PhD position in the context of an interdisciplinary FWO research project:

“Plasma-treated hydrogels as a new selective therapy for head and neck cancer”

Promotors:

* Prof. dr. ir. Nathalie De Geyter – Research Unit Plasma Technology (RUPT)

Faculty of Engineering and Architecture, Ghent University, Belgium

* Prof. dr. Esther Wolfs – Lab for Functional Imaging & Research on Stem Cells (FIERCELab)

Faculty of Medicine and Life Sciences, Hasselt University, Belgium

*We are looking for a highly motivated PhD candidate to develop and study plasma-treated hydrogels used in the treatment of head and neck cancer in a joint project between the Research Unit Plasma Technology at Ghent University and the FIERCELab at Hasselt University.*

Context:

Despite current therapeutic advances, head and neck cancer is still associated with a bad prognosis. Recently, the use of cold plasma was proven to kill a variety of cancer cells, including head and neck cancer (HNC) cells, without affecting healthy cells. This selective anti-cancer effect was mainly due to the reactive oxygen and nitrogen species (RONS) present in plasma. To prevent the side effects associated with direct plasma radiations, indirect treatments, in which plasma-activated liquids (PALs) are injected in the tumor as an off-the-shelf therapy, are preferred. Nonetheless, PALs are promptly diffused in the body leading to non-durable effects and HNC recurrences. This project launches a novel strategy based on plasma-activated hydrogels.

Job description:

The Ph.D. position will be organized as a joint PhD between the two involved universities. The job will focus on the generation of reactive oxygen and nitrogen species in a non-thermal plasma environment that will be carried by hydrogels to treat cancer cells. The student will work in close cooperation with plasma scientists, chemists and biomedical oncology experts.

Profile:

We are looking for excellent candidates with a MSc degree in biomedical engineering, biomedical sciences, chemistry, applied physics, engineering or materials science. A solid background in biomedicine, polymer chemistry, or strong experimental skills are desirable. The candidate should have a clear interest in experimental and interdisciplinary work. The candidate should also be willing to travel frequently between both involved institutions. The Ph.D. student will be able to gain experience in areas such as cancer treatment, plasma chemistry and materials science. The candidate should be fluent in English and have this confirmed by a validated certificate. Students in the final year of their Master's program are also strongly encouraged to apply for this position.

Benefits:

Work for an interdisciplinary project on cutting edge of science; international team; very competitive scholarship; access to state of the art equipment; access to trainings and courses; participation in (inter)national meetings and conferences.

About the Research Unit Plasma Technology

The Research Unit Plasma Technology (RUPT) has built up an internationally recognized expertise in the field of cold atmospheric pressure plasmas. The successful development of different plasma generation concepts has launched RUPT into numerous interdisciplinary collaborations exploring a wide range of applications in environmental technology, materials science and biomedical applications.

About the Lab for Functional Imaging & Research on Stem Cells

The Lab for Functional Imaging & Research on Stem Cells headed by Prof. Wolfs is specialized in preclinical cancer research using clinically relevant in vitro systems and animal models. There is a clear focus on developing alternative therapies with increased specificity to reduce unwanted side-effects.

Application:

Information about the position can be asked to Prof. dr. ir. Nathalie De Geyter ([nathalie.degeyter@ugent.be](mailto:nathalie.degeyter@ugent.be)).

Applications including a cover letter and a detailed CV should be emailed before July 10th 2024 to Dr. Karen Leus ([karen.leus@ugent.be](mailto:karen.leus@ugent.be)) using “FWO project application” as subject.