

aCTM MUG CCArly 1 – a new autologous 3D cholangiocarcinoma co-culture tumor model

Cholangiocarcinoma (CCA) belongs to the group of rare cancers with an incidence of 0.3 – 6 in 100 000 people yearly. This type of cancer originates in the biliary tract. Patients are often diagnosed in advanced stages due to the lack of specific symptoms. CCA are resistant to chemo- and radiotherapy and the only curative treatment option is surgery at early stages. Therefore CCA contributes to 2% of all cancer-related deaths with a 5-year survival rate of 7 – 20%.

CCA are highly desmoplastic, often composed of a higher percentage of cancer-associated fibroblasts (CAF). These CAFs contribute to tumor progression, angiogenesis, invasion and metastasis. To this day, not many CCA in vitro models exist, taking the pivotal role of CAFs into account.

We present a new established, well-characterized CCA model – MUG CCArly 1 and its autologous immortalized CAFs. In our 3D co-culture model we demonstrate the pivotal role of CAFs in angiogenesis and compare anti-cancerous peptides in 2D- and 3D cultures. Our 3D model even presented markers, indicating an epithelial-to-mesenchymal (EMT) character.

This new 3D aCTM co-culture model can be of use for cross-talk studies and the testing of new therapy approaches in CCA research.