Univerza v Mariboru
University of Maribor

Medicinska fakulteta
Faculty of Medicine

OPIS PREDMETA / SUBJECT SPECIFICATION	
Predmet:	MOLEKULARNA IN CELIČNA ENDOKRINOLOGIJA
Subject Title:	Molecular and cellular endocrinology

Študijski program Study programme	Študijska smer Study field	Letnik Year	Semester Semester
Biomedicinska tehnologija Biomedical technology		2	**3 ali 4**

Univerzitetna koda predmeta / University subject code:

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Lab. work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
15	20		10		105	**5**

Nosilec predmeta / Lecturer: Prof. dr. Marjan S. Rupnik

Jeziki / Languages:
Predavanja / Lecture: Angleško/English
Vaje / Tutorial: Angleško/English

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Kandidat mora doseči 300 ECTS na predhodnem študiju.

Prerequisites:

Graduate degree 300 ECTS.

Vsebina:

1. Uvod v molekularno in celično endokrinologijo
2. Endokrine celice v trebušni slinavki
3. Vzdražnost in izločanje insulina in glukagona
4. Homeostaza citosolnega kalcija
5. Medcelični stiki in sinhronizacija izločanja hormonov
6. Živčna modulacija endokrinega izločanja v trebušni slinavki
7. Okvare molekularnih in celičnih mehanizmov pri sladkorni bolezni
8. Okvare molekularnih in celičnih mehanizmov pri debelosti
9. Celične in tkivne kulture v endokrinologiji
10. Molekularni mehanizmi uravnavanja vezikularnega transporta snovi
11. Celični tipi v hipofizi
12. Razvojni aspekti molekularne in celične endokrinologije

Contents (Syllabus outline):

1. Introduction to molecular and cellular endocrinology
2. Endocrine cells in pancreas
3. Excitability and insulin and glucago release
4. Homeostasis in cytosolic calcium
5. Gap junctions and synchronization of hormone release
6. Neural modulation of endocrine release in pancreas
7. Molecular and cellular defects in diabetes
8. Molecular and cellular defects in obesity
9. Cell and tissue cultures in endocrinology
10. Molekular mechanisms of the vesicular transport
11. Molecular and cellular physiology of pituitary
12. Developmental aspects of molecular and cellular endocrinology

Temeljni študijski viri / Textbooks:

1. Bolander FF Jr. (2004). Molecular endocrinology, 3rd ed. Academic Press
2. Conn PM in Freeman ME. (2000) Neuroendocrinology in physiology and medicine. Humana press.
3. Tekoča periodika in zlasti pregledni članki s področij: molecular endocrinology, cellular endocrinology, endocrine pancreas, insulin release, diabetes mellitus, hormone release, signaling pathways, calcium homeostasis

Cilji:	**Objectives:**
Poglavitni cilj predmeta je predstavitev modernih eksperimentalnih pristopov v molekularni in celični endokrinologiji. Žarišče zanimanja so molekularni in celični procesi, ki sodelujejo pri endokrini funkciji in disfunkciji. Prvi, večji del predmeta je namenjen molekularnim in celičnim procesom v endokrinem delu trebušne slinavke in okvaram teh procesov pri sladkorni bolezni in debelosti. V drugem delu je poudarek na mehanizmih izločanja hormonov iz hipofize in drugih žlez.	The major aim of the course is to present the state of the art experimental approaches in molecular and cellular endocrinology. In the focus are the molecular and celullar processes in endocrine function and disfunction. First, major part of the course is dedicated to molecular and cellular processes in endocrine pancreas and the defects related to diabetes and obesity. Second part deals with mechanisms of endocrine release from pituitary and other glands.
Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: Poglobljeno znanje o fiziologiji in patofiziologiji trebušne slinavke. Razumevanje modernih eksperimentalnih pristopov v molekularni in celični endokrinologiji. Prenesljive/ključne spretnosti in drugi atributi: Študent pridobi ustrezno znanje molekularne in celične endokrinologije.	Knowledge and Understanding: In-depth knowledge about physiology and pathophysiology of endocrine pancreas. Understanding the state of the art experimental approaches in molecular and cellular endocrinology. Transferable/Key Skills and other attributes: Students gets suitable knowledge of molecular and cellular endocrinology.
Metode poučevanja in učenja:	**Learning and teaching methods:**
predavanja in seminarji	lectures and seminars

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
Način (pisni izpit, ustno izpraševanje, naloge, projekt) projekt in ustno izpraševanje		Type (examination, oral, coursework, project): project and oral

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Materialni pogoji za izvedbo predmeta :	***Material conditions for subject realization***
Internet in primarni viri	*Internet, primary sources*
Obveznosti študentov:	***Students' commitments:***
(pisni, ustni izpit, naloge, projekti)	*(written, oral examination, coursework, projects):*
Projekt in ustni izpit	Project and oral examination