

# Job description

Position as Professor in Medical Physics

Department of Clinical Research, Faculty of Health  
Sciences, University of Southern Denmark and  
Department of Nuclear Medicine, Odense University  
Hospital

November 2024

## 1. The vacant position

The vacant position is a combined post as professor in the Research Unit of Clinical Physiology and Nuclear Medicine, Department of Clinical Research, SDU, and as medical physicist in the Department of Nuclear Medicine, OUH.

The time is allocated with 50% to university (professor) and 50% to clinical duties.

The employment is limited for a period of 5 years with the possibility of prolongation.

### 1.1. Qualifications and expertise

The applicant must be highly qualified as a medical physicist in nuclear medicine, with a strong background and documented experience in preclinical radionuclide therapy research, particularly focused on Auger-electron radionuclide therapy. The candidate should demonstrate a solid understanding of radiopharmaceutical development and extensive preclinical research leadership. Experience with clinical collaboration, including working within hospital environments, is essential.

The ideal applicant should have a robust research profile in targeted radionuclide therapy, with a focus on aggressive cancers such as glioblastoma and metastatic breast and prostate cancer. Commitment to teaching, the ability to lead research groups, and a proven track record of attaining significant external funding are necessary. The applicant must also have experience supervising master's students, PhD candidates, and postdoctoral researchers. Additionally, experience with life science innovation and the commercialization of research through biotech start-ups will be an advantage.

A strong ability to conduct innovative research at an international level, especially in Auger-electron radionuclide therapies, is critical. The research focus should align with developing new radionuclide therapies for treating aggressive and hard-to-treat cancers, with an emphasis on advancing these therapies towards clinical application.

The applicant must submit the following documents in order to be considered for the position:

- A motivated application
- A detailed CV
- Degree certificates (including PhD-diploma) (combined as one single PDF-file)
- A teaching portfolio which details the candidate's prior teaching experience, teaching skills, and teaching philosophy
- A research plan which details the candidate's ideas and plans for her/his future research work
- A complete and numbered list of publications
- Ten scientific peer-reviewed publications which the candidate considers as most important for the position. Please notice that one PDF- or docx. - file must be attached for each publication
- Contact information for references

Additional requirements include a successful record of obtaining research funding, demonstrated experience with international research collaborations, and proven leadership in large-scale research projects. Experience as a Head of Research, lead on major projects, or overseeing administrative roles will be highly regarded. The applicant is also expected to have academic teaching qualifications equivalent to an associate professor level.

### **1.1.1. Obligations**

The professor's obligations will primarily be:

- To consolidate and develop the functions of the Preclinical Research Unit at the Research Unit of Clinical Physiology and Nuclear Medicine
- Research related to Auger-electron radionuclide therapy of cancer
- Research related to radiopharmaceutical development
- Translational research in nuclear medicine

The fundamental tasks are research (including an obligation regarding publishing/scientific procurement) and research-based teaching (with associated obligation in terms of examination). In this context, research-based public sector consultancy may be added. Furthermore, the tasks may consist of knowledge sharing with society including participation in the public debate. Moreover, handling of research management, counselling and supervision of assistant professors and researchers and assessment work might be added.

#### **1.1.1.1. Research**

The professor is expected to contribute in further developing the research strategy and profile of the department with special emphasis on preclinical and translational research on targeted radionuclide therapies of cancer, and radiopharmaceutical development for theranostic applications. The professor is also expected to increase the research activity and to establish collaboration with other researchers at OUH and SDU. The professor should participate in further scientific development of the fields both nationally and internationally. Also, profiling the field in the public eye will be an important task. Finally, the professor is expected to supervise post-docs, PhD-students and pre-graduate students.

#### **1.1.1.2. Teaching**

The professor is expected to be engaged in teaching at the Faculty of Health Sciences.

##### **1.1.1.2.1. Planning**

The Head of Research is responsible for planning the teaching within the department; additionally, the professor is expected to plan his/her own teaching.

#### **1.1.2. Other obligations**

The applicant is also expected to front theranostic cancer research in the public debate. Moreover, the applicant is expected to perform public duties, *i.e.* to chair commissions and boards, etc.

#### **1.1.3. Management and administration**

The professor is expected to:

- Perform evaluations of other researchers at the Faculty of Health Sciences
- Actively participate in and chair committees and councils etc. at the Faculty of Health Sciences and at other universities, locally, regionally, and nationally

## 1.2. University position

The position as professor is affiliated to the Research Unit of Physiology and Nuclear Medicine in the Department of Clinical Research at SDU.

<https://www.sdu.dk/en/forskning/kliniskfysiologinuklearmedicin>

### 1.2.1. Reference

The professor refers to the departmental management. Regarding research and teaching, i.e. university aspects, the professor refers to the Head of Department of Clinical Research through the Head of Research of the Research Unit of Clinical Physiology and Nuclear Medicine. Organisational matters in relation to medical physics at Odense University Hospital have to be coordinated with the chief physicist who is head of the 'FIT group'. The professor will be a member of this group.

Employment as a professor requires successful evaluation by an expert panel consisting of a professor from Department of Clinical Research, taking on the role as chairperson, and two external professors.

## 2. Odense University Hospital (OUH)

OUH is one of Denmark's largest hospitals and the only one having all medical specialties collected under one roof.

The hospital comprises the units in Odense, Svendborg and Nyborg sharing the same board of directors. In total, the staff comprises about 11,000 persons. (See [Key Figures.](#))

A new university hospital is under construction and is expected to be finished before 2030. The new hospital will be located adjacent to the current main campus of University of Southern Denmark. This co-location of the two institutions is unique in Europe and will facilitate the cooperation between the clinical departments and faculties of University of Southern Denmark.

Further information:

- [OUH's website](#)
- [OUH's organisation](#)
- [Research Strategy 2021 - 2025](#)

## 3. The Hospital Department

- Please refer to the Department of Nuclear Medicine, OUH (<https://en.ouh.dk/medical-specialities/Nuclear-Medicine>) and [Forskningsstrategi Nuklearmedicinsk Afdeling](#) (Danish) for more information.

### 3.1. Clinical specialties and expertise

The Department of Nuclear Medicine, OUH, provides services within functional tests and molecular imaging of most tissues and organs, including PET/CT, PET/MRI, and SPECT/CT techniques. Services comprise diagnosis, staging, response evaluation of treatment, and prognosis assessment in various diseases. Moreover, the department is responsible for radioiodine treatment of non-toxic and toxic goitre, thyroid cancers, Radium-223 treatment of bone metastatic prostate cancer, and PRRT therapy of patients with neuroendocrine cancers.

Geographically, the department provides services at Odense University Hospital in Odense.

The department is involved in several multidisciplinary services:

- Multidisciplinary team conferences in several cancer diseases
- Multidisciplinary team conferences in some infectious diseases
- National multidisciplinary team conferences in paediatric diseases

### **3.2. Management and organisation of the department**

The Department of Nuclear Medicine is managed by Chief Consultant Søren Hess and Chief Technician Marianne Pedersen. Each sub-specialty is headed by a consultant and/or a chief technician. Radiochemistry is headed by a chief chemist, and physics by a chief physicist. The department's medical staff comprises nine consultants, six senior registrars, and four junior doctors. The medical physics staff comprises three senior medical physicists and three junior physicists.

The Research Unit of Clinical Physiology and Nuclear Medicine is headed by Clinical Professor Malene Grubbe Hildebrandt and Head Technician Tina Godskesen. The research unit comprises a professor in biostatistics, a part-time professor, four adjunct professors, five assistant/associate professors, five postdocs, and five PhD students, as well as a continuous flow of master students. The research unit collaborates with several other units and departments at OUH, SDU, and regional hospitals, and has significant national and international contacts.

The Preclinical Research Group, headed by Associate Professor Helge Thisgaard, is part of the Research Unit of Clinical Physiology and Nuclear Medicine.

### **3.3. Catchment area and regional functions**

In accordance with the plans issued by the Danish National Board of Health, the department provides all services on local level (population approximately 220,000) and all services at regional level (population approximately 12 million).

### **3.4. Highly specialised functions**

The Region's highly specialised services in the field of nuclear medicine are situated in Odense, and the department provides the production of radiopharmaceuticals in a cyclotron unit with an associated radiochemistry function.

### **3.5. Teaching**

The department provides teaching and training to nuclear medicine personnel. The target group is nuclear medicine physicians, medical students, technician/radiographer students, secretaries, PhD students, and postdocs.

### **3.6. Research**

The research unit at the Department of Nuclear Medicine at OUH conducts high-quality clinical and translational research in collaboration with national and international partners. The unit focuses on six main areas: Cancer and therapy, Brain research, Infection and inflammatory diseases, Preclinical and translational research, Methods and modalities, and

Research for all. The department has a cellular laboratory and a Preclinical Imaging Core Facility. All research activities aim to improve patient treatment.

### **3.6.1. The Preclinical Research Group**

The Preclinical Research Group is a multidisciplinary team of scientists in radiochemistry, nuclear physics, biomedicine, and molecular biology dedicated to pioneering new radiopharmaceuticals for PET imaging and receptor-targeted precision radiotherapies, utilizing unconventional radionuclides. The group aims to revolutionize the treatment of aggressive cancers, including brain and breast cancer, through theranostic technologies and novel drug delivery methods. The research is mainly focused on radiopharmaceutical development of new compounds that deliver precise radiation doses to eradicate cancer cells at the single-cell level using Auger-electron-emitting radionuclides.

The Preclinical Research Group and the Research Unit of Physiology and Nuclear Medicine are an integrated part of the Department of Nuclear Medicine at OUH. Please refer to the [Research Unit of Clinical Physiology and Nuclear Medicine](#) for more information.

## **4. Faculty of Health Science**

The [Faculty of Health Science](#) is one of five faculties at the University of Southern Denmark. The faculty offers a grand variety of bachelor- and master's programs. (For further details, please see [Programmes](#).)

## **5. Department of Clinical Research**

The [Department of Clinical Research](#) comprises >45 research units based on departments at Odense University Hospital and Mental Health Services in the Region of Southern Denmark. (For more information about the department's research, please see [SDU's Research Portal](#).)

The department staffs teach at all the programmes offered by the Faculty of Health Sciences, however, primarily in medicine. (Read more about the department and its key figures [here](#).)

The Head of Department of Clinical Research is Rikke Leth-Larsen, PhD.

## **6. Living and working in Denmark**

The [International Staff Office](#) (ISO) at SDU provides a grand variety of services for new employees, guests and people who consider applying for a job at the University of Southern Denmark.