Editorial
Volume 7:1, 2022

Journal of
Molecular Histology and Medical Physiology

Open Access

Evidence that Oviduct Secretions are produced during a Physiology and Endocrinology Symposium

Jill Wooff*

Electron Microscopy Resource Center, The Rockefeller University, USA

Editorial

The oviduct of mammals has long been recognised as a vital organ for successful reproduction. Animal models from bovine, ovine, porcine, and equine oviducts have shown to be superior for studying gamete physiology, fertilisation, and early embryonic development. Surgical manipulation of the reproductive tract, estrous cycle manipulation, gamete cryopreservation, and AI, as well as in vitro fertilisation and embryo development, are all possible in livestock species. Although most cattle reproductive technology was created to enhance production animal agriculture, these approaches are a gold mine of information for researchers trying to figure out how the oviduct affects gamete activity. The protein, lipid, carbohydrate, enzyme, and electrolyte compositions of oviduct secretions obtained from in vitro tissue cultures or indwelling oviduct catheters have been used for analyses to define the secretions' protein, lipid, carbohydrate, enzyme, and electrolyte compositions during the estrous cycle or in response to hormone treatment.

In vitro experiments have also been used to assess ovarian secretions' ability to bind to sperm and influence sperm survival, motility, sperm capacitation, the acrosome reaction, sperm-egg binding, and egg penetration, as well as subsequent embryonic development. There is compelling evidence that the composition of secretions changes during the estrous cycle and that the composition of secretions alters depending on whether they come from the ampullary or isthmic areas of the oviduct. These changes in composition are functionally significant and are linked to sperm responses. Evidence suggests that oviduct-specific glycoproteins, glycosaminoglycans, carbohydrates, norepinephrine, catecholamines, heat-shock protein, and osteopontin are oviductal milieu components that can influence sperm activity. Future study on the oviduct in livestock will most likely establish the role of oviduct secretions in regulating sperm activity, as well as how these changes affect fertilisation and embryo development. The oviduct is a dynamic organ that helps gametes operate, fertilise, and create embryos.

The composition of the oviduct milieu, as well as functions related with stage of the reproductive cycle or oviduct area, have been defined using oviduct secretions retrieved by tissue culture or cannulation procedures. A number of oviduct proteins have been shown to interact with gametes and embryos. The goal of ongoing research is to identify oviduct proteins and determine their function. Purified from the oviduct, oviduct-specific glycoproteins (OSG) have been shown in vitro to improve sperm capacitation, sperm-ovum binding, ovum penetration, and embryo development. Another oviduct secretion, osteopontin, has also been demonstrated to promote fertilisation and embryo growth. The image that emerges is that various components of the oviduct milieu have overlapping activities, resulting in a failsafe system that ensures fertility in vivo without relying on a single component [1-5].

References

1. Saint-Dizier, Marie, Jennifer Schoen, Shuai Chen, and Charles Banliat, et al. "Composing the early embryonic microenvironment: physiology and regulation of oviductal secretions." *International journal of molecular sciences* 21 (2019): 223.
2. Banliat, Charles, Daniel Tomas, Ana-Paula Teixeira-Gomes, and Svetlana Uzbekova, et al. "Stage-dependent changes in oviductal phospholipid profiles throughout the estrous cycle in cattle." *Theriogenology* 135 (2019): 65-72.
3. Georgiou, A. Stephen, Ambrosius PL Snijders, Edita Sostaric, and Reza Aflatoonian, et al. "Modulation of the oviductal environment by gametes." *Journal of proteome research* 6 (2007): 4656-4666.
4. Yu, Hans, Lena Hackenbroch, Florian RL Meyer, and Judith Reiser, et al. "Identification of rabbit oviductal fluid proteins involved in pre-fertilization processes by quantitative proteomics." *Proteomics* 19 (2019): 1800319.
5. Almiñana, Carmen, Emilie Corbin, Guillaume Tsikis, and Agostinho S. Alcântara-Neto, et al. "Oviduct extracellular vesicles protein content and their role during oviduct–embryo cross-talk." *Reproduction* 154 (2017): 253-268.

How to cite this article: Jill Wooff. "Evidence that Oviduct Secretions are produced during a Physiology and Endocrinology Symposium." *J Mol Hist Med Phys*. 7 (2022): 29.

***Address for Correspondence:** Jill Wooff, Electron Microscopy Resource Center, The Rockefeller University, USA, E-mail: Jwooff@rofr.edu*

Received: 04 January, 2022, Manuscript No. jmhmp-22-54012; **Editor assigned:** 05 January, 2022, PreQC No. P-54012; **Reviewed:** 10 January, 2022, QC No. Q-54012; **Revised:** 15 January, 2022, Manuscript No. R-54012; **Published:** 21 January, 2022, DOI: 10.37421/mhmp.2022.7.29