

PhD position to identify host microbiome interactions in Inflammatory Bowel Disease

RESEARCH FIELDS

Biological sciences › Biology, Biomedical Sciences, Biotechnology or Molecular Life Sciences
Medicine

RESEARCHER PROFILE

Early Stage Researcher (≤ 4 years of research experience at time of recruitment)

APPLICATION DEADLINE

30 June 2021 18:00h - Europe/Brussels

LOCATION

- Imperial College London (London, United Kingdom)
- Amsterdam UMC (Amsterdam, The Netherlands)
- TNO Research (Company; Zeist, The Netherlands)
- DSCN Research BV (Company; Amsterdam, The Netherlands)

TYPE OF CONTRACT

Temporary, 20 months.

JOB STATUS

Full-time

HOURS PER WEEK

40

OFFER STARTING DATE

September 2021

EU RESEARCH FRAMEWORK PROGRAMME

H2020 / Marie Skłodowska-Curie Actions / European Industrial Doctorates

MARIE CURIE GRANT AGREEMENT NUMBER

814168

Imperial College London is looking for an Early Stage Researcher (ESR) with a focus on identifying fecal microbiota transplantation in inflammatory bowel disease. This ESR project is part of the GROWTH consortium, a Marie-Sklodowska Curie Innovative Training Network (European Industrial Doctorates) that started on the 1st of June 2019 and will run through 2023.

About Imperial Collega London

Imperial College London (ICL) embodies and delivers world-class scholarship, education and research in science, engineering, medicine and business, with particular regard to their application in industry, commerce and healthcare. The college fosters multidisciplinary, works internally and collaborates widely externally. Imperial is home to >15,000 students and 7,000 staff and over 6,500 degrees are awarded by ICL every year. The department of Surgery and the National Phenome Centre embedded in the Faculty of Medicine of ICL participate in GROWTH. The highly translational research performed in collaboration between these departments is particularly focused on surgical nutrition and modulation of gut microbiota by pro and prebiotics for improved operative outcomes and perform metabolic phenotyping using high resolution accurate mass instrumentation for the discovery and identification of unknown biomarkers. Dr James Kinross (Colorectal Surgery) and Prof. Dr Zoltan Takats (Professor in Analytical Chemistry and Deputy-Director of the National Phenome Centre) will be supervising the ESR project at ICL.

ABOUT GROWTH

The GROWTH consortium, funded by the European Commission (2019-2023), is made up to train a new generation of researchers working on new pathological insights, biomarker

diagnostics and personalized nutritional interventions for intestinal failure in neonates and preterm infants. Academic and industry partners, covering various disciplines ranging from fundamental research to clinical paediatrics and analytical chemistry to organoid and gut-on-chip applications, have teamed up in the EU:

- DSCN Research BV (The Netherlands)
- University Hospital Bonn (Germany)
- Imperial College London (United Kingdom)
- Amsterdam UMC (The Netherlands)
- VU Medical Center (The Netherlands)
- TNO Research (The Netherlands)
- Moki Analytics GMBH (Germany)

GROWTH is a European Industrial Doctorate programme that requires PhD students to spend at least 50% of their time (18 months) in the non-academic sector.

GROWTH website url: <http://www.growth-horizon2020.eu/>

ABOUT THE ESR PROJECT

The PhD student will be enrolled in the AMC Graduate School but is joint program with Imperial College London. The position is within an EU funding Industrial Doctorates program "GROWTH". Within this program, we are interested to understand microbiota-host interactions in health and disease. This particular project will take place in the context of the Inflammatory bowel disease Ulcerative Colitis.

Faecal microbiota transplantation (FMT) has shown to contribute towards disease remission in ulcerative colitis (UC), but it is unknown which microbial or metabolic factors determine long-term effect of treatment. The project can make use of the availability of FMT material from an earlier and currently ongoing trial (TURN1 and TURN2); led by prof Cyriel Ponsioen, AUMC (Rossen et al, Gastroenterology 2015; Fuentes et al, ISME 2017; Narula et al, IBD 2017). It is hypothesized that specific bacteria contribute to response to FMT through 1) direct interaction with host epithelium, or 2) direct interaction with other life forms in the gut such as fungi, 3) metabolic signalling molecules that act on intestinal mucosal cells. We aim to identify bacterial signatures associated with sustained remission of UC. To this end, fecal samples from healthy donors and UC patients-grouped into responders and non-responders at a primary end point (week 12) and further stratified by sustained clinical remission and relapse assessed at ≥ 1 -year follow-up are analysed, comparing the efficacy of FMT from either a healthy donor or autologous faeces. Further, intermittent time-points fecal samples (time point 3-6-12 weeks after FMT) will be analysed. Gut on ChIP models will be employed (setup at our partner laboratory at the Technology institute TNO) to study interactions of identified bacterial enterotypes and metabolotypes associated with remission. Finally, primary cell derived organoid models will be used to model cellular and molecular effects of identified metabolites or signalling molecules on epithelial cell proliferation and differentiation.

COLLABORATORS IN THIS ESR PROJECT:

- Amsterdam UMC (Amsterdam, The Netherlands)
- TNO Research (Zeist, The Netherlands)
- DSCN Research BV (Amsterdam, The Netherlands)

SECONDMENTS

During the first 10 months of the ESR project, the candidate will have the opportunity to spend at Imperial College London to apply Mass Spec targeted and untargeted metabolomics

workflows on samples derived from the TURN1 and TURN2 clinical trials. Specific matrix studies are needed to implement the metabolomics workflow. Analyses will be performed in collaboration with another fellow at Imperial College. Also microbial and metagenomics analyses will be performed through microbial sequencing. This work will reveal microbial and fungal diversity characteristics in responders and non-responders to FMT. The work at Imperial college will take place under supervision of Dr. James Kinross and Prof. Wouter de Jonge. The second 10 months consist of 7 months at TNO Research (The Netherlands) to to apply gut on chip models to TURN 1 and 2 samples and 3 months at DSCN Research BV to allow computing and analyses of metabolic and microbial signalling routes, and organoid and gut-on-a-chip work.

CANDIDATE REQUIREMENTS

REQUIRED EDUCATION LEVEL

A degree (MSc, or equivalent) in Health and/or Life Sciences (Biology, Microbiology, Molecular Biology, Immunology, Biomedical Sciences, Biochemistry or closely related fields) or Medicine. Candidates in the final stages of obtaining their degree are eligible to apply

REQUIRED LANGUAGES

ENGLISH: Excellent, both written and spoken.

SKILLS/QUALIFICATIONS

We expect a Master's degree (or equivalent) in Health and/or Life Sciences or Medicine. Furthermore, the applicant should be able to perform team-oriented as well as independent work. Desirable methodological skills: excellent background in molecular biology, biochemistry, cell biology, immunology and/or microbiology, hands-on knowledge of analytical methods.

ADDITIONAL INFORMATION

ELIGIBILITY

Applicants can be of any nationality and must be Early Stage Researchers and shall at the date of recruitment by Imperial College London, be in the first four years (full-time equivalent research experience) of their research careers and have not been awarded a doctoral degree. Furthermore, the applicant must not have resided or carried out his/her main activity (work, studies, etc) in the country of his/her host organisation for more than 12 months in the 3 years immediately prior to his/her recruitment.

RENUMERATION

The per annum MSCA PhD student living and mobility allowance (plus family allowance if applicable, family status is assessed at recruitment) is in line with EU-MSCA requirements. This amount will be subject to tax and employee's National insurance deductions and will be paid in EURO.

HOW TO APPLY

Complete applications in English should include the GROWTH Application Form and its mandatory attachments (<https://growth-horizon2020.eu/research/project-7>). Please note that applications that do not meet these requirements WILL NOT BE CONSIDERED.

Please send the complete package as 1 PDF file via email to info@growth-horizon2020.eu before 30 June 2021 18:00h - Europe/Brussels.

Please familiarize yourself also with the other 7 ESR postings (PhD positions) within the GROWTH consortium (www.growth-horizon2020.eu). Selected applicants will be invited for an



online selection meeting. Awarding decisions will be announced shortly thereafter, and candidates are expected to be available to start as soon as possible.

HOW YOUR DATA IS KEPT

The data submitted in the Application Form will be used for recruitment purposes only and shared by members of the GROWTH consortium. The data will be held securely at DSCN Research BV (network coordinator of GROWTH) and shared by secure cloud-based storage. Data is intended to be kept for a maximum of four years (the life-span of the project). Further information may be collected from the above-named institutes. Candidates can request deletion of their data by contacting info@growth-horizon2020.eu.