**PhD position within Radiology/Clinical Oncology for a multidisciplinary project exploring the role of imaging biomarker,** **treatment outcome and toxicity**

We seek to appoint a medical doctor in a PhD position in our multidisciplinary research group at the Departments of Oncology and Radiology at Copenhagen University Hospital Herlev and Gentofte. Anticipated start is August/September 2024.

The focus of the PhD project is to assess the clinical value of new CT-based imaging technologies in radiotherapy planning and response evaluation.

**Project description**

The focus of the PhD project is to investigate the clinical value of photon counting CT (PCCT) and dual-energy CT (DECT) for advanced radiation therapy (RT) planning and response assessment in patients with cancer. DECT offers improved tissue characterization. The emerging PCCT technology provides increased spatial resolution, a decrease in noise and beam hardening artefacts in addition to DECT.

The new technologies offer better contrast properties and add biological information. With the addition of intravenous contrast, an iodine map can visualize the perfused blood volume as presented by the neovascular structure within tumors and normal tissue. This can quantify the development or destruction of the vascular structures in response to radiation therapy.

The aims of the project are to test the potential of DECT/PCCT to

* Improve delineation accuracy of both tumors and organs-at-risk (OARs) in relation to radiotherapy planning
* improve the discrimination between tumor progression and treatment related fibrosis in response assessment dafter radiation therapy
* Predict and quantify normal tissue response to radiotherapy (toxicity) and compare to routine clinical exams and patient reported outcome measures

The scientific study protocol allowing for the inclusion of patients for additional DECT and PCCT scans has already been approved by the regional ethical committee.

The PhD student will work in close collaboration with a PhD student with a background in science or engineering.

**Responsibilities and tasks**

The overall responsibilities and tasks include (but not limited to):

* Scientific protocol implementation and amendments
* Develop patient questionaries, and image quality assessment tools
* Coordinate patient recruitment and protocol logistics
* Tumor and normal tissue delineation and analysis
* Collection and analysis of clinical follow-up data
* Biannual progress reports to the project sponsor

**Qualifications**

* Medical doctor (MD) with Danish authorization
* Interest in clinical oncology and radiology
* Interest in clinical applications of medical technology

**Approval and enrollment**

The scholarships for the PhD degree are subject to academic approval and will be enrolled in the Clinical Cancer Research PhD-program at the University of Copenhagen (MD)

**We offer**

* An active multidisciplinary research environment within the Radiotherapy Clinic with several PhD students, master students and postdocs with different educational backgrounds.
* A close collaboration with other medical PhD students on patient recruitment and follow-up in scientific projects.
* A chance to develop both theoretical and practical skills within Radiology and Clinical Oncology.
* Multidisciplinary supervision by senior specialists in Radiology, Clinical Oncology and Medical Physics.

Copenhagen University Hospital Herlev and Gentofte has obligations to perform research, development, and education.

The Radiotherapy Clinic is an integrated part of the Department of Oncology. More than 3.500 patients are treated with radiotherapy annually.

The Department of Radiology has 13 DECT scanners including the first Scandinavian installation of a commercial Siemens Photon-Counting Detector (PCCT). Close to 100.000 CT scans are performed per year.

For further information, please contact:

Aff. Ass. Prof. Jens Edmund PhD (j[ens.edmund@regionh.dk)](mailto:jens.edmund@reigonh.dk) or

Clinical Oncologist Ass. Prof. Gitte Persson MD PhD ([gitte.persson@regionh.dk](mailto:gitte.persson@regionh.dk)).

**Salary and appointment terms**

The salary and appointment terms are consistent with the current rules for PhD students at University of Copenhagen and/or Technical University of Denmark. The period of employment is 3 years.

**Application**

Please submit your application no later than **May 26th 2024 (23:59 CET) via this link:** https://candidate.hr-manager.net/ApplicationForm/SinglePageApplicationForm.aspx?cid=342&departmentId=18484&ProjectId=255503&MediaId=5

Applications must be submitted as **pdf files** containing all materials to be given consideration. The files must include:

* A letter motivating the application (cover letter)
* Curriculum vitae
* MD graduate and authorization diploma.
* References
* If applicable: List of publications

All interested candidates irrespective of age, gender, race, disability, religion or ethnic background are encouraged to apply.