CASE STUDY

Molecular mechanisms behind the intracellular functions of the TRAIL receptors in pancreatic ductal adenocarcinoma (PDAC) cell lines

Who: Doaa Tawfik MD - Experimental Cancer Research Institute Christian Albrechts University

Doaa Tawfik has a medical doctorate degree and is pursuing a PhD in natural life sciences. Doaa is interested in cancer research and studied SNPs in DNA repair genes in lung cancer patients in her MD. Her current work in the group of Prof. Anna Trauzold is dedicated to understand the interplay of TRAIL receptors in the establishment of the malignant phenotype of pancreatic ductal adenocarcinomas. TRAIL receptors are involved in crucial processes like cell death, inflammation, proliferation, invasion and metastasis.

Why 3D Biology™ Technology?

Pancreatic ductal adenocarcinoma (PDAC) is a notorious cancer known for its difficult diagnosis, resistance to treatment, and an overall bad prognosis. A deeper understanding of its development and progression is urgently needed. We identified TRAIL-receptors as possible master regulators of malignancy, regulating cell proliferation, invasion, migration, and stemness. By analyzing molecular changes at the DNA, RNA, and protein levels in parallel, we can identify the key molecular players involved in TRAIL receptor-mediated actions in PDAC. Additionally, it will aid in understanding the role of these receptors in cancer and eventually lead to the development of novel therapeutic strategies for PDAC patients.

Aim of the project:

The goal of this project is to start defining the molecular differences (on the DNA mutation level, RNA, and protein levels) between the different PDAC cell lines in an effort to understand the mechanism(s) and the possible pathways driven by the TRAIL receptors in the pathogenesis of PDAC.

Methods:

We will analyze molecular changes at the DNA, RNA, and protein levels in parallel to identify the key molecular players involved in these TRAIL receptor-mediated actions in PDAC.

nCounter® Vantage 3D™ Assay selection:

nCounter Vantage 3D DNA SNV Solid Tumor Panel + RNA:Protein Solid Tumor Assay for lysate

"Our studies will aid in understanding the role of TRAIL receptors in cancer and eventually lead to the development of novel therapeutic strategies for PDAC patients."

Doaa Tawfik, MD

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