The Post-Graduate Course in Molecular Medicine (MM) at the University of Padova offers a highly competitive Ph.D. programme for a comprehensive education in the fields of Biochemistry, Biophysics, Molecular, Cell and Developmental Biology, Physiology, Microbiology, Virology and Gene Therapy.

The Course offers state of the art working conditions in a challenging environment for talented researchers in the best academic research institution in Italy.

- Students choose their field of interest under the direct supervision of one or more of the Faculty members.
- The research project is complemented by advanced graduate-level courses.
- The Course enjoys strong ties with Italian and European private pharmaceutical enterprises allowing campus visits, seminars, and joint research activities.
- Attendance to International meetings and conferences is supported by the Course with additional funding.

We offer an interdisciplinary research and training environment, focusing on the following areas:

- Regenerative medicine
- Signal Transduction
- Molecular Oncology
- Microbiology
- Drug Discovery
- Mouse Modeling of Human diseases
- Cell and Developmental Biology

The Department of Molecular Medicine has been ranked among the top research institution in Italy. Our alumni are typically hired from world-class academic Institutions or pharmaceutical companies.

Scholarships are provided by
- the Italian Ministry of Education, of University and of Research (MIUR)
- the European Union (Horizon 2020)
- Cariparo Foundation
- Private enterprises

Dipartimento di Medicina Molecolare
Via A. Gabelli 63
35121 Padova, Italy

General contact:
tel.: +39 049 8276098
stefano.piccolo@unipd.it
Molecular Medicine at UNIPD

The Post-Graduate Course in Molecular Medicine (Corso di Dottorato in Medicina Molecolare, MM) at the University of Padova offers a highly competitive Ph.D. programme for a comprehensive education in the fields of Biochemistry, Biophysics, Molecular, Cell and Developmental Biology, Physiology, Microbiology, Virology and Gene Therapy. The Post-Graduate Course in Molecular Medicine offers state of the art working, training and mentorship conditions that will appeal talented and motivated young researchers.

MM offers a wide range of different programs. Students choose their field of interest under the direct supervision of one or more of the Ph.D. Course members. The research project is complemented by advanced graduate courses designed to provide the students with state-of-the-art tools in selected areas of chemistry, materials science and biochemistry.

Our students receive a broad training that prepares them equally well for careers in industry or academia. The Course enjoys strong ties with Italian and European private pharmaceutical enterprises allowing campus visits, seminars, and joint research activities.

Basic research are focused on the identification of molecular mechanisms driving cell differentiation, stemness, and involved in the pathogenesis of infectious, genetic, degenerative and neoplastic diseases. In particular: signal transduction mediated by growth factors and hormones; enzymes involved in the redox homeostasis of proteins involved in differentiation; genes involved in extracellular matrix biosynthesis; mechanical stimulus and wound repair; physiopathological basis of reproduction; micronutrients and vegetal antioxidants in degenerative and neoplastic diseases and in the aging; hepatitis C pathogenesis and hepatic fibrosis mechanisms; alteration of liver function after liver transplantation; structure and function of viral genes; genetic and biochemical mechanisms of virus therapy and vaccine delivery; development of new tools of molecular diagnostics based on "omic" sciences; bioelectronics and nano-biotechnologies: new materials at nanometric scale for the development of biosensors; biomarkers and predictability of the response to the therapy of chronic inflammatory gut diseases; development of diagnostic approaches and sterility therapy; cell and gene therapy of infectious, degenerative and neoplastic diseases; stem cells from peripheral blood, adipose tissue, enteric nervous system, and IPS (induced pluripotent stem cells); metallic, polymeric, and biological biomimetic surfaces; design, synthesis, and delivery of cell adhesion, growth, pro- and anti-angiogenic factors; in vitro reconstruction of vascular, tracheal, esophageal, liver tissue engineered substitutes; drugtarget finding; drug delivery.

Translational research aim to develop preventative agents (vaccines), diagnostic and therapeutic tools, including gene therapy, new anticancer drugs, and regenerative medicine. In particular: development of viral and bacterial vectors for gene therapy and vaccine delivery; development of new tools of molecular diagnostics based on "omic" sciences; bioelectronics and nano-biotechnologies: new materials at nanometric scale for the development of biosensors; biomarkers and predictability of the response to the therapy of chronic inflammatory gut diseases; development of diagnostic approaches and sterility therapy; cell and gene therapy of infectious, degenerative and neoplastic diseases; stem cells from peripheral blood, adipose tissue, enteric nervous system, and IPS (induced pluripotent stem cells); metallic, polymeric, and biological biomimetic surfaces; design, synthesis, and delivery of cell adhesion, growth, pro- and anti-angiogenic factors; in vitro reconstruction of vascular, tracheal, esophageal, liver tissue engineered substitutes; drugtarget finding; drug delivery.

Molecular Medicine at UNIPD

MM Research Topics

Basic research are focused on the identification of molecular mechanisms driving cell differentiation, stemness, and involved in the pathogenesis of infectious, genetic, degenerative and neoplastic diseases. In particular: signal transduction mediated by growth factors and hormones; enzymes involved in the redox homeostasis of proteins involved in differentiation; genes involved in extracellular matrix biosynthesis; mechanical stimulus and wound repair; physiopathological basis of reproduction; micronutrients and vegetal antioxidants in degenerative and neoplastic diseases and in the aging; hepatitis C pathogenesis and hepatic fibrosis mechanisms; alteration of liver function after liver transplantation; structure and function of viral genes; genetic and biochemical mechanisms of virus therapy and vaccine delivery; development of new tools of molecular diagnostics based on "omic" sciences; bioelectronics and nano-biotechnologies: new materials at nanometric scale for the development of biosensors; biomarkers and predictability of the response to the therapy of chronic inflammatory gut diseases; development of diagnostic approaches and sterility therapy; cell and gene therapy of infectious, degenerative and neoplastic diseases; stem cells from peripheral blood, adipose tissue, enteric nervous system, and IPS (induced pluripotent stem cells); metallic, polymeric, and biological biomimetic surfaces; design, synthesis, and delivery of cell adhesion, growth, pro- and anti-angiogenic factors; in vitro reconstruction of vascular, tracheal, esophageal, liver tissue engineered substitutes; drugtarget finding; drug delivery.

MM Course Facilities

Laboratory space of about 2500 m². This space includes about 200 work-stations and is fully equipped with "state of the art" scientific instruments as i) high throughput DNA sequencing system, ii) real time quantitative PCR systems, iii) confocal microscope, iv) electronic microscope, v) cytovfoumeters, vi) fluorescent microscopes, vii) DNA microarray Hybridization station, viii) microarray scanner, ix) mass spectrometers, ix) traditional and next generation DNA sequencers, x) SNP and mutation analyzers.

- BL2 and BL3 Laboratory to manipulate dangerous infectious agents and recombinant microorganisms
- Certified animal house for GMO manipulation
- Microinjection system for transgenesis
- Laboratory of proteomics and protein chemistry
- Bioinformatic laboratory