

Postdoc Human Genetics and Neurology

Vacaturenummer: C.19.JM.ML.13

Functiecategorie: research & education

Vakgebied: research

Urenomvang dienstverband: fulltime

Aantal uur: 36 hours per week

Soort dienstverband: duur project

Lengte dienstverband: 1 year, extention possible

Opleidingseis: WO

Sluitingsdatum: 15-05-2019

The position

Are you interested in a postdoc position focused on neuromuscular diseases? Do you want to contribute to the understanding of homeostatic responses in diseased muscles and neuromuscular synapses? Then this position might be the one for you.

In short

- You hold a PhD degree in biomolecular sciences or similar
- You have proven interest in neuromuscular diseases and related subjects
- You want to contribute to innovative academic bio-medical research
- You are eligible to work with experimental animals
- You possess various analytical skills, such as immunological and bioinformatical skills

What you do

As a postdoc you will work on a joint project of the Departments of Human Genetics and Neurology. The project aims to find strategies to strengthen neuromuscular synapses in patients with auto-immune myasthenia gravis. MuSK and AChR auto-antibodies cause myasthenia gravis, a neuromuscular disease that leads to fatigable muscle weakness. In both forms of this autoimmune disease, susceptibility to the muscle weakness varies between muscle groups and individuals. Why certain muscles and individuals are more sensitive to the autoantibodies is largely unknown. We hypothesize that a major factor is a muscle-specific difference in the capability to have homeostatic responses to the diseased state. With this project you will increase our understanding on homeostatic responses in diseased muscles. With this knowledge we can develop strategies to strengthen diseased neuromuscular synapses, which might be translated in the future into a treatment for patients with a variety of neuromuscular diseases.

Your workplace

You will work in between two departments at the LUMC: Human Genetics (Prof Dr S.M. van der Maarel, head of the department) and Neurology (Prof Dr J.J.G.M. Verschuuren, head of the department). Both departments have a longstanding collaboration on research of Neurological Motor Disorders. This research is embedded in the LUMC medical research profile 'Translational Neurosciences'. The collaboration facilitates translational research based on fundamental research, analyses of patient material and clinical expertise. It is also supported through interactions with other departments both in- and outside the LUMC. The MuSK research team is led by Dr. M.G.M. Huijbers.

Your career at the LUMC

The LUMC helps you with maintaining and developing your knowledge and expertise. We offer internal courses and in-service training to assist you with your personal development. We also offer services in terms of personal development, mobility and career advice.

What we ask

We are looking for a highly motivated scientist who is interested in immunology, autoimmunity and neuroscience. You hold a PhD in biomolecular sciences or equivalent and have gained ample experience with molecular and cell biology research, preferably in the field of neuroscience and immunology. You should possess laboratory skills in molecular biology and have completed the 'article 9' course allowing you to work with experimental animals. You have proven interest in immunological techniques as well as bioinformatics analyses. Your work performance is well-structured and accurate. Excellent communication and scientific writing skills, including fluency in English, are essential.

More information

Project information

The neuromuscular junction is essential for communication between nerve and muscle. Myasthenia gravis (MG) is a neuromuscular autoimmune disease hallmarked by fluctuating and fatigable muscle weakness. It is caused by autoantibodies that impair neuromuscular transmission by inducing synaptic instability, disruption of acetylcholine receptor (AChR) clusters and function. The differences in the distribution of muscle weakness between different MG subtypes and between the different muscle of one patient indicate that some muscles are relatively resistant to the autoantibody attack. The neuromuscular synapse contains several homeostatic mechanisms to maintain synaptic strength. How they play a role in withstanding or recover from the autoantibody attack in MG is not known in detail. Stimulation of endogenous homeostatic responses to strengthen neuromuscular synapses might be a new therapeutic strategy, thereby extending the therapeutic armamentarium.

We have evidence that homeostatic responses are activated in the muscles of several MG mouse models. In this project we aim to study these models to dissect which homeostatic responses are most important in MG, with the final aim to target these as a potential therapy in neuromuscular synaptopathies. We will employ state-of-the-art molecular (RNAseq, gene editing, RNA interference and pharmacological) and electrophysiological and immunopathophysiological techniques to investigate the importance of these pathways in muscle susceptibility to MG.

You will be asked to give a presentation.

Contact details

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<https://www.lumc.nl/org/humane-genetica/research/research-line-1/myasthenia-gravis-and-neuromuscular-autoimmune-diseases/>