ASHBi SEMINAR

Organoid systems to study human pregnancy

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Group Leader, Friedrich Miescher Institute for Biomedical Research (FMI)

Date Wednesday, 21January 2026

Time 16:00 – 17:00 [JST]

Venue Conference Room Onsite Only*
B1F, Faculty of Medicine Bldg. B

Register here

Abstract

The key to a successful pregnancy is the fascinating yet ill-understood dialogue between the maternal decidua (pregnant lining of the uterus) and fetal placental cells. Major pregnancy disorders are due to the abnormal development and interactions of the placenta with the decidua. However, the complexity and inaccessibility of the maternal-fetal interface during early human development pose significant challenges to studying these interactions. To address this, we have developed tissue-derived organoid culture systems of the human placenta and uterus that faithfully recapitulate their morphology, transcriptomic profiles and functional characteristics. These organoid models provide powerful tools for investigating the biology of these tissues and their dynamic interactions. In this presentation, I will discuss how we are using uterine endometrial organoids to study the menstrual cycle and placental trophoblast organoids to explore the formation of invasive trophoblast cells. Our overarching goal is to elucidate the fundamental cellular and molecular mechanisms underlying the normal menstrual cycle and the establishment of pregnancy. This knowledge will guide the development of therapeutic strategies to optimize endometrial receptivity, improve implantation success and enhance pregnancy outcomes.

Organizer : Institute for the Advanced Study of Human Biology (WPI-ASHBi), Kyoto University

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