

Cumulus cells release extracellular vesicles containing microRNAs: their potential contribution in the acquisition of mouse oocytes developmental competence

Maurizio ZUCCOTTI, *University of Pavia*

We recently demonstrated that feeder layers of cumulus cells (CCs) were capable or incapable to support the oocyte developmental competence, depending on whether they were prepared from CCs isolated from developmentally competent (FL-SN-CCs) or incompetent (FL-NSN-CCs) oocytes. In the study presented here, we investigated the CC factors that contributed to acquisition of the oocyte developmental competence during the GV-to-MII transition. We found that both FL-SN-CCs and FL-NSN-CCs release EVs into the culture medium. NGS showed that these EVs contain 74 differentially expressed miRNAs and in silico functional analysis showed that seven of them regulate 71 target genes with specific roles in meiosis resumption, follicle growth, fertilization, and the acquisition of oocyte developmental competence. As a whole, these results highlight CC EVs as emerging candidates of the CC-to-oocyte communication axis and disclose a group of miRNAs as potential regulatory factors.