



For Questions and Information

Contacts:

> **PhD Program in Pharmaceutical Sciences**

Secrétariat de la Section des Sciences Pharmaceutiques
Université de Genève
30, Quai Ernest-Ansermet
CH-1211 Genève 4
Switzerland
E-mail: PhD@pharm.unige.ch
Tel: ++41 22 379 6591
Fax: ++41 22 379 6089

Webpage of the PhD Program:

<http://www.unige.ch/sciences/pharm/f/etudes/ecodoc.html>

Here you will find information on the PhD Program in Pharmaceutical Sciences, its regulations, the schedule and contents of the courses as well as a download version of the administrative forms.

General information on the School of Pharmaceutical Sciences is available at:

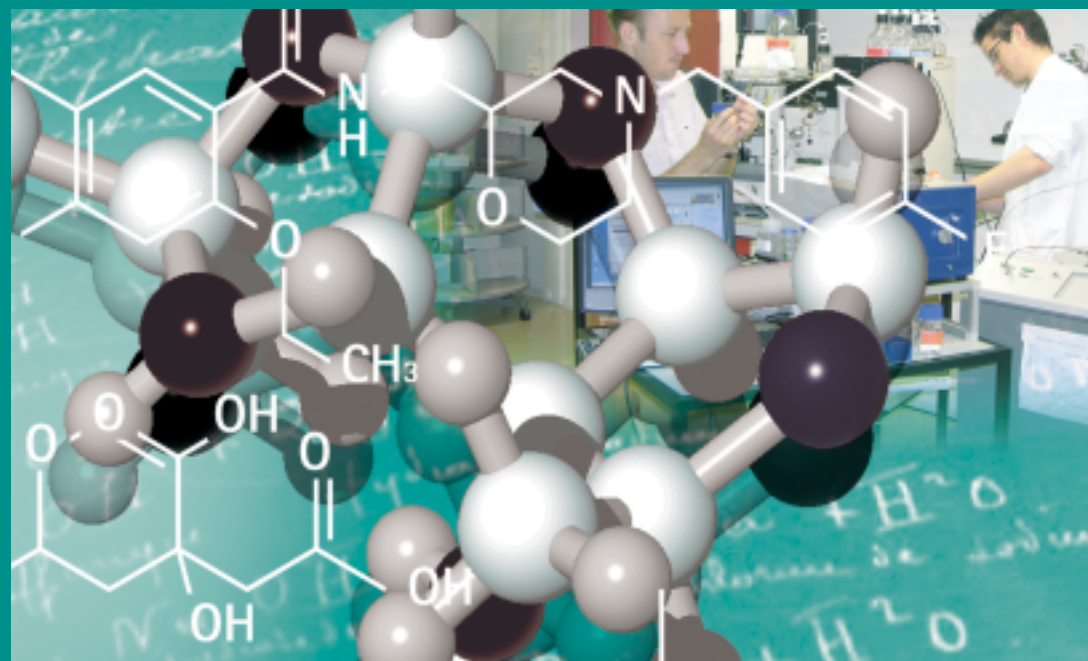
<http://www.unige.ch/sciences/pharm/>

Daniel Galasso, Geneva
©Photos: Pharmaceutical Sciences, Université de Genève

PhD Program in Pharmaceutical Sciences

From drug discovery
to the patient

*Training the next generations
of pharmaceutical scientists*



School of Pharmaceutical Sciences
Geneva, Switzerland



Objectives

In 2001 the School of Pharmaceutical Sciences Geneva-Lausanne, a joint venture of the University of Geneva and the University of Lausanne, created the PhD Program in Pharmaceutical Sciences with the general aim of increasing knowledge in specific disciplines as well as broadening the interdisciplinary/transdisciplinary knowledge of PhD students within the pharmaceutical sciences. The declared objectives are to:

- > **Provide a strong theoretical and practical training** to advance PhD students' research projects.
- > **Complement the PhD students' specialized training** in their research area with a broader understanding of subjects related to drug discovery and development and the use of therapeutics within the health care system.
- > **Emphasize and encourage interdisciplinary research** - essential for progress in the pharmaceutical sciences.
- > **Increase awareness of ethical issues** and the role of intellectual property in pharmaceutical research.
- > **Increase opportunities for scientific exchange** between PhD students and scientists working in different disciplines of the pharmaceutical sciences as well as in related fields.
- > **Enable interaction between PhD students and scientists** in the pharmaceutical industry and increase networking opportunities.

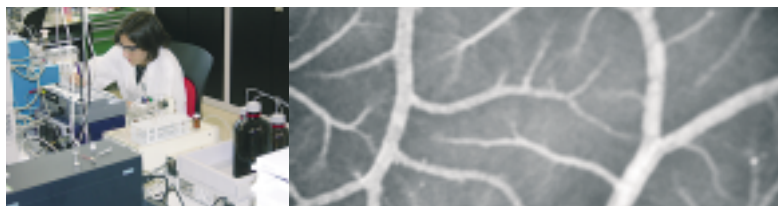
The achievement of these objectives will improve the quality of training of the PhD students graduating from the School of Pharmaceutical Sciences Geneva-Lausanne and increase their competitiveness in the international job market.



Organization

Two complementary types of activities are included in the PhD Program in Pharmaceutical Sciences:

- > **A Research Project** of 3-4 years duration in one area of pharmaceutical sciences including, drug discovery, molecular pharmacology, drug delivery, and drug development. Computational approaches to drug development and dynamic modeling are also integrated.
- > **An Educational Program** accompanying the research project. The students need a total of 30 ECTS credits over 3-4 years before defending their PhD theses. The aim is to give the students the necessary scientific and communication skills for advancing their careers after completing their PhD.



Research Areas

The PhD students participate in on-going research within the different groups of the School of Pharmaceutical Sciences and of partner institutions (research institutes and industry).

The groups participating in the PhD Program and their research focus are:

- > **PHARMACEUTICAL ANALYSIS**
 - **Drug and Pharmaceutical Analysis** (Prof. Jean-Luc Veuthey) New strategies for sample preparation and separation techniques (GC, LC, CE).
 - **Life Sciences Mass Spectrometry** (Prof. Gérard Hopfgartner) Current strategies for the analysis of low molecular weight compounds and macromolecules by mass spectrometry.
 - **Pharmaceutical Methodology** (Dr. Serge Rudaz) Analytical method optimization and validation, chemometric tools, data mining.
- > **MEDICINAL CHEMISTRY**
 - **Pharmaceutical Biochemistry** (Prof. Leonardo Scapozza) Development of therapeutic strategies against cancer and malaria using an interdisciplinary approach focused on understanding Drug-Target interactions.
 - **Pharmacochemistry** (Prof. Pierre-Alain Carrupt, Dr. Marianne Reist) Innovative experimental and theoretical methods for the discovery and optimization of NCEs.
 - **Skin Technology** (Dr. Yogeshvar Kalia) Optimizing transdermal delivery of therapeutic molecules including peptides and proteins.
- > **PHARMACEUTICS AND BIOPHARMACEUTICS**
 - **Drug Delivery and Nanotechnology** (Prof. Robert Gurny, Prof. Tudor Arvinte, Dr. Norbert Lange, Dr. Florence Delie, Dr. Michael Moeller) Biomaterials, novel drug delivery systems, peptide and protein formulations.
 - **Formulation and Biomaterials** (Prof. Eric Doelker, Dr. Olivier Jordan) Preformulation studies, Pharmaceutics of solid dosage forms, Nanotechnologies, Medical devices.
 - **Biopharmaceutical Sciences** (Prof. Gerrit Borchard) Molecular Biopharmaceutics and Cellular Pharmacokinetics.
- > **PHARMACOLOGY**
(Prof. Urs Ruegg) Identification of promising targets to find drugs for Duchenne muscular dystrophy.
- > **PHARMACOGNOSY AND PHYTOCHEMISTRY**
(Prof. Kurt. Hostettmann, Prof. Jean-Luc Wolfender, Dr. Philippe Christen, Dr. Andrew Marston) Isolation and characterisation of new bioactive natural products from plants. Analysis, dereplication and metabolomic studies of crude plant extracts with hyphenated chromatographic techniques. Development of rapid bioassays for bio-activity guided isolation procedures.
- > **PHARMACEUTICAL PRACTICE**
 - **Hospital and Clinical Pharmacy** (Prof. André Pannatier, Dr. Pascal Bonnabry) Optimizing the safety of the medication process in the hospital, from the production to the administration.

The educational Program

The combination of courses and conferences aims at giving the students the necessary scientific skills in drug discovery/development and medication, and social/communication skills to integrate into the pharmaceutical sciences market at the end of their PhD.

The program includes courses in the following topics totaling ~300 hours of graduate lectures per year:

- > **Medicinal chemistry**
- > **Pharmaceutical analysis**
- > **Pharmaceutics and biopharmaceutics**
- > **Pharmacognosy and phytochemistry**
- > **Pharmacology and pharmacogenomics**
- > **Pharmacoeconomics and regulatory affairs**
- > **Pharmaceutical practice (hospital and community) and policy**

In addition, the students can participate in workshops devoted to the initiation of new technologies (genomics, visualization techniques).



Student Profile

Currently, more than 80 PhD students from more than 15 countries having a masters degree in various life and natural sciences disciplines including pharmacy/pharmaceutical sciences, biology, chemistry and physics are participating in the PhD Program at the School of Pharmaceutical Sciences.

Who is admitted?

Students of diverse academic, cultural, economic, and social backgrounds are enrolled in the PhD Program in Pharmaceutical Sciences. To be admitted, the students must have a masters degree in a discipline of life or natural sciences (pharmaceutical sciences, chemistry, biology, and physics). In addition to intellectual and academic competence, communication skills, potential leadership skills, and research experience are considered for admission. Research experience at an undergraduate level is highly valued.

