Internship proposition
One page max
M2 0HNU 2026-27

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Team: Team 2 Nuclear Onclology

Name and position of the supervisor: Mathilde ALLARD - MCU

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Candidate: To be recruited

Title of the internship: Deciphering the Immunological Impact of Targeted Alpha Therapy in Triple-Negative Breast Cancer through Transcriptomic and Cytokine Analyses

Summary of the internship proposal: Targeted alpha therapy (TAT) is an emerging therapeutic modality in oncology that combines the high cytotoxicity of alpha-particle emitters with the selective targeting of tumor-associated antigens. Beyond their direct tumoricidal effects, alpha particles may also modulate antitumor immunity by inducing inflammatory responses and reshaping the anti-tumor immune response. However, the immunological consequences of TAT remain poorly characterized, particularly in triple-negative breast cancer (TNBC).
The objective of this project is to investigate the local and systemic immune responses induced by TAT in syngeneic murine models of TNBC (4T1 and EMT6). Particular attention will be paid to changes occurring within the tumor immune microenvironment (TIME), as well as to the identification of circulating immune biomarkers.
To address these questions, the student will participate in the preparation of RNA libraries for subsequent bulk RNA sequencing analyses of tumor samples. In parallel, the expression of immune-related genes, including cytokine-encoding transcripts, will be quantified by RT-qPCR in tumor tissues. Systemic immune responses will be assessed through the measurement of circulating cytokines in serum using ELISA-based assays.
The project will be conducted within a multidisciplinary environment at the interface of nuclear medicine and immunology. We are looking for a highly motivated, rigorous, and enthusiastic Master's student with a strong interest in translational research.

Option(s) linked to the project:
☐ Hematology Immunology-Cancerology
☐ Oncolog☒ Nuclear Medecine
Option(s) linked to the profile:
☐ Clinical Research Profile ☐ Data Analyst Profile
☒ Experimental Biology Profile