

A highly innovative system, called long axial field of view (LAFOV) PET/CT, has become available and is the ideal medical imaging modality to study diseases and molecular processes at the whole body/systems biology level with multiple radiotracers. Studying diseases and diagnosing patients using PET/CT imaging should use a whole body/systems biology approach, i.e., a comprehensive whole body characterisation of disease, and it should be longitudinal and should use multiple radiotracers. However, LAFOV PET/CT is so new that we lack the necessary tools, methodologies, imaging procedures and skilled scientists to effectively address key applications in patient care and research. With the **PREFERENCE** project we aim to develop innovative LAFOV PET/CT methodologies to perform and support ground-breaking new clinical research.

PREFERENCE will train the next generation of researchers specialized in LAFOV PET/CT who will capitalize on the new clinical and research opportunities of the LAFOV PET/CT system. By performing research in both academia and industrial groups, researchers within **PREFERENCE** receive training in a unique combination of (soft) skills across disciplines and sectors. **PREFERENCE** will develop new LAFOV PET/CT methodologies, and perform LAFOV PET/CT clinical studies across disease areas to obtain novel biological insights. This project was selected by the EU as worthy of funding under the HE Marie Skłodowska Curie Action. The consortium consists of 12 academic partners with a strong expertise in quantitative (LAFOV) PET/CT imaging as well as industrial partners developing imaging equipment or providing multi-center image analysis solutions and services.

PhD PROJECT. Brain LAFOV PET/CT imaging

HOST INSTITUTION. Amsterdam University Medical Center (Amsterdam UMC)

The Stichting Amsterdam University Medical Center is one of the biggest institutions for health research in the Netherlands, as well as one of its largest hospitals employing almost 20,000 people to provide integrated patient care, fundamental and clinical scientific research, and teaching. Amsterdam UMC has selected eight research institutes in which fields it aspires to excel: Amsterdam Cardiovascular Sciences, Amsterdam Gastroenterology, Endocrinology, Metabolism, Amsterdam institute for Infection and Immunity, Amsterdam Neuroscience, Cancer Center Amsterdam, Amsterdam Public Health, Amsterdam Reproduction and Development and Amsterdam Movement Sciences. There is the Amsterdam UMC Doctoral School where a total of 451 PhDs (63% female) were awarded in 2024, supervision training is offered and there is an active PhD student network.

The Radiology and Nuclear Medicine (RNM) department of the AUMC has a large radiochemistry section with GMP compliant laboratories and with extensive experience in the development of new radiotracers. RNM has 2 SPECT-CT systems, 3 PET/CT systems and a long axial FOV PET/CT system. The physics team is internationally well known for its scientific work on PET quantification and standardisation. They have ample expertise and infrastructure to perform and analysis quantitative PET studies. The multi-disciplinary team of the department consists of radiochemists, radiopharmacists, biologists, physicists, computer scientists and nuclear medicine physicians. For clinical research, the department closely collaborates with many departments of the AUMC, such as the Departments of Pulmonology, Medical Oncology, Hematology and Neurology.

DESCRIPTION OF THE ADVERTISED POSITION (DC 1)

This is a 4-y full time position as an doctoral candidate (DC) under the auspice of the MSCA DN programme. The successful candidate will develop new image analysis methodologies for less or non-invasive full quantitative brain LAFOV PET studies as well as new quantitative model-independent kinetic analysis approaches. The candidate will also be involved in developing connectivity analysis methods applicable to dynamic LAFOV PET/CT studies and will explore and implement AI based solutions for brain PET quantification. Within the course of this project, 1 month secondments to the DKFZ in Heidelberg to work on the use of AI in kinetic modelling, the University of Edinburgh to learn on connectivity analysis are planned and, Antaros Medical to learn on implementing analysis tools for clinical research are planned. Further, the project may include short-term visits to different PREFERENCE partners for data and software exchange.

GENERAL ELIGIBILITY CRITERIA

Mobility Rule: The fellow may not have resided in the country where the research training activities take place for more than 12 months in the 3 years immediately prior to the recruitment date (and not have carried out their main activity (work, studies, etc.) in that country)

Doctoral candidate: The fellow must be — at the date of recruitment — an '**doctoral candidate**' (i.e. not have a doctoral degree).

Candidates from Russia, Belarus and occupied territories in Ukraine are also not eligible.

SPECIAL REQUIREMENTS

- Successfully completed studies in Physics, Biomedical Engineering, Computer Science or alike (MSc degree or equivalent)
- Very good command of the English language (additional skills in Dutch will be of benefit)
- Good communication skills (a pre-requisite for cooperating in a multi-disciplinary environment)
- Willingness to travel and flexibility
- Technical skills will be of benefit
- Prior experience with medical imaging data will be of benefit
- Appropriate physical condition to work in a radiation protection control area

RECRUITMENT PROCESS:

After assessing compliance with the mobility rule and eligibility for the position based on your CV and motivation letter you might be invited for several online or in-person interviews. Selection of the candidates and invitation for the interviews will be done by the local (host) supervisory team. These interviews will be performed by the local (host) supervisory team as well as an international scientific mentor from the network and, possibly, one of the scientific advisors. Information on your application will be shared with the coordinator of the consortium for centralized coordination and registration of the recruitment process. Information on the exact employment conditions will be provided by the host institution and can also be found on their job announcement board, information on salary (gross and net salary, social security benefits etc) will be communicated during the interview and upon appointment by the host institution.

You will be appointed as fulltime PhD candidate for 3-4 years depending on the hosting institution. Successful candidates will receive a salary in accordance with the Marie Skłodowska-Curie Actions, that includes a gross living allowance of €4.010/month (correction factor to be applied per country), a monthly mobility allowance of €710 and depending on your familiar status, a family monthly allowance of €660. Please note that these amounts include taxes and compulsory employer contributions that will be deducted to make the net salary. The exact net salary will be confirmed upon appointment.

FURTHER INFORMATION:

PREFERENCE: <https://preference-consortium.eu/>

Amsterdam UMC: <https://www.amsterdamumc.nl/nl>



Full applications should include, but details on the application will be provided using the host institution job announcement website.

- A motivation letter
- A Europass CV (<https://europass.cedefop.europa.eu/documents/curriculum-vitae>)
- Copies of your relevant certificates
- Contact details of two references

Details and application will be arranged through the host institution job vacancy announcement website.

Information regarding applications for Amsterdam UMC can be requested at: preference@amsterdamumc.nl. In case of any other procedural questions, please contact: preference@amsterdamumc.nl