
TECHNISCHE
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FOXO1
THE ROLE OF FOXO1 AND MICRORNA-21 IN THE ANGIOGENESIS OF DISTAL CHOLANGIOCARCINOMA AND PANCREATIC CANCER.
UKR
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Weitere Infos

Abstract

Projekttitel/ Project title:

The chorioallantoic membrane model to study the importance of FOXO1 and microRNA21 in the angiogenesis of distal cholangiocarcinoma and pancreatic cancer, and to cultivate distal cholangiocarcinoma for chemotherapeutic testing

Kurztitel/ Short title:

The role of FOXO1 and microRNA21 in the angiogenesis of dCCA and PDAC

Einleitung/ Introduction:

Although pancreatic ductal adenocarcinoma (PDAC) is one of the most widespread malignant diseases and distal cholangiocellular carcinoma (dCCA) is a rare type of cancer, they share aggressiveness, short survival time and resistance to chemotherapy. FOXO1 and microRNA-21 function respectively as tumor suppressor and oncogene in PDAC. Moreover, FOXO1 has an important role in vascular homeostasis because it is a fundamental modulator of the formation and maturation of blood vessels.

Ziel/ Aim:

The first aim of this project is to study the role of the mir-21/FOXO1 axis in angiogenesis in pancreatic ductal adenocarcinoma using the chick chorioallantois membrane (CAM) model. The second aim of this project will be to cultivate dCCA tumor tissue on the CAM for the first time and subsequently to test chemotherapeutic drugs on dCCA tissue grown on the CAM.

Methode/ Method:

To study the role of FOXO1 and microRNA-21 in angiogenesis, cell lines will be transfected and subsequently grown on the CAM, then the changes in angiogenesis will be monitored by laser speckle contrast imaging (LSCI) and the expression of angiogenic factors will be determined by western blot and quantitative PCR. In this project PDAC and dCCA cell lines as well as primary tumor tissue will be cultured on the CAM, meanwhile the morphology will be analyzed closely every day for a week and histological sections will be used to analyze possible changes in the tissue. Testing of clinical chemotherapy drugs will be performed on cell lines, primary tumor tissue and tumor spheres grown on the CAM.

Ergebnis/ Result:

As part of preliminary work, the protein expression of FOXO1 was detected using Western blotting in three pancreatic carcinoma cell lines (BXPC3, L3.6pl, MiaPaCa2). The expression of FOXO1 was significantly higher in BxPC-3 than in MiaPaCa2. Therefore, MiaPaCa2 is a good candidate for overexpression of the gene, while BxPC-3 is a good candidate for knockdown experiments. In addition, extrahepatic cholangiocellular carcinoma tissue was cultured on the CAM model for the first time and the macroscopic course was closely analyzed over a period of one week.

Projektbeteiligte/ Project participants:

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Projektpartner/ Project partners:

Simfo GmbH

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insgesamt maximal 450 Wörter/ limit of 450 words in total