DESCRIPTION OF COURSE UNIT FOR DOCTORAL STUDIES AT VILNIUS UNIVERSITY

Scientific Area/eas, Field/ds of Science	Medical and Health Sciences (M 000): Medicine (M 001) Natural sciences (N 000): Biology (N 010); Biochemistry (N 004)			
Faculty, Institute, Department/Clinic	Faculty of Medicine Institute of Clinical Medicine Clinic of Chest Diseases, Immunology, and Allergology			
Course unit title (ECTS credits, hours)	**Molecular Allergology** 5 credits (135 hours)			
Study method	**Lectures**	**Seminars**	**Consultations**	**Self-study**
Number of ECTS credits	-	-	1	4
Method of the assessment (in 10 point system)	Reporting: presentation. The report is presented on a specific topic after discussion with the consulting lecturer (the doctoral student must analyse, review and present the latest scientific publications related to the selected topic). Evaluation criteria (minimal credible score – 5 points): 1. Content of the presentation (8 points): - compliance with the general technical guidelines for reporting (1 point); - clarity of the message (1 point); - completeness of the topic analysis, logic of the topic delivery, integrity and ethical presentation (2 points); - applied scientific aspect (theoretical substantiation, scientific analysis, ability to single out and present essential subjects) (2 points); - originality (independence, input from the speaker) (2 points). 2. For message presentation and visualization (2 points): - language style, pace, clarity, persuasiveness; use of visual material; ability to answer questions clearly; clear presentation of ideas; quality of argumentation; time management (or delivery time is used properly).			

PURPOSE OF THE COURSE UNIT

The aim of the course is to acquaint with the latest technologies in diagnosing allergic diseases, their applicability in everyday practice, their significance in predicting the development of allergic diseases and the severity of the symptoms.

THE MAIN TOPICS OF COURSE UNIT

Definition of allergen. Diagnostic methods for allergic diseases. Sources of allergens and their composition. Methods for the detection of IgE antibodies specific for allergens. Allergen families. Molecular and immunological studies of pollen (tree, bell grass, weed) allergens. Molecular and immunological studies of house dust mite allergens. Molecular and immunological studies of epidermal allergens. Molecular and immunological studies of food allergens. Molecular and immunological studies of microscopic fungi. Molecular studies of stinging venom of stinging insects. Cross-reactive allergens and their clinical significance. Use of recombinant allergens for the diagnosis of allergic diseases. Recombinant allergen production technologies. Application of molecular allergy diagnostics in practice. Importance of molecular allergy diagnostics for allergen-specific immunotherapy. Biotechnologies in the diagnosis and treatment of allergic diseases: future perspectives (review of the work of world and Lithuanian scientists).

RECOMMENDED LITERATURE SOURCES

1. Matricardi PM et al. (Editors). Molecular Allergology User's Guide. 2016. Zurich: European Academy of Allergy and Clinical Immunology.
2. Wangorsch A, Scheurer S, Blanca M, Blanca-Lopez N, Somoza ML, Martín-Pedraza L. Allergenic Properties and Molecular Characteristics of PR-1 Proteins. Front Allergy. 2022 Feb 8; 3:824717. doi: 10.3389/falgy.2022.824717. PMID: 35386656; PMCID: PMC8974740.
3. Tuppo L, Giangrieco I, Tamburrini M, Alessandri C, Mari A, Ciardiello MA. Detection of Allergenic Proteins in Foodstuffs: Advantages of the Innovative Multiplex Allergen Microarray-Based Immunoassay Compared to Conventional Methods. Foods. 2022 Mar 19;11(6):878. doi: 10.3390/foods11060878. PMID: 35327300; PMCID: PMC8949930.
4. Anagnostou A. Optimizing Patient Care in Egg Allergy Diagnosis and Treatment. J Asthma Allergy. 2021 Jun 8; 14:621-628. doi: 10.2147/JAA.S283307. PMID: 34135601; PMCID: PMC8197590.
5. Barber D, Diaz-Perales A, Escribese MM, Kleine-Tebbe J, Matricardi PM, Ollert M, Santos AF, Sastre J. Molecular allergology and its impact in specific allergy diagnosis and therapy. Allergy. 2021 Dec;76(12):3642-3658. doi: 10.1111/all.14969. Epub 2021 Jun 22. PMID: 34057744.
6. Popescu FD, Ganea CS, Panaitescu C, Vieru M. Molecular diagnosis in cat allergy. World J Methodol. 2021 May 20;11(3):46-60. doi: 10.5662/wjm. v11.i3.46. PMID: 34026578; PMCID: PMC8127422.
7. Maesa JM, Dobrzynska A, Baños-Álvarez E, Isabel-Gómez R, Blasco-Amaro JA. ImmunoCAP ISAC in food allergy diagnosis: a systematic review of diagnostic test accuracy. Clin Exp Allergy. 2021 Jun;51(6):778-789. doi: 10.1111/cea.13871. Epub 2021 Apr 12. PMID: 33847011.
8. Konradsen JR, Borres MP, Nilsson C. Unusual and Unexpected Allergic Reactions Can Be Unraveled by Molecular Allergy Diagnostics. Int Arch Allergy Immunol. 2021;182(10):904-916. doi: 10.1159/000515708. Epub 2021 May 5. PMID: 33951642; PMCID: PMC8619793.
9. Schoos AM, Nwaru BI, Borres MP. Component-resolved diagnostics in pet allergy: Current perspectives and future directions. J Allergy Clin Immunol. 2021 Apr;147(4):1164-1173. doi: 10.1016/j.jaci.2020.12.640. Epub 2021 Jan 11. PMID: 33444632.
10. Brettig T, Dang T, McWilliam V, Peters RL, Koplin JJ, Perrett KP. The Accuracy of Diagnostic Testing in Determining Tree Nut Allergy: A Systematic Review. J Allergy Clin Immunol Pract. 2021 May;9(5):2028-2049.e2. doi: 10.1016/j.jaip.2020.12.048. Epub 2021 Jan 9. PMID: 33429030.

CONSULTING LECTURERS

1. Coordinating lecturer: Laura Malinauskienė (Prof. Dr.).
2. Kotryna Linauskienė (Assist. Prof. Dr.).

APPROVED:

By Council of Doctoral School of Medicine and Health Sciences at Vilnius University: 29th of September 2022

Chairperson of the Board: Prof. Janina Tutkuvienė