

PhD Project Description

School/Department:	Department of Neuroscience Erasmus MC
Supervisor information:	<ul style="list-style-type: none"> • Prof. dr. Ype Elgersma, y.elgersma@erasmusmc.nl <ul style="list-style-type: none"> • Websites: <ul style="list-style-type: none"> • www.neuro.nl/research/elgersma • www.encore-expertisecentrum.nl • www.functionalgenomics.nl • Personal Grants: VIDI, VICI • Most important publications: <ul style="list-style-type: none"> - Mol Psych 2015 20:1311-21 - JAMA Neurology 2015: 72:1052–1060. - Nature 2015 526:50-1 - J Clin Invest 2015 125:2069-2076 - Am J Hum Genet 2017 5:768-788 - Mol Psych 2019 24: 757-771 - Nature Neuroscience 2019 22:1235-1247
Project Title:	Gaining insight in the molecular mechanisms underlying neurodevelopmental disorders.
Abstract:	<p>Neurodevelopmental disorders (i.e. intellectual disability, autism) affect >1% of the population, and often have a genetic basis. Our lab seeks to get insight in the molecular and cellular mechanisms underlying these disorders, with the ultimate goal to develop treatments. Our research into these disorders is divided into three research lines: (1) Improving genetic diagnosis, (2) Understanding the mechanisms underlying neurodevelopmental disorders (3) Translational studies (i.e. clinical trials) to improve the quality of life of the affected individuals.</p> <p>For the candidate student we have possibilities to join the following projects:</p> <p><i>Improving diagnosis:</i> To improve genetic diagnosis, we have developed a functional genomics screen (PRiSM) (see functionalgenomics.nl) to rapidly determine if a genetic variant is pathogenic. This screen is not only important for providing a diagnosis, but also allows us to get more insight in the genes underlying neurodevelopment. New assays will be developed and validated for this screen.</p> <p><i>Understanding the mechanisms underlying neurodevelopmental disorders:</i> To get more insight in the pathophysiology of neurodevelopmental disorders, we typically make use of genetically engineered mouse models as a tool to dissect the underlying mechanisms. Mouse models are analyzed at the biochemical, cellular (electrophysiological) and behavioral level. By analyzing the mice at all these levels we hope to understand the specific function of these genes and proteins in brain development and learning and memory. Besides mouse models, we are currently also exploring the value of iPS cells to study these disorders. The genes and proteins that we specifically focus on are proteins associated with the RAS-ERK-MTOR signaling pathway and the proteasome.</p>
Requirements of candidate:	<ul style="list-style-type: none"> • We are looking for a highly motivated, hardworking student to join our very international team. Our strength is in using team work to tackle large scientific questions and thus requires a student with good communication skills. • Master degree or MD • Scholarship that will, at least, cover subsistence allowance and international air plane ticket (we could help with the scientific part of your scholarship proposal) • English language requirement: • <i>English speaking countries & Netherlands:</i> no requirement • <i>Other countries:</i> IELTS 7.0 (min 6.0 for all subs), TOEFL 100 (min 20 for all subs)

Application requirements & Deadlines:

<https://www.eur.nl/en/about-eur/erasmus-university-china-centre/csc-scholarship>

Erasmus MC, ranked world

* No.32 for Clinical Medicine US News 2020:

<https://www.usnews.com/education/best-global-universities/clinical-medicine?page=3>

* No. 30 Nature Index for Biomedical Sciences 2019:

<https://www.natureindex.com/supplements/nature-index-2019-biomedical-sciences/tables/healthcare>