

INTERNSHIP PROPOSAL – MASTER’S LEVEL (M2) 2026 - 2027

Scientific Field: Cancer biology, innovative anticancer agents, Antibody Drug Conjugates (ADCs)

Internship Dates: January – July, 2027 (6 months)

Project Title: *Biological Evaluation of Novel Ferroptosis Inducers and Antibody-Drug Conjugates (ADCs)*

Project Context:

Non-apoptotic, iron-dependent cell death, known as ferroptosis, is a very recent and emerging strategy for anticancer drug design and development. In this context, ferroptosis inducers present growing interest as anticancer drugs. Furthermore, antibody-drug conjugates (ADCs) which are very innovative products combining cytotoxic agents (small molecules) and antibodies for their targeting property are relevant for developing anticancer agents in order to specifically kill cancer cells. Very recently (2022) we reported for the first time in the literature, the design and synthesis of the first ADC combining a ferroptosis inducer and a monoclonal antibody, trastuzumab. The first biological evaluation tests resulted in particularly promising results.

Objectives of the project:

Biological evaluation of ADC drug candidate combining a ferroptosis inducer and an antibody as an anticancer agent in the context of targeted chemotherapy.

Main Missions and Activities

The intern’s primary tasks will include:

Cell Culture and Tumor Models: Culturing and maintaining cancer cell lines

Dose-Response and Toxicity Studies: Performing cytotoxicity and cell viability assays on ferroptosis inducers and ADCs, generating dose-response curves and determining IC₅₀ values. Mechanistic validation of ferroptosis through pharmacological rescue experiments.

Ferroptosis Signaling and Cell Death Pathway Analysis: Investigating the GPX4 pathway by Western blot and assessing oxidative stress and lipid peroxidation markers using standard fluorescent probes.

ADC Design, Bioconjugation and Antibody-Antigen analysis Contributing to the ADC development, including the bioconjugation of small molecules to monoclonal antibodies, and studying target antigen expression and antibody binding/internalization.

Complementary Activities: Development of functional assays for the most active ADCs, statistical analysis of biological data, participating in team seminars and meetings.

Candidate Profile

Education: Master's degree (M1) in cell biology, cancer biology, pharmacology, or a related field.

Technical Skills: Prior experience in cell culture is preferred, familiarity with Western is an asset. Experience working with monoclonal antibodies is an asset.

Personal Qualities: Scientific rigor and strong organizational skills, ability to work collaboratively in a multidisciplinary environment. Interest in cancer biology and the pharmacology of anticancer agents.

Supervision and Working Environment

The intern will be supervised by Prof. Benoit BUSSER and Ronald SALAS with day-to-day interactions with researchers in medicinal chemistry and cancer biology.

Internship Location : Institut pour l'Avancée des Biosciences, Allée des Alpes, Site Santé, Grenoble/La Tronche

To Apply: Send your CV and motivation letter to:

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