Course code	**BUM106**		
Course title	**CELL THERAPY**		
General information			
Study programme	Graduate study „ Biotechnology in medicine“	Academic year	
Status	**Required**	Elective	
ECTS system			**5**

Course objectives

Cell therapy describes the proccess of using the cells in order to heal damage tissues or treat malignant diseases.

Goals of the course are to:

- Define cells which can potentially be used in cell therapy
- Describe new trends in stem cell research
- Describe different potential implementation of cell therapy
- Describe the usage of cell therapy in clinical practice
- Analyze the problems and risks in cell therapy treatment
- Describe techniques of isolation, characterization and cultivation of cells for the purpose of cell therapy
- Describe potential application of stem cells in drug design and development

Course description

- Forms of stem cells (embryonicstem cells (EMS), germinative stem cells (GMS), adulte stem cells (AMS))
- Contemporary trends in stem cell reaserch, potentialy siutible for cell therapy
- Various forms of cell treatment:

- Autologous and allogenic transplantation of stem cells
- Transplantation of mature cells
- Usage of modificated human cells for production of certain biological supstances
- Xenotransplantation of the cells

- Diseases than can currently be treated with substitutive cell therapy
- Techniques of isolation, processing and diferentiation of stem cells and other cell subpopulations
- Usage of stem cells in development and testing new drugs
- Ethical and other problematics in cell therapy

Learning outcomes

After taking the course Cell therapy students will be able to:

- distinguish different forms of stem cells and their potential usage in cell therapy
- chose and practice methods of isolation and cultivation of embryionic and hematopoietic stem cells (partially independent, partially under the teacher control)
- plan experiments with stem cells and other cells, analyze and interpret results
- evaluate ethical and social-culture behalves and sequences of cell therapy