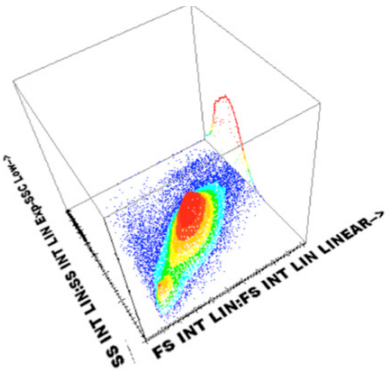
CAS

Certificate of Advanced Studies
Certificat de formation continue

Flow Cytometry

October 2019 > September 2020



FACULTY OF MEDICINE
Departement of Oncology
Departement of Diagnostics

UNIVERSITÉ
DE GENÈVE

Director

Professor Thomas Matthes, Faculty of Medicine; Geneva University

Scientific Committee

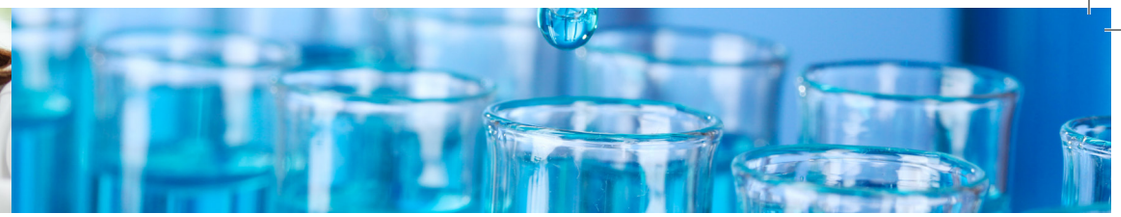
- **Thomas Matthes**, Associate Professor, Faculty of Medicine, Geneva University
- **Stéphanie Huges**, Associate Professor, Faculty of Medicine, Geneva University
- **Carlo Chizzolini**, Ordinary Professor, Faculty of Medicine, Geneva University
- **Nicolas Arraud**, PhD, Swiss Flow Cytometry School, Departement of Diagnostics, Geneva University Hospital
- **Jean-Pierre Aubry Lachanaye**, PhD, Coordinator Flow Cytometry Core Facility, Faculty of Medicine, Geneva University

Coordinator

Nicolas Arraud, PhD, Swiss Flow Cytometry School, Departement of Diagnostics, Geneva University Hospital

Speakers

Members of the scientific comittee, experts in flow cytometry from other universities



Unique in Switzerland, this CAS allows the participants to acquire the necessary expertise in flow cytometry for the use of this technique in all diagnostic applications in hematology, immunology and oncology, as well as for research purposes in cellular biology, pharmacology, and microbiology

Flow cytometry, developed in the sixties, has become today an extremely powerful and complex cellular analysis technique, used in laboratories all over the world, both in research and in medical diagnostics, in fields as varied as immunology, hematology, bacteriology, plant biology, toxicology, or the agri-food industry. There is currently no structured teaching offered in swiss university curricula dedicated to flow cytometry. For this reason, the Department of Diagnostics of the Geneva Faculty of Medicine established in 2012 the Swiss Flow Cytometry School (www.swisscytometry.ch).

With theoretical and practical courses we have been able to reach in recent years an audience of physicians, biologists, researchers and technicians from all over the world (30-50 participants / year). Building on this success, we have now restructured our teaching to obtain national and international recognition by creating the Flow Cytometry Certificate of Advanced Studies (CAS). This Certificate consists of three theoretical and practical modules, followed by a written report composed by each participant. All aspects of flow cytometry will be addressed during the course, from the design of an experiment and the choice of reagents, to the maintenance and adjustments of the cytometer, and the analysis of multi-dimensional data.

Audience

Physicians (hematologists, immunologists), biologists, biochimists, pharmacists, toxicologists, veterinarians, engineers in the medical sciences, laboratory technicians with a professional experience in flow cytometry

Objectives

- Give participants the theoretical and practical information needed to perform flow cytometric analyses independently
- Enable participants to develop experimental and diagnostic approaches, to develop data analysis strategies, and to use appropriate analytical softwares
- Illustrate to participants the most common applications of flow cytometry with a special focus on applications in hematology and immunology
- Inform participants of the latest developments in the field of flow cytometry, of the technical progress and of multi-dimensional data analysis

Learning Methods

- Theoretical courses
- Practical, individual – and group – exercises: pre-analytical and analytical procedures
- Data analysis
- Case studies

Learning Outcomes

At the end of this course the participants will be able to:

- Perform independently the most common applications of flow cytometry in the field of immunological research and clinical immunology and hematology;
- Develop specific assays for studying cell proliferation, cell cycle and apoptosis;
- Build complex multicolour flow cytometry panels and develop the corresponding data analysis strategies;
- Understand the advantages and drawbacks of the different technologies and softwares on the market;
- Determine which tools (Hardware & Software) are the best for solving a given biological question;
- Perform executive functions in analysing and solving complex problems related to flow cytometry;
- Justify experimental approaches and technical choices;
- Understand current and future technical developments in flow cytometry.

Evaluation

At the end of each module by a written examination (MCQ).

Active participation during the course is required, as well as participation in collaborative exercises.

Diploma Awarded

Students who participate at the 3 Modules, who pass the exams, and who compose their written report will obtain a Certificate of Advanced Studies (CAS) in Flow Cytometry, issued by the University of Geneva.

Programme

Module 1 | **Introduction to flow cytometry**

5 days | 40 h | 3 ECTS Credits

Theoretical and practical courses

Module 2 | **Flow Cytometry for advanced users**

5 days | 40 h | 3 ECTS Credits

Theoretical and practical courses

Module 3 | **Special applications for Flow Cytometry**

3 days | 24 h | 2 ECTS Credits

Theoretical and practical courses

Written Report | **Written report, treatise**

42h | 2 ECTS Credits

A report at the end of the course on a topic in connection with the training and / or the professional reality of the participants is required to obtain the certificate. This work has to be done individually and consists of writing a treatise on a specific subject of flow cytometry, with a description of a methodology and analysis of a series of data.

Practical Information

Condition of Admission

Candidates who:

- Hold a master's or a bachelor's degree in Biology, Biochemistry, Biomedical Sciences, Pharmacy, Medicine, or a degree deemed equivalent issued by a University, and recognized by the University of Geneva;
- Hold a bachelor or a master's degree from a University of Applied Sciences (HES). 2 years professional experience related to the Certificate program will be required. An interview can complete the admission procedure;
- Hold a higher education degree in Biomedical Analysis or equivalent training (ie.: laboratory technician). 2 years professional experience related to the Certificate program will be required. An interview can complete the admission procedure.

Applicants must also attach to their application the documents requested in the application form.

Application and Deadline (20th September 2019)

Online application may be submitted via the course website at:
www.unige.ch/formcont/cours/flow-cytometry

Tuition Fee

CHF 6,000.-

Time Schedule and Location

- 9:15-13:15 and 14:15-18:15
- University Medical Center (CMU)
  Swiss Flow Cytometry School
  1 rue Michel Servet – Geneva

Contact

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