## Extracellular vesicles-the potential for translational research in reproductive sciences

**Shlomit Kenigsberg**
Juno Fertility, Canada

Discarded biological materials retrieved during IVF procedures are a precious source of information about tissues and organs of the reproductive system. These materials include serum, blood, follicular fluid, granulosa and cumulus cells, discarded embryos, embryo culture media, seminal fluid, sperm and testicular tissues. However, in a busy IVF laboratory, the collection and the processing of these samples for research purposes is challenging and requires not only skilled scientists and clinical coordinator, but also the engagement of the clinic staff-the embryologists, nurses, receptionist and physicians. Extracellular vesicles (EVs), mainly micro-vesicles and exosomes are released by cells and tissues and were found in everybody fluid tested so far including the above sources. These EVs contain proteins, DNA, and subsets of mRNA, miRNAs and other non-coding RNAs derived from the parental cells. Due to selective cargo-loading into the EVs, these 'bullets of information' are potential biomarkers and can also be used for therapeutic purposes. In the present talk, the author will discuss the current finding from EVs studies in reproductive-related fluids, as well as the collection, process, analysis, and storage of ART-related samples in her laboratory. At the end of this presentation, participants will be able to understand the basic structure and function of EVs (exosomes), discuss methods to collect and isolate exosomes and apply these methods to their research and current findings from EV's studies in reproduction.

### Speaker Biography

Shlomit Kenigsberg is an Independent Scientific Advisor. Her recent position is the Director of Scientific Affair in a leading Canadian company for Life-Sciences products, and a Senior Research Associate at Create Fertility Centre from Toronto Canada. She obtained her PhD studying DNA-methylation in the human malaria causing agent, *Plasmodium falciparum*, graduating in 2001, together with an MBA degree. Her first position was as a Product Manager for QIAGEN, an international BioTech company. She then accepted a Post-doctoral fellowship with the Department of Human Genetics at Ben-Gurion University, where she studied differential gene expression in polycystic ovarian syndrome (PCOS) using microarray technologies. This unique experience led her to join Create Fertility Centre in 2006 as a Senior Research Associate to establish a new reproductive biology research laboratory and basic research program. Her recent projects focused on isolation and characterization of exosomes from various body fluids and conditioned media in the IVF lab. The project included downstream applications such as small RNA qPCRs arrays, NGS technologies, bioinformatics analysis, and proteomics. Although her specialty is in Ovarian Biology, she was also involved in mesenchymal-stem cells (MSCs) and andrology related research projects.

**e:** skenigsberg66@outlook.com

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