

## **Promotoren**

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### **Prof. dr. Herman Tournaye**

#### **Prof. dr. Ellen Goossens**

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Department of Embryology and Genetics  
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## **Leden van de examencommissie**

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Département de Gynecologie-Andrologie  
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### **Prof. dr. Hilde Van de Velde**

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Vrije Universiteit Brussel

FACULTEIT GENEESKUNDE EN FARMACIE

## **Doctoraat in de Medische Wetenschappen**

Academiejaar 2010-2011

## **UITNODIGING**

Voor de openbare verdediging van het  
doctoraatsproefschrift van

**Liang NING**

maandag 19 september 2011

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

**Liang NING**

**'Spermatogonial stem cells as a source for fertility preservation and regenerative medicine'**

Op **maandag 19 september 2011** om **17 uur**  
in auditorium **R. Vanden Driessche** van de  
Faculteit Geneeskunde & Farmacie  
Laarbeeklaan 103, 1090 Brussel

### **Situering van het proefschrift**

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Banking and transplantation of spermatogonial stem cells (SSCs) may become a promising method to preserve the fertility of prepubertal patients. According to recent studies, the potential of SSCs to de-differentiate into pluripotent cells or transdifferentiate into other cell types is feasible and may become an additional indication for spermatogonial stem cell banking.

In our first study, we searched for an efficient and clinically feasible method for transfusing cell suspensions into the seminiferous tubules of isolated human testes. We concluded that a single ultrasound-guided injection of 800 µl in the rete testis may provide a promising method to transplant human SSCs in a clinical setting.

In our second study, GFP+ mesenchymal stem cells (MSCs) were transplanted into the testes of GFP- recipients. Sixteen weeks post-transplantation, MSC-transplanted testes showed more spermatogenesis and donor-derived cells expressed the surface markers of testicular somatic cells. These results may indicate the differentiation potential of murine MSCs into the cells contributing to the stem cell niche after transplantation. Co-transplantation of MSCs may thus be useful for spermatogenesis reinitiation.

In our third study, we showed that intra-bone marrow transplanted mouse SSCs have the potential to differentiate into haematopoietic cells.

In general, SSCs are a potential source for fertility preservation and regenerative medicine but more research is needed before any clinical application can be established.

### **Curriculum Vitae**

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Liang Ning was born on April 5th, 1980 in Shaanxi, P.R.China. He graduated in 2003 at the medical college of Xi'an Jiao Tong university as doctor in clinical medicine. In 2006, he finished his medical training in the department of Urology, the first affiliated hospital of medical school of Xi'an Jiaotong University in China, and started his scientific training in reproductive medicine at the VUB. During his training he focused on spermatogonial stem cell transplantation and differentiation. His work has been presented on (inter)national meetings and has been published in peer-reviewed reproductive medicine journals.