ESHRE 2020 Virtual (5-8 July 2020)

Questions for the speakers

PCC02: Tomorrow's IVF laboratory

Artificial gametes: Sperm - Stefan Schlatt (Germany)

Q: What is known about the somatic cells that will support SSCs to form germ cells?

A: It is well established that reconstituted fetal gonadal cells build gonadal structures which support the maturation of germ cells to sperm and eggs in mice. In our studies we re-construct seminiferous cord-like structures from enriched preparations of Sertoli and peritubular cells from immature rat and mature human testes. Content of germ cells is reduced by hypotonic shock. The spontaneous occurrence of cords supports germ cell differentiation. Presence of germ cells, on the other hand, stimulates and intensifies cord formation. It therefore seems to be an interplay between somatic cell types and germ cells. Among the somatic cells Sertoli and peritubular cells appear crucial. Other cells may also play a role.

Q: What about the residual epigenetic memory of the somatic cells from which they are derived?

A: The reconstruction of cords seems to be a recapitulation of testis organogenesis. It is interesting but completely unknown if any of the somatic cells undergo epigenetic changes during testis formation.

Q: How long do you think it will be until we can make sperm from iPS cells?

A: The strategy is already working in mice. It is difficult to predict if this will also be working in primates. In any case caution should be in place to use such ex vivo generated germ cells. Epigenetic mechanisms and rigidity of germline selection may be disturbed. Such studies need to be performed prior to a clinical application.