

## **Promotoren**

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### **Prof. Dr. Harry Heimberg**

Beta Cell Neogenesis/BENE  
Vrije Universiteit Brussel

### **Prof. Dr. Mark Van De Castele**

Beta Cell Neogenesis/BENE  
Vrije Universiteit Brussel

## **Leden van de examencommissie**

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### **Prof. Dr. Thomas Mandrup-Poulsen**

Medical Research  
University of Copenhagen, Denmark

### **Prof. Dr. Katharina D'Herde**

Anatomy and Embryology  
Universiteit Gent

### **Prof. Dr. Pierre Roger**

IRIBHM, Faculty of Medicine  
Université Libre de Bruxelles

### **Prof. Dr. Anne Hoorens**

Anatomo-Pathology UZ Brussel  
Vrije Universiteit Brussel

### **Prof. Dr. Ilse Rooman**

Cell Differentiation/DIFF  
Vrije Universiteit Brussel

### **Prof. Dr. Bart Van der Auwera**

Medical Biochemistry/MBIO  
Vrije Universiteit Brussel

### **Prof. Dr. Chris van Schravendijk, voorzitter**

Diabetes Research Center/MEBO  
Vrije Universiteit Brussel



Vrije Universiteit Brussel

FACULTEIT GENEESKUNDE EN FARMACIE

## **Doctoraat in de Medische Wetenschappen**

Academiejaar 2009-2010

## **UITNODIGING**

Voor de openbare verdediging van het  
doctoraatsproefschrift van

**Ying CAI**

woensdag 8 september 2010

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

**Ying CAI**

**'Role of AMP-activated kinase in function and survival of insulin producing beta cells'**

### **Situering van het proefschrift**

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Beta cell dysfunction and death play central roles in the development of diabetes mellitus. It is thus important to explore causes of these processes in (patho)physiological conditions. The thesis by Ying Cai studies the effect of in vitro culture conditions on the function and survival of insulin producing beta cells. These culture conditions have in common that a particular energy-stress sensor (AMP-activated kinase) is activated.

The first panel of this study shows that activation of AMPK in beta cells leads to loss of glucose-responsiveness and, subsequently, to apoptosis. The second panel demonstrates that AMPK-mediated apoptosis involves mitochondrial dysfunction and generation of oxygen free radicals. Finally, the work indicates novel ways to suppress dysfunction and death of beta cells in vitro.

### **Curriculum Vitae**

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Ying CAI was born on 8th July, 1973, in Shenyang, China. She obtained her MD diploma at the Nanjing Railway Medical College (1996). She was a resident in neurology at the Chinese Medical University Hospital (1996-2000). She obtained the degree of Master in Medical and Pharmaceutical Research, at the VUB (2002). In 2003 she initiated her PhD research on regulation of beta cell function and survival, in the Diabetes Research Center, at the VUB. In 2008, she joined the Beta Cell Neogenesis research group at the VUB. Ying CAI is first author on 2 articles published in international peer-reviewed life science journals.

Op **woensdag 8 september 2010** om **17 uur**  
in auditorium **R. Vanden Driessche** van de  
Faculteit Geneeskunde & Farmacie  
Laarbeeklaan 103, 1090 Brussel