MASTER THESIS PROJECT:

Mechanisms of Breast Cancer Resistance to Targeted Therapy

Project outline

Yearly, over two million women are diagnosed with breast cancer and over 650’000 people die from treatment-resistant metastasis. The vast majority of breast cancer patients suffer from estrogen receptor (ER) positive disease, which is characterized by the expression of the hormone receptor ER. In this project, you will work on molecular mechanisms of cell-intrinsic mechanisms of resistance to novel therapeutics against ER+ breast cancer. With a strong clinical perspective, you will investigate what drives therapy resistance in breast cancer patient samples, mouse models and cell lines.

Your profile

We offer a master›s project for one (or two) master student(s) in biology to work in our interdisciplinary team. We are looking for highly driven, curious and motivated students with good communication skills and a strong interest and background in molecular biology and oncology. A high level of knowledge in cell biology is expected. The laboratory language is English.

Our contribution

We offer you an environment where you can network, be inspired and develop your ideas. You will be able to interact and train with highly skilled experts in oncology, immunology, and cell biology and work primarily with human material and animal models. In addition, you will have the opportunity to learn to perform the following:

- Cell culture, flow cytometry, histology, microscopy.
- In vitro assays (i.e., CRISPR Cas9 KO, in vitro treatment assays in 2D and 3D cultures).
- In vivo assays (mouse models of breast cancer).
- Data analysis, data presentation during lab meetings, scientific thinking.

You will be supervised directly by an experienced PhD candidate. See https://bentireslab.org for more information on the lab.

Application

Please send your full application consisting of a motivation letter, CV and a university grade record by E-Mail to: nicolas.kramer@unibas.ch and m.bentires-alj@unibas.ch.
Starting time: Spring or fall semester 2024!

References

- Auf der Maur P, Trefny MP, Baumann Z, …, Bentires-Alj M. (2023). **N-acetylcysteine overcomes NF1 loss-driven resistance to PI3Ka inhibition in breast cancer. Cell Reports Medicine.**
- Couto JP, Vulin M, Jehanno C, …, Bentires-Alj M. (2023). **Nicotinamide N-methyltransferase sustains a core epigenetic program that promotes metastatic colonization in breast cancer. EMBO J.**
- Correia AL, Guimaraes JC, Auf der Maur P, …, Bentires-Alj M. (2021). **Hepatic stellate cells suppress NK cell sustained breast cancer dormancy. Nature.**

Prof. Mohamed Bentires-Alj, University of Basel, University Hospital Basel, Department of Biomedicine
Tumor Heterogeneity, Metastasis and Resistance (Lab 306), Hebelstrasse 20, 4031 Basel, Switzerland