Genes involved in the echinoderm block to polyspermy are synthesized primarily in the oocyte. Their expression begins early in oogenesis and continues until germinal vesicle breakdown, when the transcript is rapidly turned over, leaving only traces of the active transcript. These oocyte-specific genes encode proteins in the egg extracellular matrix and the cortical granules, secretory vesicles whose contents intermingle with the extracellular matrix upon fertilization, giving rise to the fertilization envelope. This in situ RNA hybridization of an ovary from the sea urchin Strongylocentrotus purpuratus profiles the dynamic transcript accumulation of one oocyte-specific gene, rendezvin.

As oogenesis progresses, the oocyte enlarges and accumulates more rdz transcripts (purple). Upon maturation, the egg is completely devoid of transcripts (arrowhead). The products of this gene provide a scaffold for self-assembly of the sea urchin physical block to polyspermy.