Title: Role of pro-inflammatory cytokines in breast cancer metastasis: New therapeutic and diagnostic strategies

Project: Breast cancer is a highly prevalent health care problem. Although 70% of the cases are cured, metastasis is the major contributor to the death of breast cancer patients; and management of metastatic breast cancer is a very important clinical challenge. Cytokines are important players in inflammation, a process highly associated with tumour initiation, tumour maintenance, angiogenesis and metastasis. In particular, interleukin 6-type cytokines, including IL-6 itself and Oncostatin M (OSM) have been recognized as important contributors to cancer progression. Previous results from our groups show that the pro-inflammatory cytokine OSM plays an important role in metastasis and that it associates with decreased disease-free survival in breast cancer. Primary tumours release extracellular vesicles (EVs) carrying malignant information that can travel throughout the body, and help colonizing other organs. Importantly, EVs secreted by OSM-activated cells induce migration and invasion in vitro, suggesting that these EVs may promote tumour dissemination.

In this context, our research aims are: a) to investigate the role of OSM signalling, related cytokines and the OSM-induced EVs in preparing the metastatic niche and promoting metastasis; b) to pre-clinically evaluate the potential benefit of anti-OSM:OSMR blocking antibodies in preventing or inhibiting metastasis; and c) to find early biomarkers of metastasis and recurrence. To answer these questions, we will use a combination of complementary research approaches: relevant pre-clinical animal models (xenografts and genetic models of breast cancer), cutting-edge molecular and functional imaging techniques, cell culture experiments and histological and molecular analysis of clinical samples.

Research group: The research will be conducted in a collaborative project between two leading research institutes. We are seeking an ambitious and motivated student to advance our understanding of own changes at the molecular level impact animal physiology, health and lifespan. The work will be performed at Jesús Ruiz-Cabello group at CIC biomaGUNE (San Sebastian-Donostia) and María M. Caffarel’s group at IIS Biodonostia (San Sebastian-Donostia). Both labs are in the same geographical area, separated by 15 minutes walk distance. The student will be enrolled in a PhD program at the University of the Basque Country as the degree awarding institution.
Requirements:

- The applicant should have a Master degree in biology, biochemistry or related discipline.
- This project requires solid background knowledge in cell biology and biochemistry, work with live animals and interested in biostatistics and modelling of biological systems.
- Fluency in English would be advantageous.

Duration: 36 months (first 18 months contracted by CIC biomaGUNE + Next 18 months contracted by IIS Biodonostia).

Envisaged Job Starting Date: 1\textsuperscript{st} October 2020

Application Deadline: 22\textsuperscript{nd} September 2020

How To Apply: Please submit your application with a motivation letter stating why you are interested in this position, your CV, the contact details of two academics who can provide a reference using this form indicating as Job Offer Code 313.

Equal opportunities Policy: CIC biomaGUNE is proud to be an equal opportunity employer and applicants will receive consideration for employment without regard to: age, color, disability, gender, national origin, race, religion, sexual orientation, gender identity, or any other classification protected by European, national, or local law.