

Abstract:

Many diverse chemoattractants play a part in sperm guidance towards the oocyte without any difference whether organisms with external or internal fertilization. Upon release, spermatozoa are exposed to various cues providing essential information about their surrounding environment. These molecules are structurally very distinct and they induce via specific receptors, expressed over the sperm cell surface, different signalling pathways influencing the sperm motility and regulating the correct sperm function. The overall understanding of these mechanisms brings interesting and often unexpected points of view on evolutionary relationships between invertebrate and vertebrate species. Some principles believed to be shown exclusively only by mammals are nowadays revealed also by marine invertebrates and vice versa. The current knowledge of human gametes interactions is used in fields of medicine that are connected to the reproduction. Thus, with a help of current knowledge, researches aim to shed more light into causes of infertility, as well as to develop novel contraceptives or enhance the rate of successful in vitro fertilizations.