Internship proposition
One page max
M2 I3/0HNU 2024-25

Lab: CRCI²NA

team: Nuclear Oncology

Name and position of the supervisor: Joëlle Gaschet, Professor Nantes Université

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Candidate: Théo Gasnier

Title of the internship: Proof of concept of alpha-therapy in NSCLC

Summary of the internship proposal:

Non-small cell lung cancer (NSCLC) is the leading cause of cancer-related deaths. Recent advancements in the treatment of NSCLC have introduced several innovative therapies that significantly improve patient outcomes. However, a significant challenge remains as 70-85% of patients do not respond to these treatments and the need for more effective treatments persists.

The Nuclear Oncology Team is dedicated to advancing cancer research by developing innovative molecular imaging and Targeted Radiation Therapy (TRT), an advanced treatment that uses radiopharmaceuticals to deliver ionizing radiation to cancer cells while sparing healthy tissue. Currently, in the clinic, TRT is primarily used for neuroendocrine tumors (NET) and hormone-resistant prostate cancer (CPRC), with specific molecules coupled to β^- radionuclides. However, Targeted Alpha-Therapy (TAT), that is based on the use of highly cytotoxic α-particle emitters, has recently shown impressive efficacy in advanced metastatic CPRC and is experiencing tremendous growth worldwide.

The proposed project will focus on the role of TAT in NSCLC treatment. During his training, the student will screen innovative molecules for targeting NSCLC cell lines, primarily through in vitro approaches and radionuclide manipulation. The project's outcomes will facilitate the selection of radiopharmaceuticals with significant potential for preclinical in vivo studies in mouse models, aiming for eventual clinical application.

Option(s) linked to the project:

☐ Clinical Research Profile
☐ Data Analyst Profile
☑ Experimental Biology Profile