Internship proposition
One page max
M2 0HNU 2025-26

Lab: CRCI2NA

Team: Team 9 “CHILD”

Name and position of the supervisor: GEORGES Steven, MCU NU

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Candidate: Souha AMRI

Title of the internship: Role of Super-Enhancer-Regulated Genes in Chemoresistance of Pediatric Rhabdomyosarcoma

Summary of the internship proposal:

Chemotherapy resistance is one of the major challenges in the management of patients with pediatric sarcomas such as rhabdomyosarcoma. Due to a poor understanding of the underlying mechanisms, little improvement in patient survival has been observed in recent decades. In this context, our team is investigating the role of super-enhancers (SEs), regions of DNA containing clusters of enhancers that strongly drive the transcription of target genes essential to cell identity. The hypothesis of our study is that the activation (or silencing) of SEs can modify the transcriptome of tumor cells, enabling them to better resist treatment.

Using H3K27Ac ChIP-seq data — an activating epigenetic mark — active SEs were mapped in rhabdomyosarcoma cells that are either sensitive or resistant to conventional chemotherapy. This analysis, combined with RNA-seq data, allowed the identification of differentially expressed genes under the control of SEs between our sensitive and resistant models. Among these genes, several may potentially play an important role in the acquisition of a chemoresistant phenotype.
The aim of the internship will therefore be to study the involvement of one or more SE-regulated genes previously identified in the acquisition of chemoresistance in pediatric rhabdomyosarcoma cells.

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