Prof. E. Roosnek, Division of Hematology; Prof. C. Chizzolini, Division of Immunology; Dr. V. Kindler, Division of Hematology; Dr. M. Hauwel, Swiss School of Flow Cytometry.

- **Wednesday November 18, 2015**
  - Eddy Roosnek & Paul Walker: Introduction: The Immune System

- **Thursday November 26, 2015**
  - Eddy Roosnek & Paul Walker: Transplantation

- **Wednesday December 2nd, 2015 at 2.15 pm**
  - Vincent Kindler: Biology of B lymphocytes

- **Friday December 11, 2015 at 2.30 pm**
  - Carlo Chizzolini: Inflammation

Room and time will be confirmed in a second time
REGULATION OF GENE EXPRESSION
DECEMBER 2015-JANUARY 2016

- **Prof. M. Strubin**, Dépt. Microbiologie et Médecine Moléculaire, **Prof. Dominique Belin** & **Prof. Walter Reith**, Dépt. de Pathologie and Immunologie.

This course will comprise four 3,5 hour sessions, including a break. The «philosophy» of the course will be briefly presented at an introductory meeting, followed by a short presentation on the basic concepts of nucleic acid biochemistry.

Each session will be divided into two parts. The first part will focus on some of the basic techniques commonly used for the analysis of gene expression, each presented by a PhD student. The presentations will be interactively discussed in a critical and detailed manner.

Each PhD student will give one 15-20 minutes PowerPoint presentation on one or two techniques based on research in the literature and on the internet. The advantages and drawbacks of each technique will be discussed. If time allows, other recent experimental approaches will be introduced.

The second part will be devoted to discussion in small groups on the general concepts and important issues in the field of gene expression. All the events leading from a signal transduction to production of a functional protein will be covered, with particular emphasis on the regulation of transcription.

The aim of this course is not only to provide the students with a general knowledge of the mechanisms underlying the extraordinary diversity in gene expression, but also to give them the opportunity to develop an ability to design and interpret appropriately an experiment aimed at addressing an issue in the field.

The introductory meeting will be held on **Friday 11 December 2015 from 14h30 to 16h**.

The course will be held on **Friday the 8th, 15th, 29th, and Thursday 21st of January 2016 from 14.30 to 18h**.

- **ATTENDANCE AT ALL SESSIONS IS MANDATORY**
- The course will only take place with a minimum of 8 participants
CARDIOVASCULAR PHYSIOLOGY AND DISEASE
JANUARY – FEBRUARY 2016

- **Dr C. Montessuit**, Division of Cardiology; **Prof. Brenda Kwak**, dept of Pathology & Immunology, and Division of Cardiology;
- **Dr Marie-Luce Piallat**, Dept of Pathology & Immunology;
- **Dr Georg Ehret**, Division of Cardiology.

- **Tuesday 5 January 2016**: Brenda Kwak
  - Basics of vascular physiology (lecture)
- **Tuesday 12 January 2016**: Brenda Kwak
  - Atherosclerosis (short lecture & TP histo-pathology)
- **Tuesday 19 January 2016**: Christophe Montessuit
  - Basics of heart physiology (lecture)
- **Tuesday 26 January 2016**: Christophe Montessuit
  - Experimental models in cardiac research (short lecture & TP Langendorff perfusion)
- **Tuesday 2 February 2016**: Georg Ehret
  - Cardiovascular genomics
- **Tuesday 9 February 2016**: Marie-Luce Piallat
  - Cardiovascular pathology illustrated (short lecture & TP anatomo-pathology)

- **TUESDAY 23 FEBRUARY 2016**: ORAL EXAM

The module will take place upon a minimum participation of 5 students
- from 14 to 17h.
Bacteriology
(from classical bacterial genetics
to modern medicine)
February 2016

- Prof. Patrick LINDER, Dépt of Microbiology & Molecular Medicine
- Teachers are: Patrick VIOLLIER (PV), Thilo KOEHLER (TK), William KELLEY (WK), Peter REDDER (PR), Patrick LINDER (PL), and subjects proposed in this course are:
  - Two Component Systems, TCS (WK)
  - Applied metagenomics (JS/LF)
  - Phages, immunity to phages (e.g., CRISPR) (PR)
  - Cell envelope, peptidoglycan / cell division (PV)
  - Secretion, motility, conjugation (PV, TK)
  - Ribosome profiling, tmRNA (PL)
  - Segregation, toxin / antitoxin systems (PV, PL)
  - SOS, repair (PL)
  - Quorum sensing, single cell behavior (TK)

The course will be held on Monday 01 February 2016, 08 February 2016, 15 February 2016, 22 February 2016, from 14h to 16h. Room E07.3347 (previous numbering 7112)
- 1 MARCH 2016, from 14h to 18h – EXAM - Room E07.3347.
- Discussion of a classic paper and a recent paper, one review for understanding.
- The 4 courses will be combined with a Monday seminar
GÉNÉTIQUE MÉDICALE
MARS 2016

- **Prof. S. E. Antonarakis**, Département de Médecine Génétique et Développement

Le Prof. S. E. Antonarakis vous invite à une première réunion le mardi 1er mars 2016, de 14h à 16h, dans la salle E09.2753.a (ex 9078, bât. C), 9ème étage du CMU.

La classe se réunira de 14h à 16h, salle 9078, bât. C, 9e étage aux dates suivantes:

- Mardi 1er Mars 2016 : Introduction par le **Prof. S. E. Antonarakis**
- Vendredi 4 Mars 2016 : Genetic Variation par le **Prof. E. Dermitzakis**
- Mardi 8 Mars 2016 : Mendelian Disorders par le **Prof. S. E. Antonarakis**
- Vendredi 11 Mars 2016 : Cytogenetics par la **Dre F. Bena**
- Mardi 15 Mars 2016 : Technology par le **Dr. M. Guipponi**
- Vendredi 18 Mars 2016 : Comparative Genomics par le **Prof. E. Zdobnov**
- Mardi 22 Mars 2016 : Complex Disorders / Traits par le **Prof. Dermitzakis**
- Vendredi 25 Mars 2016 : Epigenetics par le **Prof. R. Murr**

- **Vendredi 1er Avril 2016 : EXAM** par le **Prof. S. E. Antonarakis**
CELL INTERACTION MARCH – APRIL 2016

- **Dr. B. Wehrle-Haller**, Dépt. Physiologie Cellulaire & Métabolisme / contact: bernhard.wehrle-haller@unige.ch
- **Dr. S. Garrido-Urbani**, Dépt. de Pathologie et Immunologie; **Dr. L. Fontao**, Dépt. de Neurosciences Clinique & Dermatologie; **Dr. P. Soulie**, Dépt. Physiologie Cellulaire et Métabolisme; **Prof. Marc Chanson**, Dépt. Physiologie Cellulaire et Métabolisme; **Prof. W. Kelley**, Dépt. de Microbiologie.

The course aims to introduce students to the biology of cell 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 no more than 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 (see below). It is essential 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 and the format will be explained during the first session.

- « Adhesion, Integrins and Signaling », Dr. B. Wehrle-Haller
- « Tight Junctions : a Dynamic Fence », Dr. S. Garrido-Urbani
- « Epithelium-Substrate Adhesion », Dr. Lionel Fontao
- « Direct Communication : Gap Junctions », Prof. M. Chanson
- « From Cells to Tissues », Dr. P. Soulie
- « Bacterial Interactions », Prof. W. Kelley

Scheduled Dates: March Fri 4th, Wed 9th, Fri 11th, Wed 16th, Fri 18th, Wed 23rd from 16h00 to 18h00 (CMU/Room 5000)

ORAL EXAM : 6th or 13th of April 2016
**HISTOLOGY**

**APRIL-MAY 2016**

- **NB: this module is not opened to MD-PhD students**
- **Number of students**: 18 max
- **Dre Marie-Luce BOCHATON PIALLAT**, (Dpt of Pathology and Immunology)
- **Prof. A. Wohlwend**, UDREM
- **Prof. M. Foti; Dre P. Soulié** (Dpt of Cellular Physiology and Metabolism)
- **Dre. S. Clément; Dr J-C Tille**(Dpt of Clinical Pathology)
- **HISTOLOGY** (2 sessions): study of primary tissues (epithelium, connective tissue, muscles, vessels, nervous tissue, lymphoid tissue) and some representative organs.
- **HISTOPATHOLOGY** (2 sessions): 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.
- **HISTOLOGY AND RESEARCH** (2 sessions): study of different microscopic approaches (optical, immuno-fluorescence, confocal and electron microscopy) and their applications in research (autoradiography, in situ hybridization, immunohisto/cytochemistry, live imaging).
- **NB**: PhD students are required to attend all sessions.

**Introduction**: **MLBP/AW/PS** – Friday April 8, 2016

- **Session 1**: **AW/PS**-Tuesday April 12, 2016
- **Session 2**: **AW/PS**- Friday April 15, 2016
- **Session 3**: **JCT**-Tuesday April 19, 2016
- **Session 4**: **JCT**-Friday April 22, 2016
- **Session 5**: **MLBP/SC**-Tuesday April 26, 2016
- **Session 6**: **MF**-Thursday April 28, 2016

**ORAL EXAM**: During the week of April 9 to 13, 2016
Dr. D. Garcin, Dépt de Microbiologie et Médecine Moléculaire
- Virus cycle (entry, replication, budding…)
- RNA viruses: genetic variability, quasi-species, adaptation and evolution.
- Anti-viral innate immunity, detection, interferon system and viral counter measures.
- An introductory course in each topic, articles to read and present, discussions, critical analysis (sort of «battle» over the article 😊).
- 4 sessions of 3 to 4 hours plus one session for the exam.
- **The course will be held on:**
  - Lundi 9 mai: Viral cycle (presentation 3 publications) – Introduction quasi-species
  - Lundi 23 mai: Quasi-species (presentation 3 publications) – Introduction innate immunity
  - Lundi 30 mai 2016: Innate immunity (presentation 3 publications)
  - **LUNDI 6 JUIN 2016: EXAMEN**

- Salle de séminaire MIMO 7172, 7ème étage de 14h00 à 18h00
Prof. P. Herrera, Dr. F. Thorel (dépt. de médecine génétique & développement CMU).

M.N. Steiner, Service de Transgénèse (cours pratique sur la production de souris transgéniques).

Transgenics and mouse molecular genetics

Sex determination

Regenerative medicine : ES and IPS cells; cell reprogramming

Pancreas development and regeneration

Les cours seront en anglais

Les cours auront lieu les mercredis

du mois de juin (1, 8, 15, 22); salle 9112C, 14h à 17h.

EXAMEN : date à définir en juillet

Les cours auront lieu seulement s’il y a un minimum de 4 étudiants et un maximum de 12 étudiants.

La participation aux 4 séances est obligatoire
CANCER
SEPTEMBRE 2016

- **Prof. Dominique Belin**, Dépt de Pathologie et immunologie,
- **Prof. A.-P. Sappino**, Division d’Oncologie

- Réseaux de proto-oncogènes (Tyrosine Kinases (Abl), PML-RAR, Ras)
- Gènes suppresseurs de tumeurs (p53, télomérase). Cycle cellulaire (Rétinoblastome, cyclines et inhibiteurs de cyclines)
- Virus, bactéries et cancers. Métabolisme, Hépatocarcinome et microbiote intestinal.

- **Les cours auront lieu aux dates suivantes** :
  - mardi 6 et 13 septembre 2016
  - mardi 20 et 27 septembre 2016

- De 14h à 17h30