

PhD Project Description

School/Department:	Dept Internal Medicine-Metabolism & Reproduction, Erasmus MC
Supervisor information:	<ul style="list-style-type: none"> • Dr. Ir. Jenny A. Visser • Email: j.visser@erasmusmc.nl • Prof. dr. AJ vd Lelij a.vanderleij@erasmusmc.nl • Website: https://www.erasmusmc.nl/en/research/groups/metabolism-and-reproduction https://www.linkedin.com/in/jenny-visser-1375357/ • Grants: <ul style="list-style-type: none"> - 2019 - 2022 Health Holland TKI grant - Royalties • Most important publications: <ul style="list-style-type: none"> - Hoyos LR et al. Loss of anti-Müllerian hormone (AMH) immunoactivity due to a homozygous AMH gene variant rs10417628 in a woman with classical polycystic ovary syndrome (PCOS). Hum Reprod. 2020, 35(10):2294-2302. - Moolhuijsen LME, Visser JA. Anti-Müllerian Hormone and Ovarian Reserve: Update on Assessing Ovarian Function. J Clin Endocrinol Metab. 2020, 105(11):dgaa513. - Kaikaew K et al. Sex Difference in Corticosterone-Induced Insulin Resistance in Mice. Endocrinology. 2019, 160(10):2367-2387. - Day F et al. Large-scale genome-wide meta-analysis of polycystic ovary syndrome suggests shared genetic architecture for different diagnosis criteria. PLoS Genet. 2018, 14(12):e1007813. - Day FR et al. Genomic analyses identify hundreds of variants associated with age at menarche and support a role for puberty timing in cancer risk. Nat Genet. 2017, 49(6):834-841. - Mahfouz A et al. Genome-wide coexpression of steroid receptors in the mouse brain: Identifying signaling pathways and functionally coordinated regions. Proc Natl Acad Sci U S A. 2016, 113(10):2738-43. - Day FR et al. Large-scale genomic analyses link reproductive aging to hypothalamic signaling, breast cancer susceptibility and BRCA1-mediated DNA repair. Nat Genet. 2015, 47(11):1294-1303. - Grefhorst A et al. Estrogens increase expression of bone morphogenetic protein 8b in brown adipose tissue of mice. Biol Sex Differ. 2015;6:7. - van Houten EL et al. Reproductive and metabolic phenotype of a mouse model of PCOS. Endocrinology. 2012, 153(6):2861-9.
Project Title:	Understanding sex differences in metabolism
Abstract:	<p>Obesity remains a prevalent global public health issue as it is a major risk factor for type 2 diabetes, cardiovascular diseases and cancer. Although the global prevalence of obesity is higher in women than in men, obese men are more prone to develop obesity-related conditions than obese women. This sex difference diminishes when women enter menopause, suggesting a prominent role for sex steroids in controlling metabolism. Indeed, disturbances in gonadal function are associated with metabolic problems. For instance, obesity and insulin resistance is frequently present in women with polycystic ovary syndrome (PCOS), a disease characterized by hyperandrogenism.</p> <p>Our studies are aimed at understanding the mechanisms that contribute of the sexual dimorphism in metabolic diseases. We have several research projects in which we delineate the effects of altered sex steroids and gonadal growth factors (such as AMH) on metabolism. In particular, we aim to understand why the effects of sex steroid hormones differ in male vs female white and brown adipose tissues. We also study how gut hormones contribute to sex differences in metabolism. Studies are performed at physiological (mouse models), cellular (iPS cells), and molecular level. In addition, studies will be performed at a genetic level in collaboration with (inter)national consortia.</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 (<i>with experience in molecular biology techniques</i>) • 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: <ul style="list-style-type: none"> ○ <i>English speaking countries & Netherlands:</i> no requirement ○ <i>Other countries:</i> IELTS 7.0 (<i>min 6.0 for all subs</i>), TOEFL 100 (<i>min 20 for all subs</i>)

Erasmus MC, ranked world no. 32 for [Clinical Medicine US News 2020](#) no. 30 [Nature Index for Biomedical Sciences 2019](#)

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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>