

2021 OMF Summer Seminar: Humanized Mouse Models

TIME	TITLE	SPEAKER
1:30 pm – 1:35 pm	Welcome and Introduction	Christine Nadeau, PhD NCI

Humanized Mouse Models

TIME	TITLE	SPEAKER
1:35 pm – 1:55 pm	<i>A Completely Humanized Stroma Tumor Model for Therapeutic Development</i> PI: Ronald Buckanovich, MD, PhD Magee-Women's Research Institute & Foundation	Ronald Buckanovich, MD, PhD Magee-Women's Research Institute & Foundation
1:55 pm – 2:15 pm	<i>Development of an Autologous Humanized Model of Melanoma Exploring Human Thymic Education</i> PI: Antonio Jimeno, MD, PhD University of Colorado School of Medicine	Antonio Jimeno, MD, PhD University of Colorado School of Medicine
2:35 pm – 3:00 pm	Discussion	All attendees

The Oncology Models Forum (OMF) Summer Seminar was held on July 27th, 2021. This is the first in a series of OMF seminars designed to build and maintain the community of animal modelers and provide an opportunity for focused discussions around the variety of models within the Oncology Models Forum. "Humanized Mouse Models" was the first topic of discussion in this series with invited speakers Dr. Ronald Buckanovich of Magee Women's Research Institute and Dr. Antonio Jimeno of the University of Colorado Medical School.

[Dr. Buckanovich](#)'s talk discussed the importance of evaluating the tumor microenvironment (TME) when developing humanized mouse models. Because the human TME impacts therapy response, a mouse that more closely mimics the complexity of the tumor microenvironment will allow for more accurate testing of therapies. Using normal stem cells in mice with a humanized immune system, Dr. Buckanovich has generated a model that demonstrates near complete human stroma and can better predict responses to immune and targeted therapies.

[Dr. Jimeno](#)'s talk, "Developing an autologous humanized model of melanoma exploring human thymic education," emphasized the necessity of closely recapitulating the human immune environment in the mouse model. When transferred from a human patient to a mouse model, a tumor's response to therapy is affected by exposure to the murine immune system. Dr. Jimeno is currently developing a humanized mouse model utilizing human-derived thymic epithelial precursors to better represent the human disease. While his humanized mouse model has demonstrated early feasibility and clinical applications, he brought up current challenges, including scalability and the need to understand how closely the humanized model needs to match the patient to faithfully mimic clinical outcomes and optimize clinical trial strategies.

Both talks centered around several important criteria for humanized mouse model development and generated further discussion. Dr. Buckanovich and Dr. Jimeno noted the importance of continuing the characterization of humanized mouse models to increase their capability for drug screening and selecting better therapies for patients.

The OMF hopes to build a community of animal modelers and to foster an environment of communication to improve organization of models, including how to address issues such as model standardization, documentation, and distribution. The next seminar will be held **December 9, 2021** and will focus on models of gynecologic malignancies. **Dr. Kathleen Cho (University of Michigan), Dr. Diego Castrillon (UT Southwestern), and Dr. TC Wu (Johns Hopkins Medical Institute)** will speak.