Univerza v Mariboru

MEDICINSKA FAKULTETA UM
FACULTY OF MEDICINE

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	MOLEKULARNA ALERGOLOGIJA
Course title:	MOLECULAR ALLERGOLOGY

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
BIOMEDICINSKA TEHNOLOGIJA BIOMEDICAL TECHNOLOGY -		2	3 ali 4

Vrsta predmeta / Course type izbirni

Univerzitetna koda predmeta / University course code:

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

Nosilec predmeta / Lecturer: Doc. dr. Peter KOROŠEC

Jeziki / Languages:	**Predavanja / Lectures:**	slovenski/angleški; Slovene / English
	Vaje / Tutorial:	slovenski/angleški; Slovene / English

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisits:**
Kandidat mora imeti pred vpisom ustrezno znanje iz naravoslovnih ved z ustreznega področja (biologija, kemija, fizika in matematika) na nivoju univerzitetnega študija.	Prior to entering, the candidate for postgraduate program must have an appropriate knowledge and understanding of bioscience (biology, chemistry, physics, mathematics) on the graduated university level.

Vsebina:	**Content (Syllabus outline):**
Predavanje in seminarji: Tipi preobčutljivosti s poudarkom na tipu I in IV Molekularna osnova alergijskega odgovora - alergeni (struktura, skupine, epitopi, navzkrižnost, CCD) - IgE protitelesa - efektorske celice (bazofilci, mastociti, eozinofilci) - mediatorji - T limfocit (Th2, Treg, alergen spec. T celice) In vitro testiranje - IgE reaktivnost (FEIA, ECLIA, imunski odtis, ELISA) - celični testi (BAT, LAT) - mikromreže Rekombinantni alergeni - neglikozilirani iz prokariontskih sistemov - glikozilirani z bakulovirusom okuženih celičnih linij insektov z ali brez N-glikozirajočega vezavnega mesta	Lectures and seminars: Hypersensitivity reactions (Type I and IV) Molecular basis of the allergic response - allergens (structure, groups, epitops, cross-reactivity, CCDs) - IgE antibodies - effector cells (basophils, mast cells, eosinophils) - mediators - T Ly (Th2, Treg, allergen spec. T cells) Allergy in vitro tests - IgE reactivity (FEIA, ECLIA, immunoblots, ELISA) - cellular test (BAT, LAT) - microarrays Recombinant allergens - non-glycosylated from bacterial expression systems - glycosylated from baculovirus-infected insect cells with or whitout N-linked glycosylation sites

- uporaba v diagnostiki - modifikacije za uporabo v terapiji -zniževanje IgE in višanje IgG aktivnosti	- diagnostic use - modification for immunotherapy – recombinant hypoallergenic derivatives
Laboratorijske vaje: Praktična uporaba rekombinatnih alergenov, ugotavljanje IgE reaktivnosti in alergogenosti, imunski odtis, mikromreže in pretočna citometrije (BAT in LAT). Postavitev individualnega projekta iz tega področja.	Laboratory work Practical work concerning recombinant allergens, IgE reactivity, allergenic activity, immunoblots, microarrays and flow cytometry (BAT in LAT). Setting up an individual project in this particular field.

Temeljni literatura in viri / Readings:

Allergy and Allergic Diseases, 2 Volume Set, 2nd Edition
A. Barry Kay (Editor), Allen P. Kaplan (Editor), Jean Bousquet (Editor), Patrick G. Holt (Editor)
ISBN: 978-1-4051-5720-9 Hardcover 2184 pages July 2008, Wiley-Blackwell
Znanstvena periodika / Scientific periodicals (J Allergy Clin Immunol, Allergy, Clin Exp Allergy, Int Arch Allergy Immunol, J Immunol, Curr Opin Allergy Clin Immunol, Curr Top Microbiol Immunol)

Cilji in kompetence:	**Objectives and competences:**
Poglobljeno znanje in razumevanje molekularne osnova alergijskega odgovora s posebnim poudarkom na pomenu in uporabnosti rekombinantnih alergenov v diagnostiki in terapiji. Kompetence: Uporaba teoretičnega in praktičnega znanja pri znanstveno-raziskovalnem in terciarnem laboratorijskem delu na področju imunologije in alergologije.	To provide a deep understanding of the molecular basis of the allergic response with special emphasis on the recombinant allergens and their use in diagnostic procedures and treatment. Competences: Significant ability of a student to be involved in development, research and high skill laboratory work in the field of immunology and allergology.
Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: - strukture alergenov, vzroka za navzkrižnost, vloga CCD - razlike med IgE senzibilizacijo, alergogeno aktivnostjo - pomen odgovora efektorskih celic in T celične regulacije - in vitro testov - pridobivanje, terciarna struktura in modifikacije rekombinantnih alergenov - modeli uporabe rekombinantnih alergenov (diagnostika in terapija)	Knowledge and understanding: - allergen structer, cross-reactivty, CCDs - difference between IgE sensitization and allergenic activity - the role of effector cell response and T cell regulation - production, folding and modification of recombinant allergens - use of recombinant allergens (diagnosis and therapy)
Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja in seminarji Laboratorijske vaje in praktično delo – izvedba samostojnega projekta Predavanja in seminarji bodo potekala v prostorih Medicinske fakultete Univerze v Mariboru. Laboratorijske vaje in praktično delo pa v Laboratoriju za klinično imunologijo in molekularno genetiko Bolnišnice Golnik – KOPA.	Lectures and seminars Laboratory and practical work – individual project Lectures and seminars will be held in Medical Faculty, University of Maribor. Laboratory and practical work will be done in Laboratory for Clinical Immunology & Molecular Genetics of University Clinic of Respiratory and Allergic Diseases, Golnik, Slovenia.

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
Način (pisni izpit, ustno izpraševanje, naloge, projekt)		Type (examination, oral, coursework, project):
Ustni izpit /	50%	Oral examination /
Individualni laboratorijsko projekt	50%	Individual laboratory project