

Promotor

Prof. Luc Bouwens

Cell Differentiation Lab (DIFF-EXPA)
Vrije Universiteit Brussel

Copromotor

Prof. Karen Sermon

Research Group Reproduction & Genetics
Vrije Universiteit Brussel

Leden van de examencommissie

Prof. Anis Feki

Stem Cell Research Lab, Dept. Of Obstetrics &
Gynecology, Geneva University Hospital
Switzerland

Dr. Björn Heindryckx

Department of Reproductive Medicine
Universiteit Gent

Prof. Herman Tournaye

Centre for Reproductive Medicine UZ Brussel
Department of Embryology & Human Genetics
Vrije Universiteit Brussel

Prof. Bart Van der Auwera

Department of Medical Biochemistry
Vrije Universiteit Brussel

Prof. Karin Vanderkerken, voorzitter

Department of Hematology & Immunology
Vrije Universiteit Brussel



Vrije Universiteit Brussel

FACULTEIT GENEESKUNDE EN FARMACIE

Doctoraat in de Medische Wetenschappen

Academiejaar 2010-2011

UITNODIGING

Voor de openbare verdediging van het
doctoraatsproefschrift van

Chen BING

maandag 27 juni 2011

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

Bing CHEN

'Extracellular factors regulate pancreatic fate of human embryonic stem cells'

Op **maandag 27 juni 2011** om **17 uur** in auditorium **P. Brouwer** van de Faculteit Geneeskunde & Farmacie Laarbeeklaan 103, 1090 Brussel

Situering van het proefschrift

Islet transplantation has been suggested to be a promising treatment for type 1 diabetes. However, it is limited by the severe donor shortage. Therefore, success in the β cell differentiation of human ESC will enhance the potential for patient -specific cell transplantation therapy in diabetes.

The thesis by Bing Chen studies how developmentally related extracellular factors influence human ESC differentiation towards pancreatic fate. We intended to reproduce a protocol reported to generate β -like cells on several human ES cell lines. Whereas we failed to induce pancreatic progenitors, hepatocytes developed efficiently under the control of BMP and FGF pathways. BMP antagonism combined with early retinoic acid treatment significantly induced PDX1+ progenitors. These findings underscore the role of extracellular factors and the necessity to mimic developmental signals for optimal pancreatic differentiation from ES cells. Further differentiation of the PDX1+ progenitors towards functioning β cells will set new landmarks in diabetes therapy.

Curriculum Vitae

Bing Chen obtained her MD diploma at the Guangxi Medical University in China (1988). She became a resident in Endocrinology at the First Hospital in Nanning, Guangxi, China (1988-1993). Since 1993 she is registered as an endocrinologist in China. In 2006 she initiated her PhD research at VUB as CSC-student. Her thesis resulted from differentiation of pancreatic fate from human embryonic stem cells by the use of growth factors, which was performed under guidance of Dr. Josue K. Mfopou.