AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Signaling and Signaling Pathways of Stem Cell						
Course Code	KHÜ523		Couse Level	Second Cycle (Master's Degree)			
ECTS Credit	8	Workload	196 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	To teach the concepts related to signal transduction and mechanism in stem cell biology and to explain their reflection potential to the clinic.						
Course Content	Understanding of signal transduction, ligands, receptors and concepts in stem cell molecular biology. Stem cell division and signaling changes in life, stem cell-related signaling pathways and the role of transcriptional regulators are the understanding of stem cell markers.						
Work Placement	N/A						
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Demonstration, Discussion, Individual Study						
Name of Lecturer(s)							

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	20
Final Examination	1	60
Assignment	1	20

Recommended or Required Reading

1	Molecular Biology in Cancer Medicine. Razelle Kurzrock, Moshe Talpaz, Martin Dunitz 1995.
2	The Biology of Cancer. Robert A. Weinberg, Gariand Science 2007

Week	Weekly Detailed Course Contents	
1	Theoretical	Stem cell signaling overview
2	Theoretical	Ligands and receptors in stem cell signal transduction
3	Theoretical	Stem cell division and symmetry
4	Theoretical	Transmission of the signal to the stem cell (kinases, phosphatases, phospholipases, nucleotide cyclases)
5	Theoretical	Stem cell and transcription factors
6	Theoretical	Surface membrane communication and polarity in stem cells
7	Theoretical	Markers of germ layers in stem cells
8	Intermediate Exam	Mid-term exam
9	Theoretical	Stem cell and Wnt pathway
10	Theoretical	Stem cell and Notch pathway
11	Theoretical	Stem cell and YAP / TAZ pathway
12	Theoretical	Stem cell and Hedgehog pathway
13	Theoretical	Stem cell and TGF-beta pathway
14	Theoretical	Stem cell and BMP pathway
15	Final Exam	Final exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	13	1	3	52
Assignment	4	15	2	68
Midterm Examination	1	24	2	26
Final Examination	1	48	2	50
			Total Workload (Hours)	196
			[Total Workload (Hours) / 25*] = **ECTS**	8

25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	Gains in-depth knowledge about signal transduction in stem cells.
2	Discusses stem cell-specific signaling pathways and transcription factors.
3	Knows how to transmit signal to stem cells
4	Have knowledge about surface membrane communication and polarity in stem cells
5	Know the markers of germ layers in stem cells

Programme Outcomes *(Stem Cell and Regenerative Medicine Interdisciplinary Master)*

1	To have comprehensive and in-depth knowledge of Stem Cell and Regenerative Medicine
2	To have information about stem cell production and characterization
3	To learn stem cell sources, stem cell types and their differences
4	To understand the molecular and genetic structure of stem cells
5	To be able to learn and make stem cell culture methods
6	To be able to adapt the knowledge in the field of stem cells to research in line with current developments
7	To be able to use molecular laboratory methods used in stem cell research
8	Learning in vitro disease models and in vivo experiments related to stem cells
9	To have knowledge about stem cell therapies and clinical use
10	Conduct independent research in accordance with the principles of research and publication ethics

Contribution of Learning Outcomes to Programme Outcomes *1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High*

	L1	L2	L3	L4	L5
P1	3	4	4	4	4
P2	2	2	2	2	2
P4	3	3	3	3	3
P6	3	4	4	4	4
P8	1	2	2	2	2
P9	2	2	2	2	2