China Scholarship Council – University Maastricht

PhD Programme Application form 2024

Basic information

- To be filled in by the prospective UM supervisors -

1. Information on prospective UM supervisors and Promotor

1a. First Supervisor/copromoter:

- Title(s), initial(s), first name, surname: dr. Thomas J.M. Verlinden
- Research group: NUTRIM
- Address for correspondence: Universiteitssingel 50, 6229 ER Maastricht
- Telephone: 0031 43 38 81061
- E-mail: thomas.verlinden@maastrichtuniversity.nl

1b. Second Supervisor/copromoter:

- Title(s), initial(s), first name, surname: prof. dr. Wouter H. Lamers
- Research group:
- Address for correspondence:
- Telephone:
- E-mail:

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

- Title(s), initial(s), first name, surname: prof. dr. S. Eleonore Koehler
- Research group: NUTRIM
- Address for correspondence: Universiteitssingel 50, 6229 ER Maastricht
- Telephone: 0031 43 38 81191
- E-mail: leo.koehler@maastrichtuniversity.nl

2. Information on UM Faculty/ Department/ Institute/ School contact person:

When the application is granted by both the CSC and UM, the contact person is responsible for the practical arrangements of the integration of the PhD candidate:

- Initial(s), first name, surname: Thomas J.M. Verlinden
- Research group: NUTRIM

- Address for correspondence: Universiteitssingel 50, 6229 ER Maastricht
- Telephone: 0031 43 38 81061
- E-mail: thomas.verlinden@maastrichtuniversity.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/study address:

- E-mail:
- 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:
- E-mail:
- Website (if available):

3. Applicant's home university Master Thesis supervisor:

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

4. Research field(s)

Basic research / Biological Foundations of Human Health and Diseases

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

Towards a characterization of the caval bodies

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

Background: A common form of generalization is the subdivision of the peripheral nervous system into autonomic and somatic nerves and ganglia. This division, however, is not binary. Throughout various regions in the body, somatic and autonomic nerves and ganglia mingle, leading to autonomic fibers in somatic nerves

and visa versa. Knowledge of such connections is, for example, important to understand and prevent the side effects of the relatively new field of 'peripheral nerve stimulation treatments' [1-5].

Study objective and Expected Results

We previously demonstrated that the phrenic nerve connects to the autonomic celiac plexus in the abdomen. Furthermore, we identified caval bodies in the wall of the caval vein near diaphragm[2]. We want to further characterize the small organs by further defining their phenotype and nervous connections. Addressing these questions requires the use of histological techniques and, once sufficiently characterized, a molecular extension thereof. The project will start with 3D reconstructions of histological sections as shown in Figure 1. In addition to human, mouse samples will also be used as a preliminary step to develop an experimental model.

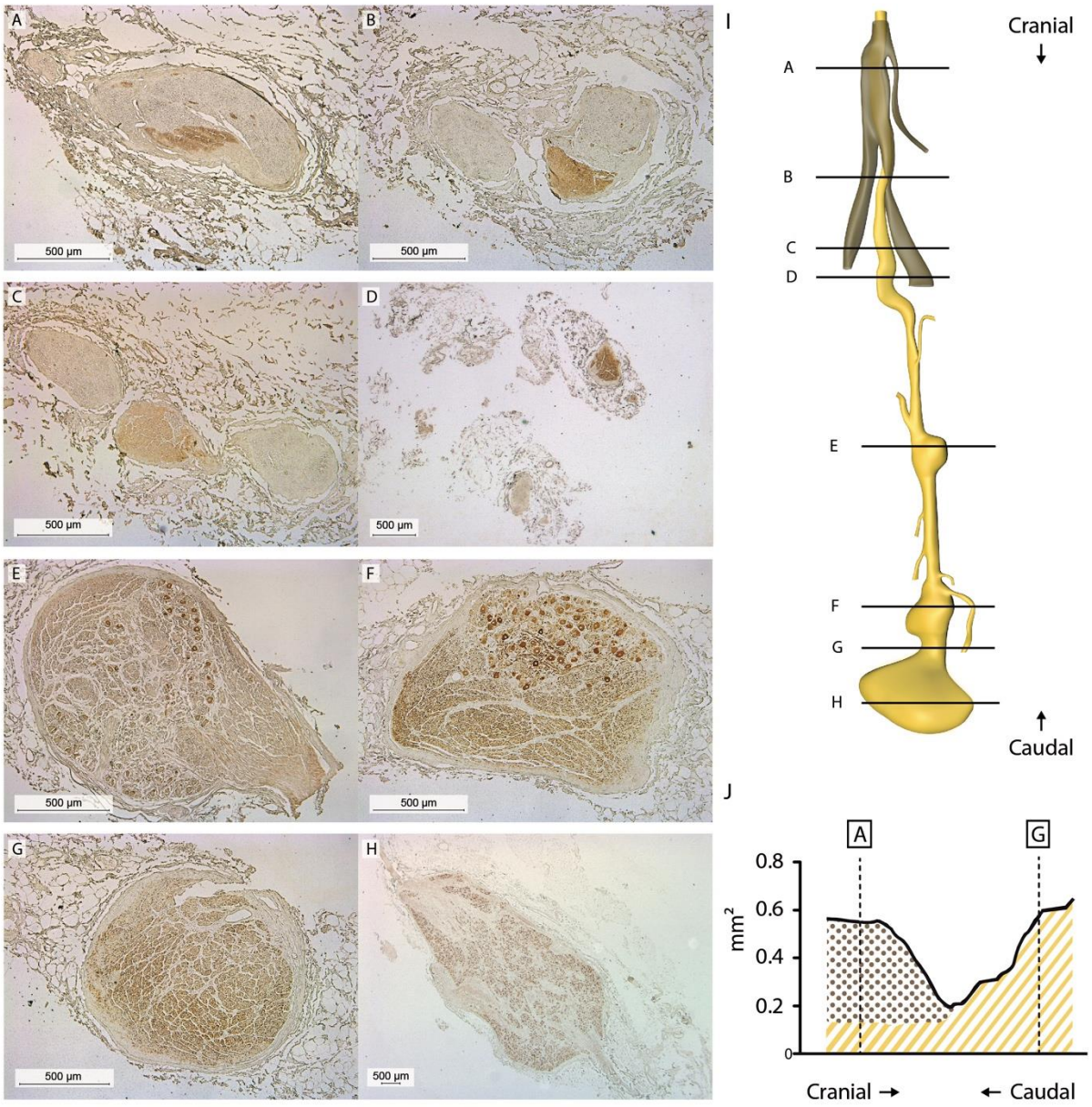

Figure 7. The abdominal portion of the phrenic nerve. Tyrosine-hydroxylase stained sections corresponding to the levels depicted in the reconstruction shown in I

(brown: phrenic nerve branches; yellow: phrenic branch of celiac plexus). The swellings in I represent ganglia, as demonstrated intensely staining cells in F.

1. Verlinden, T.J., et al., *Morphology of the human cervical vagus nerve: implications for vagus nerve stimulation treatment.* Acta Neurol Scand, 2016. **133**(3): p. 173-82.
2. Verlinden, T.J.M., et al., *The human phrenic nerve serves as a morphological conduit for autonomic nerves and innervates the caval body of the diaphragm.* Sci Rep, 2018. **8**(1): p. 11697.
3. Verlinden, T.J.M., et al., *Innervation of the human spleen: A complete hilum-embedding approach.* Brain Behav Immun, 2019. **77**: p. 92-100.
4. Stakenborg, N., et al., *Comparison between the cervical and abdominal vagus nerves in mice, pigs, and humans.* Neurogastroenterol Motil, 2020. **32**(9): p. e13889.
5. Verlinden, T.J.M., *The differences in the anatomy of the thoracolumbar and sacral autonomic outflow are quantitative.* Clin Auton Res. **In press**.

Requirements:
Highly motivated and proactive student with great interest in anatomy & embryology. Having affection for 3D-modeling is a plus.

Group's performance: Publications: ; H-Index: ; number of citations, but also statements of recognition of the team or the team members.

S. Eleonore Koehler: Publications: 53; H-Index: 34, Citations: 3661
W.H. Lamers: Publications: 581; H-Index: 85, Citations: 25539
T.J.M. Verlinden: Publications: 5; H-Index: 5, Citations: 185

7. Motivation for CSC-UM PhD application (max. 250 words)
Two separate letters are required, one from the student and one from the promotion team.

Applicant's Curriculum Vitae
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8. Personal details

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

CSC-UM PhD programme start 1-9-2024

- 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:
Faculty/discipline:

City and country:
Date:
Grade average:
Title Master’s thesis (if applicable):
Thesis grade: