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Vrije Universiteit Brussel

FACULTEIT GENEESKUNDE EN FARMACIE

Doctoraat in de Medische Wetenschappen

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UITNODIGING

Voor de openbare verdediging van het
doctoraatsproefschrift van

Xiaobo XU

maandag 22 juni 2009

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

Xiaobo XU

'Beta cells can be generated from endogenous progenitors in injured adult mouse pancreas.'

An open gate towards endogenous stem cell therapy in diabetes'

Situering van het proefschrift

Searching for pathways and mechanisms to boost beta cell (re)generation in the adult pancreas as a possibility to treat diabetes is the major topic of this thesis. By applying a robust injury called partial duct ligation (PDL), we induce generation of new beta cells by increased beta cell cycle and by the activation of the expression of Neurogenin3, an master switch gene for differentiation of embryonic islet cell progenitors. Conditional knock-down of Ngn3 reduces beta cell generation and lowers the beta cell cycle activity, suggesting Ngn3-dependent beta cell neogenesis in the adult mouse pancreas. Lineage tracing shows that new islet cells originate from non-endocrine Ngn3+ cells, located along the lining of ducts and within islets. Ngn3+ cells can be isolated from Ngn3-GFP promoter-reporter mice. Comparison of their ultrastructure, global transcriptome and in vitro differentiation suggests a recapitulation of embryonic beta cell formation in the adult, injured pancreas. Our data provide the first direct evidence for the existence of endogenous islet cell progenitors in the adult mouse pancreas that may represent an obvious target for therapeutic regeneration of beta cells in diabetes.

Curriculum Vitae

Xiaobo Xu was born in Jiaying, China, in 1972. In June 1996, he obtained his MD degree at the Medical school of Zhejiang University. From 1996 to 2001, after finished his intern training, he worked as clinical surgeon in The Academy of Medical Sciences of China and Peiking Union Medical College Hospital (PUMCH) (Beijing). Since 1999, he mainly focused on hepatopancreatobiliary surgery. At the end of 2001, he moved to Brussels and became a scientist at the Diabetes Research Center (DRC) of Vrije Universiteit Brussel. Under the guidance of Prof. Dr. Harry Heimberg, Xiaobo obtained his master degree of science in Medical and Pharmaceutical Research in 2003 after which he started his doctoral thesis on pancreas endocrine cell (re)generation.

Op **maandag 22 juni 2009** om **16 uur**
in auditorium **R. Vanden Driessche** van
de Faculteit Geneeskunde & Farmacie,
Laarbeeklaan 103, 1090 Brussel