

**China Scholarship Council – University Maastricht**  
**PhD Programme Application form**

**Basic information**  
-----

**1. Information on prospective UM supervisors and Promotor**

**1a. First Supervisor/promoter:**

Dr. Theo G.M.F Gorgels  
University Eye Clinic Maastricht, Maastricht University  
PO Box 5800, 6202 AZ Maastricht, the Netherlands  
T: +31 43 3871565  
E: [theo.gorgels@mumc.nl](mailto:theo.gorgels@mumc.nl)

**1b. Second Supervisor/copromoter:**

Prof. Dr. Chris P.M. Reutelingsperger  
Department of Biochemistry  
Universiteitssingel 50, 6229 ER Maastricht  
PO Box 616, 6200 MD Maastricht  
T: +31 43 388 1674  
E: [c.reutelingsperger@maastrichtuniversity.nl](mailto:c.reutelingsperger@maastrichtuniversity.nl)

**1c. Promotor (if applicable): – see above**

Dr. Tos T.J.M. Berendschot  
University Eye Clinic Maastricht, Maastricht University  
PO Box 5800, 6202 AZ Maastricht, the Netherlands  
T: +31 43 3877345  
E: [t.berendschot@maastrichtuniversity.nl](mailto:t.berendschot@maastrichtuniversity.nl)

Prof. Dr. C.A.B. Webers  
University Eye Clinic Maastricht, Maastricht University  
PO Box 5800, 6202 AZ Maastricht, the Netherlands  
T: +31 43 3877808  
E: [c.webers@mumc.nl](mailto:c.webers@mumc.nl)

**2. Information on UM Faculty/ Department/ Institute/ School contact**

**person:**

Dr. Theo G.M.F Gorgels  
University Eye Clinic Maastricht, Maastricht University  
PO Box 5800, 6202 AZ Maastricht, the Netherlands  
T: +31 43 3871565  
E: [theo.gorgels@mumc.nl](mailto:theo.gorgels@mumc.nl)

-----  
- To be filled in by the applicant if already known -

**1. Information on the applicant**

- Initial(s), first name, surname:
- Male/female:
- Current work address:
  
- Telephone:
- E-mail:                      WeChat:
- Private address:

**2. Details of applicant's home university**

*Note! A separate letter of recommendation by the supervisor or faculty dean of the home university is required.*

- Name of home university:
- Address:
- Telephone:
- E-mail:
- Website (if available):

**3. Applicant's home university Master Thesis supervisor:**

- Title(s), initial(s), first name, surname:
- Address for correspondence:
  
- Telephone:
- E-mail:                      WeChat:

**4. Research field(s)**

重大专项 / Major Special Projects

重大新药创制 / Major New Drugs Discovery

基础研究 / Basic Research

人类健康与疾病的生物学基础 / Biological Foundations of Human Health and Diseases

## 5. Title of research plan for CSC-UM PhD Programme

Glaucoma theranostics using annexin A5 and annexin A1

## 6. Short summary of research plan (max. 250 words) (A full plan has to be submitted later)

**Background:** Glaucoma is one of the leading causes of irreversible visual loss, characterized by retinal ganglion cell (RGC) apoptosis. Annexin A5 and A1 belong to a multigene family of phospholipid binding proteins, the annexins. Annexin A5 was discovered as an anticoagulant protein with antithrombotic activity in vivo. To date, several other biological properties of annexin A5 have been described, including Ca<sup>2+</sup>-channel activities, phospholipase A2 regulation, inhibition of phagocytosis of apoptotic cells, and immune modulation. This molecule also has a high calcium-dependent affinity for phosphatidylserine, a cell membrane phospholipid externalized to the outer cell membrane in early apoptosis. In glaucoma, fluorescently-labelled annexin A5 has been developed as a tool for detecting rates of glaucomatous degeneration in vivo. Annexin A1 has a well-defined anti-inflammatory role in the innate immune system. In primary glaucoma, the protein expression of annexin A1 has been found to increase. However, the exact biological function of annexin A5 and A1 and their relationship with RGCs apoptosis and glaucoma are still unclear.

**Study objective:** The objective of this project is to study the potential neuroprotective effect of annexin A5 and A1 in RGCs apoptosis (or other type of cell death) and their potential use to treat glaucoma.

**Requirements:** neuroscience, cell biology, biomedical, pharmacology, or related fields within life sciences and pharmaceutical sciences

### Group's performance:

Chris Reutelingsperger: Publications: 279; H-Index: 68; number of citations 25908

Theo Gorgels: Publications: 158; H-Index: 36; number of citations 4457

Tos Berendschot: Publications: 344; H-Index: 43; number of citations 6545

Carroll Webers: Publications: 306; H-Index: 34; number of citations 4539

## 7. Motivation for CSC-UM PhD application (max. 250 words)

The University of Maastricht and the University Eye Clinic Maastricht have great expertise in the field of glaucoma research, Annexins, and biomedical optics.

Prof. Dr. Carroll Webers is director of the University Eye Clinic Maastricht. He is a leading expert on fundamental and applied research in glaucoma and has been involved in a number of intervention trials.

Prof. Dr. Chris Reutelingsperger established proof of concept of annexin A5 to recognize apoptotic cells in vitro and in vivo and has initiated the first clinical study in which annexin A5 is used as a radio-diagnostic probe to visualize and localize apoptosis in patients in order to guide diagnostic and therapeutic decisions. Hence, he covered successfully the entire process from discovery at the laboratory bench until use in the clinic for proof of concept and as a product. Chris is co-founder of the biotech companies Biosynt BV and PharmaTarget BV. He published over 100 scientific papers

and is currently considered one of the leading experts in the field of apoptosis in physiology and pathology.

Dr. Theo Gorgels, he is trained in biology and has over 25 years of experience in eye research. Recently, he identified new disease genes for myopia, AMD and glaucoma and studied molecular pathways mechanisms of AMD and glaucoma.

Dr. Tos Berendschot studies the functional morphology of the human retina by non-invasive optical techniques and has developed devices for quickly and easily measuring Macular Pigment in the human eye, based on the objective technique of fundus reflectance spectroscopy. He further has used time resolved spectroscopy, including the development of femtosecond laser systems.

### **Applicant's Curriculum Vitae (if available)**

---

#### **8. Personal details**

##### Applicant

- Title(s), initial(s), first name, surname:

CSC-UM PhD programme start 1-9-2021

- Surname:

- Nationality: Chinese

- Date of Birth:

- Country and place of birth:

#### **9. Master's degree (if applicable)**

*Note! Add a copy of your Master's degree to your application*

University (211 or 985 if available):

Faculty/discipline:

City and country:

Date:

Grade average:

Title Master's thesis (if applicable):

Thesis grade: