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Master's programme in Molecular Mechanisms of Disease (MSc)

Faculty of Medical Sciences | International Research Master's Programme

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 percent 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:

- Immunity, infection and inflammation / Immunity-related disorders and immunotherapy
- Metabolism, transport and motion / Metabolic disorders
- Cell growth and differentiation / Developmental disorders and malignancies

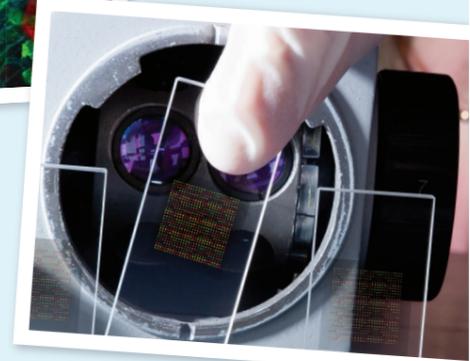
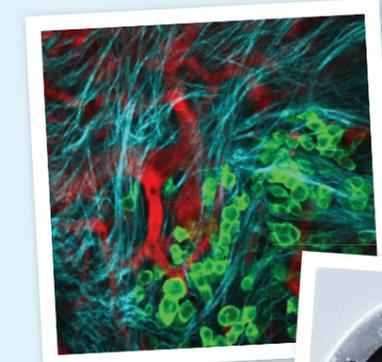
During your Master's programme, you will have courses in all of these fields. You can add elective courses from the Faculty of Medical Sciences and the Faculty of Science to your programme.



Radboud University



Radboudumc
university medical center



Successful international applicants who apply before these dates will be supported in finding accommodation and visa and residence permit application. Late applications will still be considered on an individual basis and we will provide assistance where possible. Please note that this programme has limited places and allocation of placements will be done in three sessions; the first one on 1 February, so we recommend you to apply early.

Scholarships

Scholarships from 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.

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 by phone or through Skype (or in person for applicants who live in or near Nijmegen). You will be informed if you can be admitted to the programme within 5 working days. However allocation of placements is only done 3 times a year (February, April and May).

Unique characteristics

- Very intensive contact with established researchers
- Group-oriented learning and excellent academic resources
- Master classes with top international researchers, organised two times a year
- A personal mentor to help you plan your individual study programme
- Two research internships, one of which is performed abroad, in a laboratory of your choice
- Highly international student group, with a maximum of 24 students
- Intensive training in academic writing, presentation skills and the writing of grant applications
- Translational bench-to-bedside courses
- Full scholarships available

More information

www.ru.nl/masters/mmd
mmd@radboudumc.nl

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:

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 (2.0 EC)
- Developmental disorders and malignancies (2.0 EC)
- Immunity, infection and inflammation (3.5 EC)
- Immunity-related disorders and immunotherapy (2.0 EC)
- Metabolism, transport and motion (3.5 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)

Research training periods

- Research training period 1 (31.5 EC) (24 weeks)
- Research training period 2 (45 EC) (31 weeks) or 39 EC (27 weeks)

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.

Admission requirements

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

Language requirements

- a TOEFL test or an equivalent test certifying a minimum score of 90 (Internet based test), with all sub-scores equal or above 22;
- IELTS (International English Language Testing System), applicants must achieve an overall minimum test score of 6.5, a minimum test score of 6.0 on all subitems and a minimal test score on "writing" of 6.5;
- Cambridge EFL examinations, applicants must have obtained a C1 or C2 diploma, both with a minimum pass grade C.

Additional requirements

- Grades well above average for the 2nd and 3rd year of your Bachelor's programme
- 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 March for international students in need of a scholarship and on 1 April for all other students.

Valentina Palacio-Castañeda from Colombia MMD graduate

"The MMD programme was exactly what I was looking for when I decided to follow a master's outside Colombia. During the academic training I learned how to write grant proposals and how to connect research questions with outcomes that could be directly translated to patients. Additionally, the research internships within the Radboudumc and abroad helped me gain experience and knowledge in topics that I always felt passionate about. These experiences increased greatly the chances to find a PhD project that I like and enjoy working on after my graduation. As a bonus, the international environment of the MMD programme and the small group of students encouraged me to form very close bonds with my classmates and made me feel home in the Netherlands."