

**Master internship:  
Molecular mechanism of levamisole in podocytes *in vitro***

**Department: Pediatric Nephrology**

**Project duration: At least 6 months**

**Project starts: End of November (negotiable)**

**Background:** Minimal change nephropathy (MCN) is the most common cause of idiopathic nephrotic syndrome (iNS) in children and accounts for 80-90 % of the iNS cases in children (Eddy A et al. Lancet 2003. Metz D et al. J Ped & Child Health 2015). MCN is characterized by proteinuria, hypoalbuminemia, and oedema. These symptoms result in podocyte injury, which is the hallmark of MCN. The majority of MCN patients respond to corticosteroid treatment. Despite this, up to 80 % of the children experience relapses (Larkins N et al Arch Dis Child 2015). Recently, it was shown that relapses could be reduced by 20 % when levamisole was included in the standard steroid treatment plan. Levamisole is generally known as an anti-helminthic drug for domestic animals. Moreover, levamisole has been also used in a few human clinical trials for treatment of frequently relapsing iNS children (Gruppen M et al Kid Int 2018) . However, the molecular mechanism of levamisole in podocytes remains largely unknown.

**Student project:** This project focuses on investigating the molecular mechanism of action of levamisole in podocytes *in vitro*. You will use human conditionally immortalized podocytes to investigate the molecular pathways *via* which levamisole may exert its beneficial effect in podocytes.

**Techniques:**

- Cell culture
- Primer design
- qPCR
- Western blot
- Immunofluorescence imaging

**Requirements:** We are looking for a motivated MSc who would like to gain experience in molecular biology techniques. The applicants should have a biology related background such as Molecular Biology, Medical Biology, Biomedical Sciences, etc. Experience with cell culture, qPCR and/or western blot is an advantage but not necessary.

To apply please send your CV and a short motivation letter to Susan Veissi

([susan.veissi@radboudumc.nl](mailto:susan.veissi@radboudumc.nl))