



Build the next generation of multi-tracer Total-Body PET

Doctoral Candidate (f/m/d) in Quantitative Multi-Tracer PET Imaging

One visit. Multiple molecular perspectives

Positron emission tomography is conventionally performed with one radiotracer at a time. Yet tumour biology is not one-dimensional: metabolism, receptor expression and immune-related pathways provide complementary information, while separate examinations on different days increase burden and complicate direct biological comparison.

This doctoral project will exploit the exceptional sensitivity of long-axial field-of-view (LAFOV) PET to make clinically feasible, same-session multi-tracer imaging a reality. The goal is to derive complementary quantitative biomarkers from a single patient visit - with reduced injected activity, improved temporal correspondence and direct clinical relevance.

You will join the Total-Body PET Physics Group led by Dr Fabian Schmidt at the Department of Nuclear Medicine and Clinical Molecular Imaging & Werner Siemens Imaging Center at the University Hospital Tübingen, the first university hospital in Germany to install a Siemens Biograph Vision Quadra LAFOV PET/CT. The project spans PET physics, advanced computation and validation in clinical Total-Body PET datasets.

Your research challenge

You will develop the methodological framework required to separate, quantify and interpret information from complementary radiotracers acquired within one clinical imaging session.

- Design low-dose, same-session multi-tracer acquisition strategies for LAFOV PET/CT.
- Develop computational approaches for tracer separation and quantitative analysis, including kinetic modelling and model-based corrections.
- Integrate deformable image registration, AI-assisted denoising and CT-free attenuation correction.
- Evaluate the methods using realistic Monte Carlo simulations and large clinical Total-Body PET datasets.
- Apply the framework to oncological radiotracers targeting metabolism, receptor expression and immune-related pathways.

A European doctoral training experience with PREFERENCE

PREFERENCE - exPloRing Extended Field of view pEt for pREcision mediCine (Grant Agreement No. 101307478) - is a Horizon Europe Marie Skłodowska-Curie Actions Doctoral Network for long-axial field-of-view PET/CT. You will train and collaborate with 14 other doctoral candidates, supported by local supervision, an international scientific mentor and a business coach.

International secondments at King's College London, Université Bretagne Occidentale and the German Cancer Research Center (DKFZ) will provide advanced training in multi-tracer PET imaging, theranostic imaging and dosimetry, and multiparametric analysis of dynamic PET data for tumour characterisation.

Where you will work

You will be employed by University Hospital Tübingen, conduct your research in the Department of Nuclear Medicine and Clinical Molecular Imaging and enroll for a doctoral degree at the Eberhard Karls University Tübingen, which is one of Germany's leading research universities and a University of Excellence. You will have direct access to a clinical Biograph Vision Quadra, clinical studies and established and emerging PET tracers.

Tübingen is a historic, international university town and the youngest city in Germany, with more than 30,000 students among 90,000 inhabitants. The close links between university, hospital, research institutes and industry provide an exceptional setting for doctoral training and scientific career development.

Who we are looking for

We are looking for a curious and ambitious researcher who wants to advance PET beyond conventional single-tracer imaging and enjoys translating rigorous physics and computation into methods directly for patients.

- A Master's degree, or an equivalent degree in physics, medical physics, biomedical engineering, computer science, medical image computing, artificial intelligence or a related discipline.
- Strong analytical and problem-solving skills and an interest in quantitative medical imaging.
- Programming experience in Python, MATLAB or a comparable scientific language.
- Very good written and spoken English and the ability to work independently in an international team.
- Willingness to undertake international secondments and participate actively in network-wide training.

Experience with PET or other medical imaging data, image reconstruction, kinetic modelling, machine learning or image registration is advantageous but not required.

MSCA eligibility requirements

Doctoral-candidate status: At recruitment, applicants must not hold a doctoral degree. Applicants who have defended a doctoral thesis are not eligible, even if the degree has not yet been formally awarded.

Mobility rule: Applicants may be of any nationality but must not have resided or carried out their main activity in Germany for more than 12 months during the 36 months immediately before recruitment. Compulsory national service, holidays and time spent obtaining refugee status under the Geneva Convention are excluded.

Doctoral enrolment: The selected candidate must meet the admission requirements of the relevant doctoral programme at the University of Tübingen.

What we offer

- A three-year, full-time employment contract with full social-security coverage
- An ambitious translational project with state-of-the-art Total-Body PET infrastructure and high-quality clinical datasets
- Structured supervision, career development, network-wide training and international secondments
- Close collaboration with leading European academic, clinical and industrial partners

Salary and benefits. Salary is in accordance with the Marie Skłodowska-Curie Actions, that includes a gross living allowance of €4.050/month, 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 applicable remuneration and allowances will be explained during the interview and confirmed by University Hospital Tübingen upon appointment.

Equal opportunities

PREFERENCE and University Hospital Tübingen are committed to equal opportunities and excellence through diversity. All qualified applicants will be considered without discrimination. Applicants with severe disabilities will be given preferential consideration where qualifications are otherwise equal. Interview expenses cannot be reimbursed.

How to apply

Please submit your application in English as a single PDF containing:

- A motivation letter explaining your interest in the project and relevant experience
- A Europass CV (<https://europass.cedefop.europa.eu/documents/curriculum-vitae>)
- Copies of Master's degree certificates, transcripts and other relevant certificates
- Contact details of two academic or professional referees
- Information required to assess the MSCA mobility rule

Recruitment and data sharing. Recruitment is open, transparent and merit-based. Application information will be shared with the PREFERENCE coordinator for eligibility verification and recruitment administration. With your explicit consent, your application may also be shared with supervisors of other PREFERENCE positions; declining consent will not affect this application.

Application deadline: 31 Oct 2026. The anticipated start date is as soon as possible following completion of recruitment, but not later than 31 March 2027.

Applications and scientific enquiries Dr. Fabian Schmidt | f.schmidt@med.uni-tuebingen.de

Procedural enquiries PREFERENCE coordination | preference@amsterdamumc.nl.

Learn more: <https://preference-consortium.eu/>