



Internship proposition  
**One page max**  
M2 OHNU 2025-26



**Lab:** Deblois Lab

**Team:** Deblois Lab

**Name and position of the supervisor:**

Geneviève Deblois, PhD  
Assistant Professor, Faculty of Pharmacy  
Principal Investigator, IRIC

**Email of the supervisor:** genevieve.deblois@umontreal.ca

**Candidate:**

**Title of the internship:**

Study of the mechanisms regulating epigenetic and metabolic changes in therapy resistant breast cancers

**Summary of the internship proposal:**

A common feature of aggressive cancers is their ability to tolerate antitumor treatment exposure such as chemotherapy. The development of chemotherapy resistance is often accompanied by metabolic changes in the cancer cells. In addition of meeting the energetic, anabolic and antioxidants needs of cancer cells, these metabolic adaptations can also affect the cancer cells identity by altering their epigenomes, since chromatin-modifying enzymes are regulated by the abundance of certain metabolites. Importantly, such epigenetic reprogramming also play an important role in the development of chemoresistance. Therefore, it is essential to understand how cancer cells adapt their metabolism and epigenome when developing resistance to therapies in order to improve the effectiveness of antitumor treatments. We have identified metabolic changes that promote the survival of breast cancer cells when exposed to certain chemotherapies. Our work suggests that these metabolic adaptations affect some epigenetic modifications of chemoresistant breast cancer cells. The aim of this internship is to better understand the mechanisms that regulate this metabolism rewiring as well as their consequences on the epigenetic profiles of chemoresistant breast cancer cells. This project will identify new vulnerabilities that could be exploited to better target breast cancers that are resistant to chemotherapy.

Option(s) linked to the project:

- |   |   |
|---|---|
| <input type="checkbox"/> Hematology             | <input type="checkbox"/> Oncology         |
| <input type="checkbox"/> Immunology-Cancerology | <input type="checkbox"/> Nuclear Medicine |

Option(s) linked to the profile:

- |   |   |
|---|---|
| <input type="checkbox"/> Clinical Research Profile    | <input type="checkbox"/> Data Analyst Profile |
| <input type="checkbox"/> Experimental Biology Profile |   |