Institute of Experimental Morphology, Pathology and Anthropology with Museum
Bulgarian Anatomical Society

Acta morphologica et anthropologica, 23
Sofia ● 2016

Rearrangements of Oocyte Cytoskeleton during Mammalian Oogenesis: Review

M. Markova, V. Hadzhinesheva, R. Zhivkova, V. Nikolova, I. Chakarova, S. Delimitreva

Department of Biology, Medical Faculty, Medical University of Sofia, Bulgaria

Primary oocytes lose their centrosomes at pachytene stage. Chromosome movements during oocyte meiotic maturation are mediated by a barrel-shaped acentrosomal spindle, a unique situation for animal cells. Spindle poles are assembled from numerous small microtubule organizing centers. Microfilaments initially accumulate in the subplasmalemmal and perinuclear regions, then surround the spindle and form an actin cap. They mediate spindle migration and anchoring to the cell cortex, spindle rotation and the highly asymmetric cytokinesis. Cytokeratins and vimentin have also been shown to be present in mammalian oocytes and to undergo redistribution during oogenesis, though their precise functions are still to be clarified.

Key words: meiosis, oocyte maturation, microtubules, microfilaments, intermediate filaments.