Opening the door to understanding infertility: Skin cells reprogrammed into a model human embryo

[Scientists have made a] significant breakthrough for the future study of early human development and infertility. To date, the only way to study these first days has been through the use of difficult to obtain, and scarce, blastocysts obtained from IVF procedures.

The [Jose] Polo Lab succeeded in generating the iBlastoids using a technique called “nuclear reprogramming” which allowed them to change the cellular identity of human skin cells that – when placed in a 3D ‘jelly’ scaffold known as an extracellular matrix – organized into blastocyst-like structures which they named iBlastoids.

Infertility and miscarriage can be caused by early-stage human embryos failing to implant or failing to progress at the time of implantation… These ‘silent’ miscarriages are likely to represent a significant proportion of the total number of miscarriages that occur and, according to Professor Polo, the generation of iBlastoids provides a model system that will enable insights into this early stage of pregnancy.

Professor Ross Coppel, the Deputy Dean Research of the Faculty of Medicine at Monash University, noted that this discovery will allow the development of improved methods for IVF, the development of protocols for gene therapy of embryos and better and more informative screening methods for new drugs.

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