Mechanobiology in Epithelial 3D Tissue Constructs

ME3T

GRK 2415

LECTURES

Jochen Maurer

Molecular Gynecology, University Hospital Aachen

Cancer stem cells and vascularized organoids from TNBC patients: from basic research to clinical cancer therapy

Thursday, December 11th, 2025
at 9:00 am

Hörsaal MTI, Raum 130
Wendlingweg 2, 52074 Aachen, Germany

Host: Rudolf Leube

Contact: mailto:me3t@ukaachen.de

Mechanobiology in Epithelial 3D Tissue Constructs

ME3T LECTURES

GRK 2415

Abstract: The work of PD Dr. Maurer's laboratory is built on a platform of patient-derived cancer stem cells. The Maurer group routinely establishes cancer stem cell (CSC) lines from ovarian and breast tumors, analyzes their drug sensitivity, and develops in vitro 3D organoid models. This platform provides a powerful tool for the development and evaluation of innovative therapies.

In collaboration with industry partners, they have identified new surface markers on these cells and jointly developed a compound that inhibits CSC self-renewal. These models are now used routinely to screen small molecules, targeted antibodies, and other agents that either selectively eliminate CSCs or modulate their behavior (e.g., differentiation-based therapies).

Another core focus of PD Dr. Maurer's research is the interaction between CSCs and the tumor microenvironment, as well as the cellular plasticity in response to external cues.

The talk will introduce the fundamental concepts and then present current projects from the Maurer group on EMT and metastasis, chemoresistance, 3D models, and the tumor microenvironment.