

ASHBi SEMINAR

Synthetic Ex Utero Embryogenesis: from Naive Pluripotent Stem Cells to Embryos

Lecturer: **Jacob Hanna M.D., Ph.D.**

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Date

Thursday, 15 September 2022

Time

16:00 – 17:00 [JST]

Venue

Zoom Online Meeting*



*Register via the right QR code

Abstract

The identity of somatic and pluripotent cells can be epigenetically reprogrammed and forced to adapt a new functional cell state by different methods and distinct combinations of exogenous factors. The aspiration to utilize such ex vivo reprogrammed pluripotent and somatic cells for therapeutic purposes necessitates understanding of the mechanisms of reprogramming and elucidating the extent of equivalence of the *in vitro* derived cells to their *in vivo* counterparts. In my presentation, I will present my group's recent advances toward understanding these fundamental questions and further detail our ongoing efforts to generate developmentally unrestricted human naive pluripotent cells with embryonic and extra-embryonic developmental potential. I will conclude by highlighting new avenues for utilizing custom made electronically controlled ex utero platforms and novel optimized conditions for growing natural mammalian embryos ex utero until advanced stages, for better studying of stem cell transitions during embryogenesis and organogenesis. The latter platforms offered an exclusive technical platform to unleash the self-organizing capacity of mouse naïve PSCs to generate post-gastrulation whole synthetic embryos with both embryonic and extraembryonic compartment ex utero. Collectively, I will be highlighting prospects for new platforms for advancing human disease and developmental modelling.

Organizer : Graduate School of Medicine

Institute for the Advanced Study of Human Biology (WPI-ASHBi)

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