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FACULTEIT GENEESKUNDE EN FARMACIE

Doctoraat in de Farmaceutische Wetenschappen

Academiejaar 2011-2012

UITNODIGING

Voor de openbare verdediging van het
doctoraatsproefschrift van

Feras ALBATTAH

donderdag 15 december 2011

U wordt vriendelijk uitgenodigd op de openbare verdediging van het proefschrift van

Feras ALBATTAH

‘Contribution to the isolation and hepatic differentiation of postnatal stem/progenitor cells from human adipose tissue’

Op **donderdag 15 december** om **17 uur** in auditorium **P. Brouwer** van de Faculteit Geneeskunde & Farmacie Laarbeeklaan 103, 1090 Brussel

Situering van het proefschrift

Hepatocytes represent the major constituent cells of the liver and contain the machinery to perform numerous vital functions, including synthesis of proteins as well as detoxification of xenobiotics. These properties render them an attractive in vitro model for clinical and industrial applications, in particular when derived from human liver. Shortage of donor organs, however, represents a major hurdle to get adequate amounts of human hepatocytes. Over the past decade, special attention was paid to generate hepatocytes from stem cells and progenitor cells from embryonic and adult origin. In this dissertation, the isolation of human adipose-derived stem cells (ASCs), using either a Ficoll density gradient method or a red blood cell (RBC) lysis buffer, generated the starting cell material for hepatic differentiation. First, both cell populations were characterized with respect to their phenotype, mesodermal and ectodermal differentiation capacity and immunomodulating properties. Our results showed that both isolation methods led to cell populations that homogeneously expressed mesenchymal and stemness markers. Moreover, a substantial difference between both cell populations was observed in their differentiation potential towards osteogenic and neurogenic lineages. Besides their multipotency, in vitro results demonstrated that hASCs mediated immunosuppression on T lymphocytes. Regarding hepatic differentiation, our findings showed that a small cell fraction of the isolated hASCs can differentiate into hepatocyte-like cells as evidenced by immunocytochemistry.

This study demonstrated that hASCs have a restrictive differentiation capacity towards the hepatic lineage.

Curriculum Vitae

Feras Albattah was born on February 28, 1978 in Kuwait, Kuwait. He graduated as a biologist (1999) from Birzeit University (Palestine) with the degree of honour. He then worked as a lab assistant in the biology and biotechnology department at the Arab American University (AAUJ)-Palestine. In 2003, he received a one-year master scholarship from the Belgian Technical Cooperation to start his master study in molecular medical biotechnology at the University of Ghent. In November 2004, he took up work as an instructor in the department of biology and biotechnology at AAUJ where he was teaching several courses (general biology, cell culture and medical biotechnology) for undergraduate biology and biomedical students until 2008. In March 2008, Feras got a scholarship from the Erasmus Mundus to do a PhD in Pharmaceutical Sciences at the Vrije Universiteit Brussel – Faculty of Medicine and Pharmacy - Department of Toxicology. In his PhD project he investigated the isolation of adult stem cells, especially adipose-derived progenitor cells, and their differentiation into hepatocyte-like cells. This work resulted in the publication of 2 first author articles.