

## 9<sup>th</sup> Yazd International Congress and Student Award on Reproductive Medicine with 4<sup>th</sup> Congress of Reproductive Genetics

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### Key Lectures

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#### K-24

#### The language of life

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Language is a means of communication between individuals. Languages can have different forms. The majority of languages are spoken with words but other forms of language using signs and chemical codes as means of communication do exist too. These means of communication may vary between individuals of different species and even of the same species. One can even extend the concept of language and communication, to cells signalling each other and communicating between each other. Extracellular

Vesicles (EVs) are nanoparticles that vary in size from around 50 nanometer (nm) to 1000 nm. These vesicles are found in all biofluids such as blood, saliva and semen. EVs are made of bio-membranes and carry a cargo consisting of mRNAs, microRNA, long non-coding RNAs, proteins and even DNA. Based on their size and route of their biogenesis, EVs are regarded as exosomes, microvesicles and apoptotic bodies. EVs are exceedingly regarded as a universal means of communication between different cells and cell types within one or between different species. In recent years, scientific literature has pointed to the role that EVs play in communication between the embryo and the maternal tract. This communication prepares the mother for the process of implantation and may have important implications for the success of the implantation process. Due to this capacity, EVs provide an excellent opportunity for biomarker discovery and understanding the events involved during the implantation process. During my presentation, I will discuss the recent research conducted in my laboratory to establish sensitivity and specificity of EV's as biomarkers for predicting the success of the implantation process in IVF clinics.