



Interaction of the Embryo with the Oviduct

William Shu-Biu Yeung, Jia-Sen Xu, Kai-Fai Lee, Yin-Lau Lee

Department of Obstetrics and Gynaecology, Hong Kong Jockey Club Clinical Research Centre,
The University of Hong Kong, Queen Mary Hospital

Oviduct is usually regarded to play a passive role in reproduction serving as conduit for the transport of the gamete for fertilization and the transport of preimplantation embryo towards the uterus for implantation. Available evidences suggest that the oviduct has a more active role in reproduction. Oviduct has been shown to maintain the viability of sperm and to modulate sperm function for optimal fertilization. It also enhances the development of preimplantation embryo by modifying the microenvironment for embryonic development and by producing various embryotrophic factors. In this presentation, our data on the paracrine embryotrophic activity of the oviduct will be discussed.

We have developed a human oviductal cell/mouse embryo coculture model to study the paracrine interaction between the oviduct and the preimplantation embryo. Our data show that human oviductal cells promote preimplantation development, reduce apoptosis, and affect gene expression of the treated mouse embryos. We have isolated 3 embryotrophic fractions from the conditional medium after human oviductal cell culture. These fractions have different temporal biological activity on the development of embryos. One of them has been identified to be complement C3 derivative. The identities of the other two embryotrophic factors are being investigated.

Our data also suggest that the preimplantation embryo affects the gene expression of oviduct. Some of these affected oviductal genes contain signal peptides and are possibly secretory in nature. Experiments are being conducted to determine whether their gene products would influence preimplantation embryo development.

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