Lab: PETRY, CRCI2NA

team: 10

Name and position of the supervisor: Claire PECQUEUR, DR CNRS

Email of the supervisor: claire.pecqueur@univ-nantes.fr

Candidate:

Title of the internship: **Molecular dynamics of Glioblastoma cells.**

Summary of the internship proposal:

Glioblastoma multiforme (GBM), the most common and aggressive form of primary brain tumor in adults, has a very poor prognosis, with less than 5% survival at 5 years and systematic relapse. These highly heterogeneous tumors are composed of multiple tumor cells characterized by distinct cellular states. The most resistant to treatment, and consequently most frequently found in relapses, is the MES state (Clin. Can. Res 2017; Cancer Metab 2020; BioRXIV 2022). In collaboration with the laboratory of G. Gargiulo (Berlin), our team aims to identify the dynamic evolution of these states using innovative synthetic genetic tracers (sGT) specific to each molecular state.

In this Master 2 project, the student will study the relevance of various designed sGTs (4xMES, 2xCL, 2xPN), depending on the initial molecular signature of tumors, the microenvironment and treatments (RT, CT). The student will carry out cell biology (culture, transduction, 3D-model), molecular (WB) and phenotypic (microscopy, FACS) characterization to identify the most relevant sGTs for each state. Taken together, these data will provide robust tools for monitoring the evolution of tumor cell states, and subsequently identify a strategy to prevent MES-mediated tumor escape.

The student will be trained in all technologies, to become autonomous during his/her internship. This project is part of the team's scientific research program, to gain a better understanding in the dynamic evolution of molecular and cellular heterogeneity in glioblastoma, to propose new therapeutic avenues in the long-term (PLBIO INCA 2024-28).

Option(s) linked to the project:

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