

Animal models for the study of EVs in reproduction

Luciana Dini - *Sapienza University of Rome*

Although mainly studied in mammals, extracellular vesicles, which facilitate intercellular communication between cells, are ubiquitous not only in all cell types of mammalian organisms, but also in metazoans. In fact, recent advances show that extracellular vesicles mediate diverse physiological processes in non-mammalian vertebrates, including fish, amphibians and reptiles. For example, extracellular vesicles in turtles have recently been reported to coordinate reproductive functions. Invertebrates also possess extracellular vesicles involved in immunity, reproduction, development and pathogenesis, such as molluscs, arthropods, including *Drosophila*, and nematodes. Interestingly, ancient metazoan lineages also use extracellular vesicles, with cnidarian extracellular vesicles regulating immunity and regeneration.

As research in non-mammalian models is critical to fully elucidate extracellular vesicle biology, here we discuss extracellular vesicle research beyond typical biomedical models to encompass phylogenetic diversity, which provides a unique perspective on the conserved versus specialised aspects of metazoan extracellular vesicle roles.