Board of examiners

Prof. Wim Laleman
Department of Hepatology
Katholieke Universiteit Leuven

Prof. Christian Trautwein
Department of Medicine III
University Hospital Aachen

Prof. Harry Heimberg
Beta Cell neogenesis (BENE)
Vrije Universiteit Brussel

Prof. Karin Vanderkerken
Hematology and Immunology (HEIM)
Vrije Universiteit Brussel

Prof. Chris Van Schravendijk, Chair
Pathologic Biochemistry and Physiology (MEBO)
Vrije Universiteit Brussel

Prof. Leo van Grunsven, Promotor
Liver cell biology lab (LIVR)
Vrije Universiteit Brussel

Geneeskunde & Farmacie

GF

PhD in Medical Sciences
2015-2016

INVITATION to the Public defence of

Adil EL TAGHDOUINI

To obtain the academic degree of **'DOCTOR IN MEDICAL SCIENCES'**

Characterization of human quiescent, activated and inactivated hepatic stellate cells.

Tuesday 3 May 2016
Auditorium **Brouwer**, 16:00
Faculty of Medicine and Pharmacy, Laarbeeklaan 103, 1090 Brussel

How to reach the campus Jette:
http://www.vub.ac.be/english/infoabout/campuses

Vrije Universiteit Brussel

Summary of the dissertation

The liver's complex adaptive and regenerative capacities enable it to efficiently heal and restore its normal function in response to injury through a controlled sequence of events known as wound-healing. However, when the insult is of chronic nature it can impair the wound-healing response and subsequently develop into liver fibrosis, a condition characterized by the excessive accumulation of extracellular matrix proteins that cause stiffening of the liver tissue. Over time, fibrosis progresses to cirrhosis, the main reason underlying liver transplantations and hepatocellular carcinoma, the third leading cause of cancer-related deaths worldwide.

Despite the identification of hepatic stellate cells (HSCs) as the most downstream cellular effectors of liver fibrosis, decades ago, there is hitherto still no effective anti-fibrotic therapy in clinical use. This persisting absence of an efficient therapy is, at least in part, consequence of the fact that our understanding of HSC biology is almost exclusively derived from experimental work in rodents. Indeed, the shortage and often unpredictable availability of human liver tissue for research purposes and the modest quantity and quality characterizing human cell isolates have largely impeded the proper characterization of human quiescent HSCs and the molecular determinants of their activation into myofiroblasts. In that respect, a first part of my doctoral work consisted in the organization and compilation of a small bio-bank of human non-parenchymal liver fractions and the optimization of a flow cytometry-based isolation procedure that allows for the efficient and simultaneous isolation of highly pure human liver cells, including HSCs. This work laid the foundation to achieve a thorough transcriptomic and epigenomic characterization of both quiescent and activated human HSCs.

Curriculum Vitae

After graduating as a master in Biomedical Sciences from the Vrije Universiteit Brussel (VUB), El Taghdouini Adil pursued his doctoral studies at the Liver Cell Biology Lab of the VUB, where his work lied central within national and international research projects. For his work on the development and optimization of liver cell culture conditions as well as the identification of objective readouts to assess the fibrogenic effect of compounds, Adil was awarded the excellence price during the annual SEURAT-1 cluster meeting, a European research initiative, both in Lisbon in 2013 and in Barcelona in 2015. Overall, the work Adil conducted during his PhD resulted in several first- and co-author publications in international, peer-reviewed journals, books and the filing of a patent application. Since recently, Adil joined the cell and tissue therapy center (CTTC) of the Saint-Luc hospital and the laboratory of pediatric hepatology of the Université Catholique de Louvain, where he's designing and leading research projects to develop novel clinical and pre-clinical applications of human liver cells and stem-cells from various sources. On a more personal note, Adil is happily married and the proud father of a baby daughter. In his spare time, Adil enjoys to travel, meet new people and engage in new challenges. So far, his most exciting experience was a deep sea dive with a group of grey reef sharks, in the Bahamas.