



Univerza v Mariboru

Medicinska fakulteta

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Ime predmeta:	Molekularna alergologija							
Course title:	Molecular Allergology							
Študijski program in stopnja Study programme and cycle	Študijska smer Study option			Letnik Year of study	Semester Semester			
Biomedicinska tehnologija/3. stopnja				2	3 ali 4			
Biomedical Technology/3rd Degree								
Vrsta predmeta (obvezni ali izbirni) / Course type (compulsory or elective)				Izbirni Elective				
Univerzitetna koda predmeta / University course code:								
Predavanja Lectures	Seminar Seminar	Vaje Tutorial			Klinične vaje Clinical training	Druge oblike študija Other forms of study	Samost. delo Individual work	ECTS
15	20	10					135	6
		AV	LV	RV				
Nosilec predmeta / Course coordinator:				izr. prof. dr. Peter KOROŠEC				
Jeziki /Languages:		Predavanja / Lectures:		slovenski/Slovene				
		Vaje / Tutorial:		slovenski/Slovene				
Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:				Prerequisites for enrolling in the course or for performing study obligations:				
Vsebina (kratek pregled učnega načrta):				Content (syllabus outline):				
Predavanja in seminarji: Tipi preobčutljivosti s poudarkom na tipu I in IV Molekularna osnova alergijskega odgovora <ul style="list-style-type: none">- 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 <ul style="list-style-type: none">- IgE reaktivnost (FEIA, ECLIA, imunski odtis, ELISA)- celični testi (BAT, LAT)- mikromreže Rekombinantni alergeni <ul style="list-style-type: none">- neglikozilirani iz prokariontskih sistemov				Lectures and seminars: Hypersensitivity reactions (Type I and IV) Molecular basis of the allergic response <ul style="list-style-type: none">- 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 <ul style="list-style-type: none">- IgE reactivity (FEIA, ECLIA, immunoblots, ELISA)- cellular test (BAT, LAT)- microarrays Recombinant allergens <ul style="list-style-type: none">- non-glycosylated from bacterial expression systems				

<ul style="list-style-type: none"> - glikozilirani z bakulovirusom okuženih celičnih linij insektov z ali brez N-glikozirajočega vezavnega mesta - uporaba v diagnostiki <p>modifikacije za uporabo v terapiji -zniževanje IgE in višanje IgG aktivnosti</p> <p>Laboratorijske vaje:</p> <p>Praktična uporaba rekombinantnih alergenov, ugotavljanje IgE reaktivnosti in alergogenosti, imunski odtis, mikromreže in pretočna citometrije (BAT in LAT).</p> <p>Postavitev individualnega projekta iz tega področja.</p>	<ul style="list-style-type: none"> - glycosylated from baculovirus-infected insect cells with or without N-linked glycosylation sites - diagnostic use <p>modification for immunotherapy – recombinant hypoallergenic derivatives</p> <p>Laboratory work</p> <p>Practical work concerning recombinant allergens, IgE reactivity, allergenic activity, immunoblots, microarrays and flow cytometry (BAT in LAT).</p> <p>Setting up an individual project in this particular field.</p>
<p>Temeljni literatura in viri / Reading materials:</p>	
<ul style="list-style-type: none"> – Allergy and Allergic Diseases, 2 Volume Set, 2nd Edition – 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 – MATRICARDI, P. M., KLEINE-TEBB, J., HOFFMANN, H. J., VALENTA, Rudolf, HILGER, C., HOFMAJER, S., AALBERSE, R. C., AGACHE, I., ASERO, R., KOROŠEC, Peter, et al. EAACI molecular allergology user's guide. Pediatric allergy and immunology, Supplement., ISSN 1600-5562, May 2016, vol. 27, suppl. S23, str. 1-250. – 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) 	
<p>Cilji in kompetence:</p>	<p>Objectives and competences:</p>
<p>Poglobljeno znanje in razumevanje molekularne osnova alergijskega odgovora s posebnim poudarkom na pomenu in uporabnosti rekombinantnih alergenov v diagnostiki in terapiji.</p> <p>Kompetence:</p> <p>Uporaba teoretičnega in praktičnega znanja pri znanstveno-raziskovalnem in terciarnem laboratorijskem delu na področju imunologije in alergologije.</p>	<p>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.</p> <p>Competences:</p> <p>Significant ability of a student to be involved in development, research and high skill laboratory work in the field of immunology and allergology.</p>
<p>Predvideni študijski rezultati:</p>	<p>Intended learning outcomes:</p>
<p>Znanje in razumevanje:</p> <p>strukture alergenov, vzroka za navzkrižnost, vloga CCD</p> <p>razlike med IgE senzibilizacijo, alergogeno aktivnostjo</p> <p>pomen odgovora efektorskih celic in T celične regulacije</p> <p>in vitro testov</p> <p>pridobivanje, terciarna struktura in modifikacije rekombinantnih alergenov</p> <p>modeli uporabe rekombinantnih alergenov (diagnostika in terapija)</p>	<p>Knowledge and understanding:</p> <p>allergen structure, cross-reactivity, CCDs</p> <p>difference between IgE sensitization and allergenic activity</p> <p>the role of effector cell response and T cell regulation</p> <p>production, folding and modification of recombinant allergens</p> <p>use of recombinant allergens (diagnosis and therapy)</p>
<p>Prenosljive/ključne spretnosti in drugi atributi:</p> <p>Razumevanje mehanizmov navzkrižne alergije, rekombinantne senzibilizacija povezane s težjimi anfilaktičnimi reakcijami (predvsem za hrano),</p>	<p>Transferable/key competences and other abilities:</p> <p>Understanding of mechanisms of cross-reactive allergy, understanding of sensitization recombinant profiles related to severe anaphylaxis (especially to</p>

neučinkovitosti imunoterapije pri določenih bolnikih, visok nivo asimptomatske senzibilizacije v splošni populaciji.		food), immunotherapy failure, high level of asymptomatic sensitization in general population.
Metode poučevanja in učenja:		Learning and teaching methods:
<p>Predavanja Seminarji Vaje (laboratorijske vaje in praktično delo – izvedba samostojnega projekta) Samostojno delo</p> <p>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.</p>		<p>Lectures Seminars Tutorial (laboratory and practical work – individual project) Individual work</p> <p>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.</p>
Načini ocenjevanja:	Delež (v %) / Share (in %)	Assessment methods:
Način (pisni izpit, ustno izpraševanje, naloge, projekt)		Method (written or oral exam, coursework, project):
Ustni izpit / Individualni laboratorijsko projekt	50 % 50 %	Oral examination / Individual laboratory project
Reference nosilca / Course coordinator's references:		
<p>KOREN, Ana, ŠILAR, Mira, RUPNIK, Helena, ZIDARN, Mihaela, KOROŠEC, Peter. Quantitative, absolute count-based T cell analysis of CD69 upregulation as a new methodology for in vitro diagnosis of delayed-type nickel hypersensitivity. Journal of investigational allergology & clinical immunology, ISSN 1698-0808. [Online ed.], 2019, vol. 29, iss. 4, str. 1-23, ilustr. http://www.jiaci.org/ahead-of-print/quantitative--absolute-count-based-t-cell-analysis-of-cd69-upregulation-as-a-new-methodology-for-in-vitro-diagnosis-of-delayed-type-nickel-hypersensitivity, doi: 10.18176/jiaci.0331. [COBISS.SI-ID 2048400753], [JCR, SNIP, WoS do 20. 9. 2019: št. citatov (TC): 0, čistih citatov (CI): 0, čistih citatov na avtorja (CIAu): 0, Scopus do 17. 9. 2019: št. citatov (TC): 0, čistih citatov (CI): 0, čistih citatov na avtorja (CIAu): 0] kategorija: 1A2 (Z, A1/2); uvrstitev: SCI, Scopus, MBP; tip dela je verificiral OSICM točke: 17.62, št. avtorjev: 5</p> <p>RIJAVEC, Matija, ŽAVBI, Mateja, LOPERT, Anton, FLEŽAR, Matjaž, KOROŠEC, Peter. GLCCI1 polymorphism rs37973 and asthma treatment response to inhaled corticosteroids. Journal of investigational allergology & clinical immunology, ISSN 1698-0808. [Online ed.], 2018, vol. 28, iss. 3, str. 165-171, ilustr. http://www.jiaci.org/revistas/vol28issue3_3.pdf, doi: 10.18176/jiaci.0229. [COBISS.SI-ID 2048262769], [JCR, SNIP, WoS do 13. 10. 2019: št. citatov (TC): 5, čistih citatov (CI): 5, čistih citatov na avtorja (CIAu): 1.00, Scopus do 29. 8. 2019: št. citatov (TC): 4, čistih citatov (CI): 4, čistih citatov na avtorja (CIAu): 0.80] kategorija: 1A2 (Z, A1/2); uvrstitev: SCI, Scopus, MBP; tip dela je verificiral OSICM točke: 17.62, št. avtorjev: 5</p> <p>SOKLIČ, Tanja, ŠILAR, Mira, RIJAVEC, Matija, KOREN, Ana, KERN, Izidor, HOČEVAR-BOLTEŽAR, Irena, KOROŠEC, Peter. CD3+CD4-CD8- mucosal T cells are associated with uncontrolled chronic rhinosinusitis with nasal polyps. The journal of allergy and clinical immunology, ISSN 1097-6825. [Online ed.], Mar. 2019, vol. 143, iss. 3, str. 1235-1237.e5, graf. prikazi, tabele. https://www.jacionline.org/article/S0091-6749(18)31589-6/pdf, doi: 10.1016/j.jaci.2018.10.045. [COBISS.SI-ID 2048419441], [JCR, SNIP, WoS do 22. 3. 2019: št. citatov (TC): 0, čistih citatov (CI): 0, čistih citatov na avtorja (CIAu): 0, Scopus do 22. 12. 2018: št. citatov (TC): 0, čistih citatov (CI): 0, čistih citatov na avtorja (CIAu): 0] kategorija: 1A1 (Z, A", A', A1/2); uvrstitev: SCI, Scopus, MBP; tip dela je verificiral OSICM točke: 26.71, št. avtorjev: 7</p>		