



Internship proposition  
**One page max**  
M2 OHNU 2026-27



Lab: US2B, CNRS UMR6286

team: "DNA repair and signaling"

Name and position of the supervisor: POTIRON Vincent, CR ICO

Email of the supervisor: vincent.potiron@univ-nantes.fr

Candidate:

Title of the internship: **Anti-tumor efficacy of FLASH-radiotherapy in pediatric models**

Summary of the internship proposal:

FLASH radiotherapy is an innovative irradiation method that delivers treatment at ultra-high dose rate. Although the biological mechanisms remain unclear, it has been shown to reduce side effects in healthy tissues compared to standard clinical radiotherapy. However, the anti-tumor efficacy of this technique is insufficiently described. In collaboration with cyclotron Arronax, we use the superior targeting properties of proton beams to treat tumors. This is particularly relevant for pediatric tumors for which adjacent organs are particularly sensitive to collateral irradiation. The internship will therefore focus on studying the efficacy of proton FLASH-RT in pediatric medulloblastoma and osteosarcoma models. The project will be based on determining the radiosensitivity of tumor cells to FLASH-RT. It will compare their cellular and molecular responses, the tumor vascular microenvironment phenotypes and its relationship to immune cell activation.

Option(s) linked to the project:

- Hematology     Immunology-Cancerology  
 Oncology         Nuclear Medicine

Option(s) linked to the profile:

- Clinical Research Profile                       Data Analyst Profile  
 Experimental Biology Profile