

## *In vitro* Maturing Mouse Oocytes Treated by Okadaic Acid – Effect on Cytoskeletal Structures and the Chromosome Spread

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

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

Okadaic acid (OA) was applied in different concentrations for 1 or 2 hours on *in vitro* maturing and ovulated mouse oocytes. Actin, tubulin and chromatin were fluorescently stained and chromatin condensation, chromosome spreading, presence and morphology of meiotic spindle and actin cap were analyzed. One hour OA treatment of *in vitro* maturing oocytes produced slender spindles and was not enough for chromosome condensation. *In vitro* maturing oocytes treated for 2 h had abnormal or destroyed spindles and often condensed chromatin. When chromosomes were well spread, actin cap was lacking and actin was distributed uniformly in cortical cytoplasm. These changes preceded changes in meiotic spindle and chromatin. Chromatin condensation was higher for *in vivo* ovulated oocytes and good quality chromosome plates were obtained from them. In conclusion, OA treatment of oocytes affects the actin cap first, causes spindle abnormalities depending on meiotic maturation stage and provides good chromosome spreading and condensation.

*Key words:* oocyte, actin, tubulin, metaphase plate, okadaic acid.