Internship proposition
One page max
M2 0HNU 2025-26

Lab:
Cancer & Integrated Immunology Research Center Nantes-Angers (CRCI²NA – Inserm 1307)

Team:
Immunomodulation of the Tumor Microenvironment and Immunotherapy of Thoracic Cancers (ITMI)

Name and position of the supervisor: Nicolas BOISGERAULT, PhD, HDR – Research Associate

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Title of the internship:
Studying the influence of oncolytic virus infection on the immunoactivating properties of stromal and endothelial cells

Summary of the internship proposal:
Immunotherapies have revolutionized cancer treatment, but immunosuppressive mechanisms at play in the tumor microenvironment (TME) limit their efficacy, either by limiting immune infiltration or by inhibiting the activity of immune cells within the tumor. Treating aggressive cancers that mobilize several immunosuppressive mechanisms requires to develop new therapeutic approaches to target them simultaneously. Stromal and endothelial cells, which activity can be dysregulated by tumor cells, commonly exhibit pro-tumor functions. They can also participate in the induction of anti-tumor immune responses, in particular when they are associated with the formation of tumor-associated tertiary lymphoid structures (TLS). Viral infections are known inducers of TLS and can have an impact on both stromal and endothelial cell functions. We hypothesized i) that replicative oncolytic viruses (OVs) could promote the formation of TLS by modulating the functions of stromal and endothelial cells, and ii) that OVs can be engineered to better target the mechanisms of TLS formation.
We initiated the characterization of endothelial and stromal cells in an oncolytic context and generated new OVs with immunomodulatory transgenes. The aim of this internship will be to characterize the TME signature after treatment with different parental and engineered OVs. We will implement complex *in vitro* culture systems to study the impact of OVs on stromal and endothelial cells using high-dimensional approaches. We expect this project to provide a comprehensive overview of the impact of OVs on non-malignant cells of the TME and of the mechanisms of TLS formation in a therapeutic context.

Option(s) linked to the project:
☐ Hematology
☒ Immunology-Cancerology
☐ Oncology
☐ Nuclear Medicine

Option(s) linked to the profile:
☐ Clinical Research Profile
☒ Experimental Biology Profile
☐ Data Analyst Profile