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## Degree Programmes

Bachelor • Master • PhD/Dr.rer.nat.

# International Graduate School in Molecular Medicine Ulm IGradU

Funded by the Excellence Initiative of the  
German federal and state governments

[www.uni-ulm.de/mm](http://www.uni-ulm.de/mm)



## Molecular Medicine

The discovery of microorganisms as the cause of infectious diseases and penicillin as an effective weapon to combat them revolutionized the field of medicine in the last century. Today, Medicine is again going through a phase of radical change. It has become clear that the causes of many human diseases reside in the cells, namely, the genes and the proteins they produce. To broaden this knowledge and use it for the well-being of patients is the aim of the new interdisciplinary scientific subject of *Molecular Medicine*.

Scientists working in the field of Molecular Medicine analyse the molecular mechanisms of the origin of diseases with the long-term goal of developing innovative diagnostic and therapeutical concepts and strategies. Their experimental findings are highly relevant for society since cardiovascular diseases, cancer and metabolic disorders, to name but a few, are deemed to be the major causes of death worldwide. Because of the significance of Molecular Medicine for modern society, the need to provide highly trained scientists will be of immense relevance for the future, especially in view of the dramatic demographic changes in population structure.

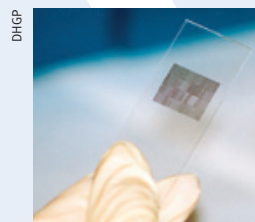
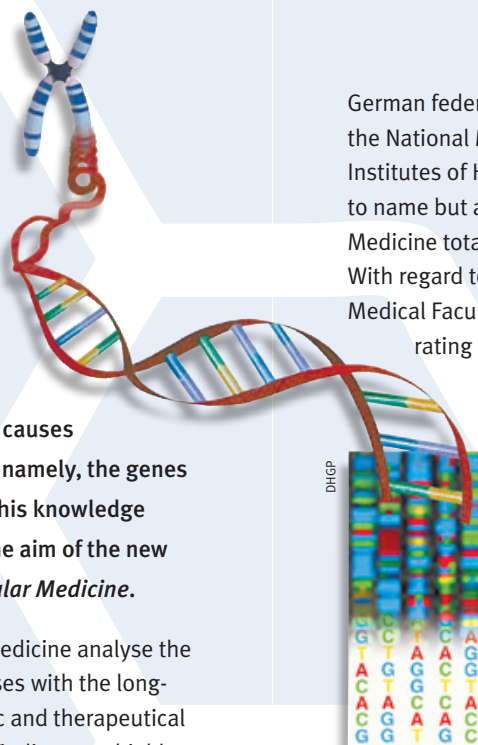
## Cutting edge research at Ulm University

The research field of Molecular Medicine has a successful history at **Ulm University**, which was founded in 1967 as a medical university. From the start, Molecular Medicine was identified as one of the chief topics of research for the young university. More than 18 collaborative research networks in the field of Molecular Medicine (especially in the areas of Cellular Differentiation, Ageing, Cardio-Metabolic Disorders, Hematology & Oncology, and the Neurosciences) are currently funded by the German Research Foundation (DFG), the Excellence Initiative of the

German federal and state governments, the European Union, the National Ministry of Education and Research, the National Institutes of Health (NIH), the State of Baden-Württemberg, to name but a few. External funding in the field of Molecular Medicine totals an annual budget of approximately €45 million. With regard to the university's scientific performance, the Medical Faculty at Ulm University has achieved an upper third rating among German Medical Faculties.

## Excellence training

Scientific excellence depends on excellently trained young researchers. The training of such researchers is the role of *The International Graduate School in Molecular Medicine Ulm* founded in February 2006 and funded by the **Excellence Initiative of the German federal and state governments**. This initiative was established in 2005 to grant competitive awards



From research to application

to the best performing German universities. Together with Ulm University and the Medical Faculty, the Graduate School offers several courses, for example, a Bachelor, Master and PhD programme of studies in Molecular Medicine in addition to a Fast Track PhD programme. There is also a doctoral programme named Experimental Medicine for medical students. Furthermore, the Graduate School provides financial support for several programmes such as the *Childcare Programme* or the *Mobility Programme*.



## Our courses of studies

### Bachelor of Science in Molecular Medicine

**Target group:** High school graduates

**Number of places per year:** 50

**Application deadline:** July 15

**Length of programme:** 6 Semesters (180 ECTS)

**Course language:** German

**Course content:** This course of study is aimed at students who wish to work in medicine but not in the immediate care of patients. It combines the topics and questions of experimental medicine with the methods of molecular and cell biology as well as genomics. The main educational emphasis is placed on the physiology and pathophysiology of cells and organs based on an intensive mathematical and natural science approach in the first two semesters. Modules include anatomy, biochemistry, bioinformatics, developmental biology, gene therapy, human genetics etc.

**Aim of the course:** The aim is to prepare students for employment in universities, research institutes, and within the developing pharmaceutical and diagnostic industry. It also serves as the basis for corresponding courses of study at postgraduate level.

**Final degree:** Bachelor of Science (BSc)

**Dean of studies:** Prof. Dr. Thomas Mertens

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www.uni-ulm.de/mm/bachelor

### Master of Science in Molecular Medicine

**Target group:** BSc graduates

**Number of places per year:** 25

**Application deadline:** May 15 and November 15

**Length of programme:** 1 1/2 years (120 ECTS)

**Course language:** English

**Course content:** In the first year of study, the core element of the master's course is practical research training (lab rotations) to allow students to concentrate on current research topics and modern scientific methods. Topics include hematology and oncology, human genetics, infectious diseases and immune reactions, neurobiology and regenerative medicine. The plan of studies also includes courses on good scientific practice, bioethics, project management, and patent law. A master's thesis is also required.

**Aim of the course:** Based on a bachelor's biomedical course of study, the educational aim of the master's course of studies is to prepare postgraduates for independent scientific work on a biomedical topic. It also serves as the basis for a doctoral course of study.

**Final degree:** Master of Science (MSc)

**Dean of studies:** Prof. Dr. Thomas Mertens

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## International PhD Programme in Molecular Medicine

**Target group:** MSc graduates

**Number of places per year:** unlimited

**Application deadline:** All year round

**Length of programme:** 3 years

**Course language:** English

**Course content:** Central element of the programme is the three-year doctoral dissertation in any field of molecular medicine at the end of which the student must defend his/her research results in a public disputation. Apart from their own laboratory work, doctoral students must attend compulsory courses amounting to 20 ECTS over a three-year period. These include, for example, series of lectures and seminars and practical laboratory training courses. In addition to curricular seminars and lectures a large variety of optional activities is offered. Two intermediate examinations during the three years' programme ensure appropriate progress in the student's scientific project.

**Aim of the course:** The major aim of the programme is to train graduates to be able to perform independent scientific research and to advance graduate career opportunities in the academic world and in industry.

**Final degree:** Doctor of Philosophy (PhD) or  
Doctor rerum naturalium (Dr. rer. nat.)

**Speaker:** Prof. Dr. Michael Kühl

**Managing Director:** PD Dr. Dieter Brockmann

### Contact:

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## Fast Track PhD Programme in Molecular Medicine

**Target group:** Highly motivated and talented BSc graduates.

After passing the first year examination of the Master's course of studies in Molecular Medicine, students with above-average results will be given the opportunity of directly entering the three-year doctoral phase.

**Application deadline:** Four weeks after passing the first year examination of the Master's course of studies.

**Length of programme:** 4 years

**Course language:** English

**Course content:** See Master course of studies and International PhD Programme

**Aim of the course:** See International PhD Programme in Molecular Medicine

**Final degree:** MSc/PhD

**Speaker:** Prof. Dr. Michael Kühl

**Managing Director:** PD Dr. Dieter Brockmann

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## Study Programme Experimental Medicine

**Target group:** Students of Human Medicine and Dental Medicine

**Number of places per year:** 25

**Application deadline:** January 15 and July 15

**Length of the programme:** 9 months

**Course language:** German/English

**Course content:** The central element is an innovative experimental research project performed on a full-time basis in any field of molecular medicine. Apart from their own laboratory work, doctoral students must attend a series of seminars such as the Journal Club and Progress Reports. Students of the programme obtain a stipend of € 500 per month.

**Aim of the course:** The aim of the programme is to train medical students to carry out scientific research in the field of molecular medicine in an industrial and academic environment. This programme is an excellent preparation to start doctoral training in a PhD programme after the state examination.

**Final degree:** Doktor der Medizin (Dr. med.)

**Speaker:** Prof. Dr. Thomas Wirth

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[www.uni-ulm.de/einrichtungen/mm/expmedizin](http://www.uni-ulm.de/einrichtungen/mm/expmedizin)

## Our programmes

- Fellowships for doctoral students
- Short-term post doctoral fellowships
- Specific research training groups
- Financial support for childcare
- Mobility Programme including financial support for participation in meetings, retreats, conferences and stays in first class laboratories worldwide
- International meetings (twice a year) and summer schools
- Visiting scientists and well-known international speakers
- Mentoring and Gender programmes
- Key competencies training courses, i.e. Project Management, Presentation and Communication Techniques, Intercultural Training, Language courses, Good Scientific Practice and Career Planning
- Help with visa issues, finding accommodation, social matters

For further information see [www.uni-ulm.de/mm](http://www.uni-ulm.de/mm)



## Ulm University and Science City

The University of Ulm is one of the youngest universities in Germany. Around 9,600 students populate a campus surrounded by what is known as the 'Science City' or *Wissenschaftsstadt* located on a hill high above the city. The university is noted for its personal atmosphere and the close working relationships between students and professors in their study of science.

Due to the high level of cooperation among the different disciplines the University has an excellent reputation.

The programme in Molecular Medicine is embedded in a varied natural and medical environment oriented towards the life sciences. In addition to Molecular Medicine, studies are also available in Biochemistry, Biology, Mathematical Biometry, Medicine and various fields of Chemistry and Physics at Ulm.



## About the City of Ulm

Ulm is an ancient city situated in the heart of southern Germany. At its historical centre you will find Ulm Cathedral and the picturesque *Fischerviertel*, which is a charming old trading quarter for fishermen, boatmen, and tanners.

Ulm offers a large variety of cultural events such as the *Museumsnacht* (Night of the Museums), the *International Donaufest* (International Danube Festival) and the *Ulmer Zelt*, one of many music festivals. There is a main theatre and several other smaller theatres. Whether sociable or fashionable, there are bars, pubs, cafés, and beer gardens and a broad range of sport facilities to suit everyone's taste.



Ulm is an attractive city. The town is located in Baden-Württemberg on the scenic banks of the Danube bordering Bavaria. Explore the river by kayak or ride a

bike along the shore. The Allgäu and Lake Constance offer the opportunity to go hiking and cycling. Enjoy the skiing since the city is also not far away from the Alps.



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