



## ELUCIDATING DRIVERS OF METASTASIS IN ESTROGEN-RECEPTOR BREAST CANCER

### Introduction

Metastasis is the leading cause of death in cancer patients. It is a complex, multi-step process in which cancer cells spread from the primary tumor to surrounding tissues and distant organs. Breast cancer is the most common cancer in women, with 1.6 million cases being diagnosed every year. Nearly 30% of women diagnosed with breast cancer develop metastasis, which remains the primary cause of mortality. Despite its major impact on patient outcomes, little is known about the genetic and molecular alterations that cancer cells acquire during this process. Understanding these changes is essential to develop targeted therapy against metastasis.

### Aim

The project aims to identify and characterize genetic drivers of metastasis in ER+ breast cancer, that confer a selective advantage for cancer cells to thrive in organs distant from their tissue of origin.

### Your Profile

We are looking for a highly curious and motivated master student with good communication skills and a strong interest in oncology who is willing to independently work on and develop a research project. The laboratory language is English.

### Your project in the lab

- Generation of cell lines with CRISPR Cas9-mediated gene deletion or overexpression.
- Validation of the metastatic potential of selected hits using mouse models.
- Follow-up experiments to decipher the mechanism behind the phenotype observed.

You will have the opportunity to learn cell culture, flow cytometry, histology, in vivo, CRISPR-Cas9 cloning, and more. You will be supervised directly by an experienced PhD candidate and present your own project regularly at lab meetings. See <https://bentireslab.org> for more information on the lab.

### How to apply

Please send your full application consisting of a motivation letter and CV by E-mail to: [m.bentires-alj@unibas.ch](mailto:m.bentires-alj@unibas.ch) and [ana.quirosogonzalez@unibas.ch](mailto:ana.quirosogonzalez@unibas.ch)

### References

- Correia AL, Guimaraes JC, Auf der Maur P, ..., Bentires-Alj M. (2021). Hepatic stellate cells suppress NK cell sustained breast cancer dormancy. *Nature*.
- Koren S, Reavie L, Silva J, ..., Bentires-Alj M. (2015). PIK3CAH1047R induces multipotency and multi-lineage mammary tumors. *Nature*.
- Bonapace L, Coissieux MM, Wyckoff J, ..., Bentires-Alj M. (2014). Cessation of CCL2 inhibition accelerates breast cancer metastasis by promoting angiogenesis. *Nature*.