China Scholarship Council – University Maastricht

PhD Programme Application form

Basic information
----

1. Information on prospective UM supervisors and Promotor

1a. First Supervisor/promoter:

- Associate Prof Dr GH Koek, Ger (MD, PhD)
- Research group: Nutrim
- Address for correspondence: PO box 5800, 6202 AZ Maastricht
- Telephone: 0031 43 3875021
- E-mail: gh.koek@mumc.nl

1b. Second Supervisor/promoter:

- Associate Prof Dr AJHM Houben, Alfons (PhD)
- Research group: Dept. of Internal Medicine, School for Cardiovascular Diseases-CARIM; Maastricht University Medical Center; the Netherland
- Address for correspondence: PO box 5800, 6202 AZ Maastricht - Telephone: 0031 43 3877005
- E-mail: b.houben@maastrichtuniversity.nl

1c. third Supervisor/ Promotor

- Prof Dr MCJG Brouwers, Martijn (MD, PhD)
- Research group: Dept. of Internal Medicine, School for Cardiovascular Diseases-CARIM; Maastricht University Medical Center; the Netherland
- Address for correspondence: PO box 5800, 6202 AZ Maastricht
- Telephone: 0031 43 3877019
- E-mail: mcgj.brouwers@mumc.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 (i.e. assistance in obtaining a visa, finding accommodation, etc.) of the visit of the PhD candidate:

- Associate Prof Dr GH Koek, Ger
- Research group: Nutrim
- Address for correspondence: PO box 5800, 6202 AZ Maastricht
- Telephone: 0031 43 3875021
- E-mail: gh.koek@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)

medicine
Cohort population research
Cohort statistical analysis

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

Fatty liver and diabetes; causes and consequences

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

Background: the change to sedentary lifestyle in combination with a high caloric and unhealthy nutritional pattern *in the past 20 years (?)*, is the most important cause for various diseases globally. The most well-known of these diseases are type 2 diabetes (T2DM), cardiovascular diseases (CVD), and non-alcoholic fatty liver disease.

As in different countries alcohol is not an important issue and the fact that stigmatization around alcohol intake is unwanted, the acronym NAFLD is suggested to be changed to metabolic dysfunction fatty liver disease (MAFLD). In the present research proposal, MAFLD will be used as the diagnostic criterion instead of NAFLD.

The spectrum of MAFLD extends from simple steatosis to non-alcoholic steatohepatitis, liver fibrosis, cirrhosis, and increased change risk to develop liver cancer. The diagnostic gold standard for this spectrum is the liver biopsy, which is, however, expensive and invasive, leading often to complications. Recently, noninvasive markers and methods have been introduced for the diagnosis of MAFLD, discriminating between simple steatosis and more advanced disease i.e. fibrosis.

It is important to establish the ideal noninvasive diagnostic algorithm for MAFLD. We propose to study this in our large, well defined, cohorts: the Maastricht Study (MS). In this cohort, T2DM patients (N=2500) will be compared to non-diabetic control volunteers (N=6500).

Study objective:
Research questions are: 1) Is the metabolic profile of T2DM patients with simple steatosis and MAFLD with fibrosis different between persons with and without T2DM?
2) What is the diagnostic accuracy of MAFLD using noninvasive blood markers like FIB4, NAFLD fibrosis score, ELF and FibroScan measurements compared to MRI.
3) What is the role of subcutaneous, visceral, hepatic, and pancreatic fat in relation to MAFLD? What are prognostic factors for MAFLD development and the severity of liver scar tissue formation?

Expected Results: PhD thesis on the different aspects of MAFLD in the Maastricht Study population comparison between diabetes, pre diabetes and healthy subjects.

Requirements:
knowledge on different medical image analyses like MRI, FibroScan, understanding laboratory parameters

Knowledge in (bio)medical / life science research is recommended

Very good English skills.

Understanding and able to use different statistical methods

Group's performance: Publications: ; H-Index: ; number of citations
1. Associate Professor Koek: publications (Pubmed) 196; H-index (web-of-science) 164; number of citations (web-of-science) 4711
2. Associate Professor Houben: publications (Pubmed) 133; H-index (web-of-science) 32; number of citations (web-of-science) 2971
3. Professor Brouwers: publications (Pubmed) 88; H-index (web-of-science) 20; number of citations (web-of-science) 1095

Publications:

1. De Munck TJI, Verhaegh PLM, Verbeek J, Verheij J, Greve JW, Jonkers D, Masclee AAM, et al. Crashing NASH in Patients Listed for Bariatric Surgery. Obes Surg 2019;29:1012-1014.
2. The endothelial function biomarker soluble E-selectin is associated with nonalcoholic fatty liver disease.
   Simons N, Bijnen M, Wouters KAM, Rensen SS, Beulens JWJ, van Greevenbroek MMJ, 't Hart LM, Greve JWM, van der Kallen CJH, Schaper NC, Schalkwijk CG, Stehouwer CDA, Brouwers MCGJ.Simons N, et al. Among authors: brouwers mcgj. Liver Int. 2020 May;40(5):1079-1088. doi: 10.1111/liv.14384. Epub 2020 Jan 29.Liver Int. 2020. PMID: 31960587
3. PNPLA3, TM6SF2, and MBOAT7 Genotypes and Coronary Artery Disease.
   Simons N, Isaacs A, Koek GH, Kuč S, Schaper NC, Brouwers MCGJ.Simons N, et al. Among authors: brouwers mcgj. Gastroenterology. 2017 Mar;152(4):912-913. doi: 10.1053/j.gastro.2016.12.020. Epub 2017 Feb 1.Gastroenterology. 2017. PMID: 28157516
4. Relationship Between Nonalcoholic Fatty Liver Disease Susceptibility Genes and Coronary Artery Disease.
   Brouwers MCGJ, Simons N, Stehouwer CDA, Koek GH, Schaper NC, Isaacs A.Brouwers MCGJ, et al. Hepatol Commun. 2019 Feb 11;3(4):587-596. doi: 10.1002/hep4.1319. eCollection 2019 Apr.Hepatol Commun. 2019. PMID: 30976747
5. Liver fibrosis in non-alcoholic fatty liver disease: form liver biopsy ton nont-invasive biomarkers in diagnosis and treatment. Heyens LJM, Busschots D, Koek GH, Robaeys G, Francque S.Front Med (Lausanne). 2021 Apr 14;8:615978. doi: 10.3389/fmed.2021.615978. eCollection 2021.
6. Non-alcoholic fatty liver disease: a patient guideline. Francque SM, Marchesini G, Kautz A, Walmsley M, Dorner R, Lazarus JV, Zelber-Sagi S, Hallsworth K, Busetto L, Frühbeck G, Dicker D, Woodward E, Korenjak M, Willemse J, Koek GH, Vinker S, Ungan M, Mendive JM, Lionis C.JHEP Rep. 2021 Sep 17;3(5):100322. doi: 10.1016/j.jhepr.2021.100322. eCollection 2021 Oct.PMID: 34693236.

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

The unique collection of data present in the Maastricht cohort Study (MS) gives the PhD candidate an important opportunity to learn and understand the disease mechanism and characteristics of progression. As MAFLD plays a crucial role, data in the MS will teach the candidate not only the methodology to study the analysis of the cohort data but also about the disease entity that is progressively spreading about all parts of the world in countries with a rapid economic development. Therefore, the candidate gets a unique opportunity to experience data management with experts in these fields.

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: