



RESEARCH TOPIC MEM2
Identification of Putative Novel Targets for Triple Negative Breast Cancer

Curriculum MEM standard

Research Area

Onco

Laboratory name

Precision medicine research laboratory

Research Supervisor

Prof. Salvatore Piscuoglio salvatore.piscuoglio@hunimed.eu

Prof. Luigi Maria Terracciano luigi.terracciano@hunimed.eu

Abstract

This project aims at the identifying novel oncogenic mechanisms and therapeutic targets for Triple Negative Breast Cancer (TNBC), a subtype lacking targeted therapies due to the absence of estrogen receptor and minimal HER2 expression. It leverages cutting-edge (phospho)proteomics and single-cell sequencing to analyze TNBC tissues for aberrant signaling pathways and potential targets. A novel aspect is the development of a patient-derived organoid (PDO) co-culture system incorporating tumor epithelial cells, cancer-associated fibroblasts, and immune cells to better reflect the TNBC microenvironment. These models enables the validation of identified targets and investigation of tumor-immune dynamics. High-throughput image-based drug screening of these models with a library of compounds aims to identify effective agents against these new targets. This project promises to enhance understanding of TNBC and lead to more effective, targeted treatments, improving patient prognosis.

Main technical approaches

- Hands-on experience handling patient sample processing.
- Hands-on experience with cell culture and flow cytometry techniques is a must.
- Experience in primary cell culture and 3D cultures is highly desirable.
- Organized and detail-oriented, able to maintain accurate documentation of experiments and sample information.
- Collaborative, able to work effectively in a team.
- Ability to multi-task.
- Fluency in English (at least B2) is a must.

Scientific references

<https://www.nature.com/articles/s41571-021-00565-2>



<https://pubmed.ncbi.nlm.nih.gov/38114742/>

<https://www.nature.com/articles/s42003-022-03296-x>

Type of contract

Scholarship of € 25.000 gross per year awarded by Istituto Clinico Humanitas. This sum is subject to IRPEF income tax and exempt from social security contributions.

Borsa di studio pari a € 25.000 annui lordi erogata da Istituto Clinico Humanitas. Importo soggetto a tassazione IRPEF ed esente da contribuzione previdenziale.