The Master Programme in Molecular Medicine focuses on the molecular mechanisms that cause diseases, the newest technologies in genomics, epigenetics and proteomics as well as the development of prognostic, diagnostic and therapeutic tools. This is a crucial aspect of the health care of tomorrow, offering personalised and improved translational medicine. You will be in an advanced educational environment at the forefront of molecular medicine research, with researchers, clinicians and industry from world-leading laboratories at Uppsala University.

ABOUT THE PROGRAMME

The programme gives you in-depth knowledge about molecular and cellular mechanisms causing diseases, including genetic diseases and cancer, with special emphasis on epigenetic mechanisms. You will learn to independently analyse and interpret research results and data, generated by current methods and technologies. You will also learn techniques for developing novel molecular diagnostics and therapies with applications in both research and industry.

DEGREE

The programme leads to a Master of Medical Science (120 credits) with Molecular Medicine as the main field of study.

INSTRUCTION

Teaching includes lectures, seminars, web-based exercises, demonstrations, project work as well as theoretical and practical tasks. The lectures provide you with an understanding of current research and perspectives, and are given by scientists specialised in the field. During seminars, we will discuss experimental methods, strategies and research results, while reviewing the scientific literature.

The programme and teaching are tightly linked to on-going medical and technological research, offering a solid basis for future work either in academia or in industry. You will interact with researchers and clinicians from Uppsala University and Uppsala University Hospital, providing an advanced education, connected with local biotechnology companies and the drug industry.

You will independently compile and present research findings, both in writing and orally. Apart from training in independent
During the first year you will focus on methods and technologies for assessing genetic as well as epigenetic variations, current clinical diagnostics and novel approaches to treatment. You will study in depth research-oriented problems in molecular medicine and be trained in experimental design and laboratory work. We describe the use and applications of new sequencing technologies and data analysis with an emphasis on genome analysis, epigenomics and comparative genomics as well as current methods in proteomics, analysis of proteins and protein expression with identification of novel biomarkers for diseases, using practical applications within the Human Proteome project (HPR). In the laboratory, you will, for example, study epigenetic changes in cancer cells using pyrosequencing and ChIP analysis as well as perform diagnostic analysis by proximity ligation assay (PLA). The programme will also give you insights into presentation techniques and research ethics.

The second year includes analysis and diagnostics by molecular imaging, from the detection of single nucleotide polymorphisms to whole body analysis. The course Regenerative Medicine describes stem cell therapies, tissue engineering, generation of biomaterials as well as other novel cell and immunotherapies against human diseases. In the laboratory, you will perform in vitro differentiation of neuronal stem cells. If you are interested in research and in gaining laboratory experience, you can apply for projects.

During the last part of the programme, you will undertake an independent degree project in molecular medicine in a research group at an academic department, in a company or other agency in Sweden or abroad. You conclude the degree project by writing a thesis, compiling the research results, and giving a research seminar.

COURSES WITHIN THE PROGRAMME

Year 1
- Medical Genetics and Cancer; Molecular Mechanisms, 15 credits
- Advanced Techniques in Molecular Medicine, 15 credits
- Genomic and Epigenomic Medicine, 15 credits
- Molecular tools for Proteome Analysis and Diagnostics, 7.5 credits
- Biomarkers; Discovery and Validation, 7.5 credits

Year 2
- Bioimaging and Cell analysis, 7.5 credits
- Regenerative Medicine, 7.5 credits
- Elective period, 15 credits
- Master’s project in Molecular Medicine, 30/45 credits

CAREER

With an advanced education in molecular medicine you are expected to go on to occupations in research, health-care systems, pharma or biotechnology companies, and governmental organisations.

The strong component of cutting-edge research in the programme gives you an excellent basis for further academic research and PhD studies in the field. You will have gained practical experience of several new molecular technologies and their applications for research in genomics, epigenomics and proteomics, which together with a profound understanding of molecular mechanisms in diseases including cancer, is a requisite for progress in medical research as well as in health care.
The second round of application is open and closes on April 15. This round is primarily for students not requiring visa, since admissions will not be decided until beginning of July. Applications must be through the Swedish application system, www.antagning.se. For more information, please contact the programme before applying.

MASTER PROGRAMME IN MOLECULAR MEDICINE

120 credits

Autumn 2017 100% Campus

Location: Uppsala

Application Deadline: 2016-01-15

Enrolment Code: UU-M3830

Language of Instruction: English

Requirements:

Academic requirements

A Bachelor’s degree, equivalent to a Swedish Kandidatexamen, from an internationally recognised university. The main field of study must be in biomedicine, medicine, pharmacy, engineering, biology, or a similar field of study that gives relevant knowledge in chemistry, biochemistry, cell and molecular biology and molecular genetics. Also required is previous experience of laboratory work.

Language requirements

All applicants need to verify English language proficiency. This is normally attested by an internationally recognised test such as TOEFL or IELTS with the following minimum scores:

- IELTS: an overall mark of 6.5 and no section below 5.5
- TOEFL: Paper-based: Score of 4.5 (scale 1–6) in written test and a total score of 575. Internet-based: Score of 20 (scale 0–30) in written test and a total score of 90
- Cambridge: CAE, CPE

Exemptions for students from certain countries.

Selection: Students are selected based on:

- a total appraisal of quantity and quality of previous university studies with emphasis on grades in relevant fields;
- a statement of purpose; and
- a summary in English (1-2 pages) of a degree project.

Fees: If you are not a citizen of a European Union (EU) or European Economic Area (EEA) country, or Switzerland, you are required to pay application and tuition fees. Read more about fees.

Application Fee: SEK 900

Tuition fee, first semester: SEK 72500

Tuition fee, total: SEK 290000

CONTACT & MORE INFO

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For general information about Master’s studies at Uppsala University, please send an email to: masterprogrammes@uu.se