Special Issue

Complex Approaches to Modeling the Tumor Microenvironment

Message from the Guest Editor

This invitation is asking for significant contributions to the field of organotypic model systems, with the specific goal of mimicking the complexity of cancer biopsies. While numerous model systems exist, most of these are of a highly reductionist nature and are not capable of even remotely recapitulating the heterogeneity of genuine cancer tissues. These models typically fail to represent the composition of the tumor microenvironment. This outstanding intra- and inter-tumor heterogeneity is also pivotal for responses against the resistance of tumors to therapies, including radiation, generic cytostatic and targeted anti-cancer drugs, immune checkpoint inhibitors, and CAR-T cell therapeutics. There is an unmet need for more complex, more representative, and more physiologically relevant model systems in translational and clinical cancer research, personalized medicine, and earlystage drug discovery. The focus of contributions should be on recapitulating key aspects of the heterogeneity and complexity of solid cancers, ideally in the form of reproducible in vitro model systems and robust assay formats, allowing high-content imaging and thorough biological analyses.

Guest Editor

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About the Journal

Message from the Editor-in-Chief

Functional human 3D tissue models are attractive platforms for disease studies, drug development and toxicity testing. They serve as a bridge between cell cultures, animal models and clinical trials. Such models are called organoids. Numerous scientists worldwide are currently researching the generation of new complex organoid models and improving culturing conditions to handle them in a way that is reproducible, cost-effective, and easy. Achieving this goal is still a major challenge, but the organoid field has developed rapidly in recent years, reaching a new level of complexity and playing a growing role in medical research. Organoids' goal is to create a platform to present new and exciting data covering all aspects of organoid, assembloid, embryoid, or organ-on-a-chip research.

Editor-in-Chief

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