

Level: master				
Course title: BIOLOGY OF STEM CELLS				
Status: elective				
ECTS: 3				
Requirements: -				
Learning objectives Introduction to mechanisms of early division of embryo under <i>in vitro</i> and <i>in vivo</i> conditions, embryonic development, first signs and roles of differentiation as well as possibilities of using pluripotent cells.				
Learning outcomes A student will understand the factor roles that impact optimum early division of cells in impregnated egg cell –zygote and embryo. Understanding factors that impact and improve suboptimum conditions for embryo preservation <i>in vitro</i> , quality improvement and embryo vitality. Understanding divisions and retardation of embryo division rate, up to the blastocyst stage. Understanding the first signals of differentiation as well as use of isolated pluripotent cells.				
Syllabus <i>Theoretical instruction</i> Historical review of embryo preservation under laboratory conditions. Growth factors, division stages. Early markers of vital cells/blastomere. Differentiation. Early markers of pluripotent cells. Differentiation factors. Improvement of laboratory conditions. <i>Practical instruction</i> Impregnation of egg cells and monitoring of early embryo division under various conditions. Staining different stages of embryo, morphological classification of embryonic stages and embryonic quality. Staining different cells in the blastocyst stage.				
Weekly teaching load				Other:-
Lectures: 2	Exercises: -	Other forms of teaching: 1	Student research:-	