



You have a part to play!

Molecular Mechanisms of Disease

www.ru.nl/masters/mmd

Radboud University



Radboudumc
university medical center



Establish a bridge between fundamental research and human disease.

Understanding the molecular basis of disease

All diseases have their origin in the disturbance of molecular processes. As a student of the Research Master's in Molecular Mechanisms of Disease (MMD), you will follow a programme that provides you with in-depth insight and research experience into the molecular processes underlying health and disease. Such knowledge forms the basis for the development of new therapies for cancer, metabolic, infectious and immunological diseases. All staff of the programme are members of the Radboud Institute for Molecular Life Sciences (RIMLS), one of the research institutes of the Radboud university medical center (Radboudumc). The programme is part of the Graduate School of the RIMLS. Research at the RIMLS is aimed at elucidating the molecular basis of disease-related processes and translating these results into the clinic.

Excellence in education

The MMD programme is characterised by very intensive contact with established researchers, group-oriented learning and excellent academic resources. You will find yourself in the company of a small but ambitious and highly motivated group of students and will be involved in stimulating discussions. For your two research internships, you will have numerous options to contribute to state-of-the-art research at an RIMLS laboratory or at the university hospital. Almost all students go abroad for their second internship, making use of the large international network of the RIMLS researchers. As an MMD student, you will have a personal mentor to help you plan your individual study programme and to discuss future options. You will also have an individual supervisor during each internship. All courses are evaluated by students throughout the programme and immediately adjusted if necessary. It is a key characteristic of the MMD Master to offer a challenging and highly structured programme in the full width of the molecular biomedical sciences. 81% of our students so far have graduated within the designated 2 years; 97 percent have successfully received their degree.

Research-oriented programme

MMD education is closely linked to the research done in the framework of the core RIMLS research themes. RIMLS scientists are internationally renowned experts in the following fields:

1. Immunity, infection and inflammation / Immunity-related disorders and immunotherapy;
2. Metabolism, transport and motion / Metabolic disorders;
3. Cell growth and differentiation / Developmental disorders and malignancies

During your Master's programme, you will have courses in all of these fields. You can add elective courses from the Faculty of Medical Sciences and the Faculty of Science to your programme.

Programme structure

Being an MMD student means that you will be in close contact with academic researchers who will give you the chance to do an internship in their laboratory. From the start of the programme, you will be part of the RIMLS research community and will encounter no obstacles in finding answers to your questions. Furthermore, you will receive a thorough training in skills, such as academic writing, applying for grants and the verbal and written presentation of research results. Two times a year, the programme organises master classes with top international researchers. You will have the honour of introducing the guest speakers and leading plenary discussions.

The two year programme is structured as follows:

Research training periods

- Research training period 1 (30.0 EC) (21 weeks)
- Research training period 2 (45 EC) (31 weeks) or 39 EC (27 weeks)



Understand the molecular basis of disease, diagnosis and treatment.

Theoretical courses (chronologically)

- Introduction to Molecular Mechanisms of Disease (2.5 EC)
- Excellence in communication (1.5 EC)
- Understanding basic statistics using R (1.5 EC)
- Scientific skills (1.5 EC)
- Cell growth and differentiation (2.5 EC)
- Developmental disorders and malignancies (2.0 EC)
- Immunity, infection and inflammation (4.0 EC)
- Immunity-related disorders and immunotherapy (2.0 EC)
- Metabolism, transport and motion (4.0 EC)
- Metabolic disorders (2.0 EC)
- Computational biology & bioinformatics (3.0 EC)
- Masterclasses (2 x 1.5 EC)
- Science and society (1.5 EC)
- Omics data analysis and interpretation (3.0 EC)
- Elective courses (11.0 EC)
- Elective literature thesis (6.0 EC)



LUDOVICA CAROSI DIATRICCH FROM ITALY

The atmosphere in my class is awesome. We change professors quite often since each expert teaches us their field; each professor has a different way of connecting with us. Also, we have a really close relationship with our coordinator and with our mentor.

Unique characteristics

One of the unique characteristics of this programme is that you have very intensive contact with established researchers. Moreover, you will be able to benefit from group-oriented learning and the use of excellent academic resources. Twice a year we organise master classes with top international researchers where you yourself will play an active role.

Another well received feature of Molecular Mechanisms of Disease is that you will have a personal mentor who will help you plan your individual study programme, including your internships. One of these two internships you can do abroad in a laboratory of your choice.

The student group is highly international and ambitious, with a maximum of 24 students each year. Together you will receive intensive training in academic writing, presentation skills and the writing of grant applications, as well as our well known translational bench-to-bedside courses. We have a limited number of full scholarships available for this programme.

Career prospects

MMD graduates receive intensive training in research skills and all other relevant, science-related skills. Therefore, the MMD Master's is a perfect preparation for a further career in research, in an academic or commercial setting. About 85 percent of our graduates go on to do a PhD in Nijmegen or elsewhere in the world. They distinguish themselves through their knowledge and independent work attitude. Typically, MMD students receive their first offers for a PhD position while still taking part in the programme. In continuation of the MMD Master's, the RIMLS offers a four-year PhD programme with approximately 50 vacancies every year. Students can even apply for a PhD scholarship, giving them the possibility to perform a self-designed PhD research project at a Radboudumc laboratory of their choice.

Valentina Palacio-Castañeda from Colombia

“The MMD programme was exactly what I was looking for. I learned how to write grant proposals and connect research questions with outcomes that could be directly translated to patients. The research internships helped me gain experience and knowledge that greatly increased my chances to find a PhD position.



Admission requirements

Academic requirements:

A Bachelor's degree (or equivalent) in Medical Biology, Biomedical Sciences, Biochemistry, Molecular Biology, Molecular Medicine, or any biomedical education with an emphasis on cell and molecular biology.

Language requirements

Fluency in English, both written and spoken. Non-native speakers of English without a Dutch Bachelor's degree of a Research University need one of the following: a TOEFL score of at least 575 (paper-based), an IELTS score of 6.5, or a Cambridge Certificate (CAE or CPE) with a mark of C or higher.

Additional requirements:

- Degree with results well above average;
- At least two months of hands-on practical experience in the field of molecular life sciences;
- A strong motivation;
- A recommendation for acceptance by RIMLS interviewers

Application procedure

All students are selected on the basis of their past performance and a personal interview. In addition to academic excellence, being a team player is also a requirement. The programme starts once a year in September. Application closes on 1 February for international students in need of a scholarship and on 1 May for all other students. Successful international applicants who apply before these dates will be supported in finding accommodation and visa and residence permit application. Please note that this programme has limited places and allocation of placements will be done in four sessions; the first one mid-February, so we recommend you to apply early.

Scholarships

Full scholarships from the Radboud Encouragement Scholarship and the Radboudumc Studyfund are available for very talented international MMD students. Furthermore, we participate in the Radboud Scholarship Programme, the Orange Tulip Scholarship Programme, the Holland Scholarship Programme and the Netherlands Fellowship Programme. All these scholarships are only available to students with non-EEA citizenship.

Admission procedure

After your application has been received, your documents will be assessed. If they meet the criteria, you will be contacted for an interview with two RIMLS researchers. The interview is either online or by phone (or in person for applicants who live in or near Nijmegen). You will be informed if you meet the requirements for admission to the programme within 5 working days. However, allocation of the actual placements is only done four times a year (February, March, April and June). You will be informed within two days after the allocation meetings if you are placed in the programme or kept on the waiting list for the next allocation meeting.

More Information

Programme information and Admissions:
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Social Media

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