

Regular Wednesday IMG seminar



Dr. Nicolas Rivron

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“Modeling human early pregnancy with stem cells”

The blastocyst is the early mammalian organism before implantation in the uterus. We have promoted the self-organization of stem cells into models of mouse and human blastocysts, which we have named blastoids (Nature 2018, Nature 2021). Blastoids are morphologically and transcriptionally similar to the blastocyst and contain analogs of all three cell types that would eventually develop into the complete organism (embryonic and extraembryonic). Because blastoids are complete and model the preimplantation stage, they can be introduced into the uterus (mouse model) or combined in vitro with uterine cells (human model) to recapitulate aspects of the normally hidden implantation processes. Unlike blastocysts, blastoids come in large numbers and facilitate a more systematic modulation and analysis of development. As such, they represent both a scientific and ethical alternative to the use of embryos for research. Using this approach, we are investigating the genome evolution underlying species-specific aspects of blastocyst development and implantation, with the long-term goal of understanding the evolutionary basis of human pregnancy characteristics (50% of fertilized eggs never develop). This knowledge could help solve the global health problems of family planning, fertility decline and prenatal preventive medicine.

The seminar will be held

on Wednesday 8th January 2025 at 15:00

in the Milan Hašek Auditorium at IMG

(Institute of Molecular Genetics of the Czech Academy of Sciences, Vídeňská 1083, Prague 4)
