEV)
- The module comprises one introductory and three 4-hours sessions.
- Before each session: A research problem related to gene expression regulation is proposed to the students. Each group of students will **prepare a project proposal** to tackle the presented problem.
- During the session: each group will be given 20 minutes to present their proposal (in English), which should include:
 - 1) An introduction followed by an outline of the steps needed to reach the objective,
 - 2) The experimental approach(es) used and the reasons behind choosing these approaches
 - 3) Expected results, possible pitfalls and impact of the project

The presentations will be interactively discussed in a critical and detailed manner.
- This module aims at helping the students in **designing and interpreting research projects** that address important questions in the field of gene expression regulation. General knowledge of the mechanisms underlying gene expression will be taught, yet, the module is not meant to be exhaustive but rather focuses on a few key questions in the field.
- The introductory meeting will be held on Friday 15th December 2023 from 14h00 to 18h.
- The sessions will take place on Thursday: 25th January, Friday 9th February and Friday 1st of March 2024 from 14h00-18h
- ATTENDANCE AT ALL SESSIONS IS MANDATORY
- The course will only take place with a minimum of 9 participants and a maximum of 15