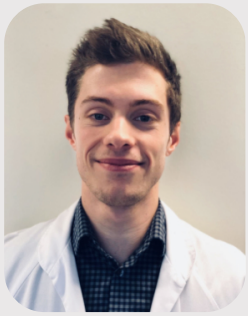

PROFILE

30 years old

PharmD PhD

Member of IVTD and IC-3Rs

EDUCATION/WORK

Vrije Universiteit Brussel
Associate postdoctoral researcher (20%) / co-promotor Alexandra Gatzios
2021-present

Maastricht University
Master of Medicine
Master of science Clinical research
2021-present

Vrije Universiteit Brussel and Ghent University
Master of science Clinical biology
2020-2021

Vrije Universiteit Brussel
PhD in Pharmaceutical sciences
2016-2020

Vrije Universiteit Brussel
Master of science Pharmaceutical sciences
2011-2016
Summa cum laude

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JOOST BOECKMANS **2022-2023**

Vrije Universiteit Brussel - *In Vitro* Toxicology & Dermato-Cosmetology (IVTD)
Postdoctoral researcher (20%) since August 2021

PROJECT OUTLINE

Metabolic dysfunction-associated steatotic liver disease (MASLD) is a chronic and potentially fatal liver disease that affects about 30 percent of the world population. A severe form of MASLD is metabolic dysfunction-associated steatohepatitis (MASH), which is characterized by hepatic steatosis, inflammation and eventually fibrosis. No drug is approved for anti-MASH treatment. Etiological heterogeneity exists among patients, including 'metabolic', 'genetic' and 'environmental' MASH, although the disease is highly multifactorial. In addition, clinical studies revealed that drug responses in MASH often depend on specific genetic backgrounds.
Today's investigation of MASH relies mainly on animal models, which are not representative for the human situation. The host laboratory has previously introduced a hepatic model derived from human multipotent skin precursors (hSKP-HPC) that could successfully predict drug-induced liver steatosis and model metabolic-driven MASH for testing peroxisome proliferator-activated receptor agonists. In this project, hSKP-HPC are used to generate an environment-driven MASLD/MASH model that can be used to investigate molecular mechanisms that drive MASH and evaluate potential anti-MASH compounds that target liver thyroid metabolism.
➔Involved in experimental design.

RESEARCH OUTPUT (2022-2023) (* = EQUAL AUTHORSHIP)

- **Boeckmans J**, Gatzios A, Schattenberg JM, Rodrigues RM, Rogiers V, Vanhaecke T. Pharmacogenetics in early drug development for non-alcoholic steatohepatitis: missed chances and future opportunities. Arch Toxicol. 2023;97(6):1825-1827.
- **Boeckmans J***, Gatzios A*, Schattenberg JM, Koek GH, Rodrigues RM, Vanhaecke T. PNPLA3 I148M and response to treatment for hepatic steatosis: A systematic review. Liver Int. 2023;43(5):975-988.
- **Boeckmans J**, Schattenberg JM. Fatty liver disease at the basis of cardiac remodelling and increased heart rate: Insights from the UK Biobank. Liver Int. 2023 Jun;43(6):1360-1361.
- **Boeckmans J**, Gatzios A, Heymans A, Rombaut M, Rogiers V, De Kock J, Vanhaecke T, Rodrigues RM. Transcriptomics Reveals Discordant Lipid Metabolism Effects between In Vitro Models Exposed to Elafibranor and Liver Samples of NAFLD Patients after Bariatric Surgery. Cells. 2022;11(5):893.
- Gatzios A, Rombaut M, Buyl K, De Kock J, Rodrigues RM, Rogiers V, Vanhaecke T, **Boeckmans J.** From NAFLD to MAFLD: Aligning Translational In Vitro Research to Clinical Insights. Biomedicines. 2022;10(1):161.
- Iturrospe E, Robeyns R, da Silva KM, van de Lavoir M, **Boeckmans J**, Vanhaecke T, van Nuijs ALN, Covaci A. Metabolic signature of HepaRG cells exposed to ethanol and tumor necrosis factor alpha to study alcoholic steatohepatitis by LC-MS-based untargeted metabolomics. Arch Toxicol. 2023;97(5):1335-1353.
- Yang L, Hao Y, **Boeckmans J**, Rodrigues RM, He Y. Immune cells and their derived microRNA-enriched extracellular vesicles in nonalcoholic fatty liver diseases: Novel therapeutic targets. Pharmacol Ther. 2023;243:108353.
- Iturrospe E, da Silva KM, Robeyns R, van de Lavoir M, **Boeckmans J**, Vanhaecke T, van Nuijs ALN, Covaci A. Metabolic Signature of Ethanol-Induced Hepatotoxicity in HepaRG Cells by Liquid Chromatography-Mass Spectrometry-Based Untargeted Metabolomics. J Proteome Res. 2022;21(4):1153-1166.
- Demuyser T, Seyler L, Buttiens R, Soetens O, Van Nedervelde E, Caljon B, Praet J, Seyler T, **Boeckmans J**, Meert J, Vanstokstraeten R, Martini H, Crombé F, Piérard D, Allard SD, Wybo I. Healthcare-Associated COVID-19 across Five Pandemic Waves: Prediction Models and Genomic Analyses. Viruses. 202214(10):2292.
- Buyl K, Vrints M, Fernando R, Desmae T, Van Eeckhoutte T, Jans M, Van Der Schueren J, **Boeckmans J**, Rodrigues RM, De Boe V, Rogiers V, De Kock J, Beirinckx F, Vanhaecke T. Human skin stem cell-derived hepatic cells as in vitro drug discovery model for insulin-driven de novo lipogenesis. Eur J Pharmacol. 2023:175989.

ACTIVITIES (2022-2023)

Award: $44,000
Colgate-Palmolive Postdoctoral Fellowship Award in In Vitro Toxicology (Society of Toxicology)
Award to advance the development of alternatives to animal testing in toxicological research.

Poster presentations:

Society of Toxicology Annual meeting [Nashville, USA]
- **Boeckmans J**, Gatzios A, De Kock J, Rogiers V, Rodrigues RM* and Vanhaecke T*
  Title: Metabolically-triggered human skin stem cell-derived hepatic cells carrying the *PNPLA3* rs738409 GG variant exhibit increased lipid load and impaired fat metabolism

The International Liver Congress [Vienna, Austria]:
- Gatzios A, Rodrigues RM, De Kock J, Rombaut M, De Win D, Rogiers V, **Boeckmans J*,** Vanhaecke T*
  Title: Human skin stem cell-derived hepatic cells with genetic predisposition for liver fat accumulation mimic susceptibility to develop metabolic dysfunction-associated fatty liver disease
- Rodrigues RM, Shaw P, Vázquez BO, Gatzios A, Rombaut M, Rogiers V, **Boeckmans J,** De Kock J, Vanhaecke T
  Title: *In vitro* investigation of the role of adipocyte-derived exosomes in the development of non-alcoholic steatohepatitis

Oral presentations:

3rd European Fatty Liver Conference [Maastricht, the Netherlands]
- **Boeckmans J,** Gatzios A, Heymans A, Rombaut M, Rogiers V, De Kock J, Vanhaecke T, Rodrigues RM
  Title: Human hepatic *in vitro* models identify ANGPTL4, PDK4 and PLIN2 as potential pro-steatogenic mediators induced by elafibranor
- Gatzios A, Rodrigues RM, De Kock J, Verhoeven A, Sepehri S, Buyl K, Rombaut M, Rogiers V, **Boeckmans J***, Vanhaecke T*
  Title: Resmetirom reduces lipid load, restores THRB expression and prevents cell damage in a human stem cell-based *in vitro* MAFLD model