New approach to overcome liver cancer resistance to drug treatment

Name of the hosting institution in France: Bordeaux Institute of Oncology (INSERM U1312)

Name of the host laboratory / research team: MiRcade team

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Internship offer

Topic of the internship (title): New approach to overcome liver cancer resistance to drug treatment

Proposed dates of the internship: Start 15/12/2022, End 15/06/2023

Scientific and academic objectives of the internship:

Adult liver cancer (hepatocellular carcinoma) is the most common primary liver tumors. Among the few FDA-approved first-line targeted drugs for this cancer is sorafenib. Although sorafenib treatment improves the survival to some extent, unfortunately severe adverse effects and emerging resistance make it an unsatisfactory therapeutic approach.

Given the lack of effective therapies for most patients and the fact that survival rates remain poor, there is an urgent unmet need to develop novel approaches to overcome the known resistance of cancer cells to the available drugs.

Since some aspects of drug resistance is mediated by anti-oxidative defense mechanisms, our aim is to use sorafenib in combination therapy with drugs targeting these defensive measures to alleviate drug resistance and improve prognosis.

In our experimental approaches, we will use liver cancer cells for drug screening and validation. We will be assessing different functional and molecular features of these cells in regular and advanced cell culture systems.

The intern will receive extensive training in cell culture, many functional assays (proliferation, cell migration, invasion, metabolism) and molecular biology tools (real-time qPCR, western blot, viral transfection) in a physio-pathological context dealing with immunology, biochemistry, cell biology and oncology. She/he will enjoy interacting with different members of our international team located in one of the most beautiful city of France with its vineyards and top-quality wines.

We expect our project to generate some convincing experimental data and arguments to support our drug combination strategy as an effective approach to overcome the resistance to the only available targeted drug option for first-line treatment of liver cancer patients.

Expected profile of applicant

Level of study: Graduate and post-graduate

Discipline: Biology, biochemistry, immunology, health sciences

Prerequisite knowledge, qualities and skills: Highly motivated, serious and dedicated