Description of the study programme Immunology in the third level in full-time form of study in Slovak language

The name of the university:
University of Veterinary Medicine and Pharmacy in Košice
The seat of the college:
Komenského 73, 041 81 Košice
College identification number:
00397474

The college's authority to approve of the study programme:
Accreditation Committee of UVMP in Košice

Date of approval or modification of the study programme:
28. 7. 2022
Date of the last change to the study programme description:
15. 7. 2022

Decision No. 2019/11076:17-A1110 of 15 May, Reaccreditation grants the right without time limitation, regulations after 1 November 2019

ID of the proceeding: 16727
The name of the university: University of Veterinary Medicine in Košice
The name of the study programme: Immunology
The level of the study: Level 3
Code of the study programme: 12244

1. Basic data about the study programme

a) The name of the study programme and the number according to the register of study programmes:
Immunology *code* 12244, *Decision number* 2019/11076:17-A1110

b) Level of higher education and ISCED-F code of the level of education:
Level 3/864

c) Venue of study programme:
The University of Veterinary Medicine in Košice, Komenského 73, 041 81 Košice

d) The field of study in which a higher education is obtained by completing the study programme, or a combination of two study fields in which a higher education is obtained by completing the study programme, ISCED-F code of the field:
Biology/0511

e) Type of study programme:
Academically oriented

f) Academic title awarded.
Philosophiae doctor (abbreviated PhD.)

g) Form of study:
Full-time

h) The language in which the study programme is conducted:
Slovak language

i) Standard length of study expressed in academic years:
4 academic years

j) Capacity of the study programme: planned number of students - according to the topics of dissertations, actual number of applicants in the last 6 years (from the academic year 2016/2017 to the academic year 2021/2022): 9 topics; number of applicants enrolled: 9; number of applicants admitted: 9; number of applicants enrolled and admitted: 9; number of PhD studies graduates in the last 6 years: 6

k) Information about the study programme:
https://qa.uvlf.sk/sprg_info/?sprg_id=24&ar=20222023

2. Graduate profile and learning objectives

a) The learning objectives achieved in the Immunology study programme are methodologically based on the European Qualifications Framework for Lifelong Learning (EQF). This defines the requirements for learning outcomes for knowledge, skills, responsibility and autonomy.
For level 8, the required learning outcomes include *highly specialised knowledge, some of which is at the forefront of the field of work or study*.
The graduate has extensive knowledge in several areas of the study programme or field, which he/she uses as a basis for conducting research in immunology. The graduate aims at acquiring the latest theoretical knowledge based on the current state of scientific knowledge in particular areas of immunology.
The core knowledge is provided on core courses, in particular in the field of general immunology, clinical immunology, molecular biology, cytochemical and immunochemical methods and the mucosal immune system, which are described in the syllabi as learning outcomes. Additional knowledge is achieved by completing compulsory optional courses in the study programme in the fields of special microbiology, infectious animal diseases, pathological physiology, statistical evaluation of biological experiments and pathological reactions of the immune system.
The study builds on the knowledge acquired through second-level higher education at veterinary and medical faculties (universities), pharmaceutical faculties, natural sciences faculties or other faculties of medicine and natural sciences. Education in level 3 of higher education focuses on theoretical, applied and clinical immunology. Special attention is paid to the study of the immune response at the molecular level in *in vitro* (cell cultures) and *in vivo* conditions (animal models) with a focus on gene expression (qRT-PCR, RNA-seq), as well as the detection of molecules - CD markers, antibodies, cytokines (by flow cytometry, immunoenzymatic or immunofluorescence methods) involved in the generation and regulation of the immune response. The studies also focus on the acquisition of the latest theoretical and practical knowledge. The results of creative experimental work contribute not only to the development of the field itself, but also to the development of scientific knowledge in general.
For level 8, "*most advanced and specialised skills and techniques, including the ability to synthesise and evaluate, are required to solve fundamental problems in research, are also needed in innovation and to extend and redefine existing knowledge on the subject*".

A graduate of the Immunology study programme is qualified to work as an expert in the field of immunology. He/she is proficient in scientific research methods in the field of experimental and clinical immunology, which he/she creatively implements on various model objects (cell cultures and laboratory animals). The graduate is able to use statistical and bioinformatic methods as well as other knowledge from related disciplines.
In their work, the graduate is able to examine the individual components of the immune system in terms of morphology and functionality, as well as at different levels of their interactions with pathogens (bacteria, viruses or parasites), using progressive methodological approaches in order to gain new, previously unpublished knowledge. The graduate is technically proficient not only in routine laboratory procedures but also in working with the software-intensive instrumentation of the immunology laboratory. He/she can formulate scientific problems, conduct creative and independent research and independently present the results of his/her work in internationally accepted journals or present them at scientific events. The results of creative experimental work not only contribute to the development of science and scientific knowledge, but these can also be used in human and veterinary medicine and pharmacology.
Responsibility and autonomy defined for Level 8 is *"the ability to demonstrate considerable authority, innovation, independence, scholarly and professional integrity, and a sustained commitment to developing new ideas or practices that are at the forefront of a given work or learning environment, including research."*
The graduate is characterized by independent, critical and analytical thinking. He/she takes into account social, scientific and ethical aspects when formulating research intentions and interpreting research results. The results of his/her own creative work contribute to the development of science, scientific knowledge and the usage of acquired knowledge in practice. He/she presents the results of research and development independently to the professional community and is able to determine the focus of research and coordinate a team in the relevant study programme. The graduate is able to independently design, validate and implement new research and working practices based on their outputs and findings.

b) Graduates of the Immunology study programme can work as immunologist - experts in basic and applied research specializing in immunology at the health, agriculture and environment departments.

c) Relevant external interested parties who have provided a statement or a favourable opinion on the compliance of the acquired qualification with the sector-specific requirements of the profession: Institute of Neuroimmunology of the Slovak Academy of Sciences - https://qa.uvlf.sk/vsk/docs/vzs_imuno_niu.pdf

3. Job prospects

a) On the basis of previous experience with graduates of the Immunology study programme, it can be stated that graduates find employment at all universities where immunology is taught as a biological discipline, as well as at research institutes, where theoretical and practical aspects of immunological processes are being addressed (genetic predispositions, various genetic manifestations, impact on the organism, influences of infectious diseases, as well as hypersensitive and autoimmune diseases). Graduates can also work in laboratories (dealing with the analysis of physiological as well as pathological immune responses).

b) Examples of successful graduates of the immunology study programme are: MVDr. Marián Maďar, PhD., MVDr. Lucia Vargová Kiššová, PhD., MVDr. Lucia Pulzová, PhD., RNDr. Petra Schusterová, PhD., MVDr. Ivana Cingeľová Maruščáková, PhD. ši PharmDr. Dominika Faixová, PhD.

c) Evaluation of the quality of the study programme by employers (feedback): the UVMP has prepared questionnaires on graduates for employers.

4. Structure and content of the study programme

a) The rules for the formation of study plans in the study programme Immunology are based on the general provisions contained in Article 8 of the internal regulationStudy Guidelines of the UVMP, Part B.

b) The recommended framework study plan for full-time:
https://qa.uvlf.sk/ais/sp/?ar=2022-2023&sprg_id=24

The dissertation examination may be taken by a student who has achieved 50 credits for five CSs and at least 10 credits for two selected OCSs during the study period, no later than 24 months from the start of the PhD studies. A minimum of 240 credits is required for graduation.

c) The study plan includes:
- listed individual parts of the study programme (compulsory courses and compulsory optional courses),
- profile subjects are marked in bold and with an asterisk in the study plan,
- for each educational part (course), the learning outcomes and the related criteria and rules for their assessment are defined in the information sheet of course so that all the educational objectives of the study programme are met,
- for each educational part of the study plan (course), the course information sheet sets out the learning activities used that are suitable for achieving the learning outcomes,
- the course information sheet lists the methods by which the learning activity is carried out,
- the course information sheet lists the course syllabus,
- the course information sheet lists the student's workload,
- the credits allocated to each section based on the learning outcomes achieved and the associated workload,
- the course guarantor is identified and the course information sheets, if applicable, also identify other persons providing the courses,
- the place of providing of the course (if the programme of study is delivered at more than one site).

The course information sheets for the Immunology are available via links directly in the study plan:
https://qa.uvlf.sk/ais/sp/?ar=2022-2023&sprg_id=24

d) The number of credits which must be earned to complete the study and other conditions that the student must fulfill to graduate, including the conditions of state exams, rules for retaking courses and rules for extension, interruption of studies:
The condition for the proper completion of studies is obtaining 240 credits, which include credits for passing the dissertation examination and defending the dissertation. Other conditions that the student must fulfill to complete the studies, including the conditions of

state exams, rules for retaking courses and rules for extension, interruption of studies are listed in Articles 2, 15, 18, 19 and 29 of the Study Guidelines of the UVMP, Part B.

e) Conditions for passing individual parts of the study programme and the student's progress in the study programme :
   - number of credits per core courses required for proper completion of the studies/completion of part of the study : 50
   - number of credits for compulsory courses required for proper completion of the studies/completion of part of the study : 10,
   - number of credits for the dissertation examination: 20
   - number of credits for the defence of the dissertation thesis required for proper completion of studies: 30

f) Rules regarding student evaluation and the possibility of repeating exams:
UVMP in Košice has described the rules regarding student evaluation and the possibility of repeating exams in Articles 17, 18 and 25 of theStudy Guidelines of the UVMP, Part B.

g) Conditions for the recognition of studies or part of studies:
UVMP in Košice addresses the conditions for recognition of studies or parts of studies in Articles 19, 38 and 42 of the Study Guidelines of the UVMP, Part B.

h) Topics of the PhD theses of the study programme:
UVMP in Košice annually publishes a list of thesis topics for the Immunology study programme on the UVMP in Košice website.
Since the academic year 2005/2006 UVMP has announced the following PhD study specialization:

PhD study specializations in the full-time form in slovak language	***AY***	***Topics***
The neurobehavioural, biochemical and histopathological features of the transgenic rats expressing three repeat form of Alzheimer,s tau	2005/2006	+
Role of genetic backgroun in the neurodegeneration of Alzheimer,s type	2005/2006	+
Analýza degenerácie neurónov centrálneho nervového systému v experimentálnom modeli ľudských tauopatií	2005/2006	+
Vzájomná interakcia povrchových proteínov borélií s komplementovým faktorom H a ich prežívanie v hostiteľovi	2005/2006	+
Monoclonal antibodies as a tool for structural and functional analysis of tau protein in Alzheimer's disease	2006/2007	+
Vnútrobunková degradácia patologickej formy proteínu tau	2008/2009	+
Proteomika tau proteínu v neurofibrilárnej degenerácii: Interakcie normálneho a Alzheimerovho tau	2008/2009	+
Stress as a modulator of the tau-driven neurodegenerative cascade	2008/2009	+
Interactions between *Borrelia durgdorferi sensu lato* and bloo-brain bariier	2008/2009	+
Modulácia imunitnej odpovede prasiat pomocou probiotických laktobacilov a naturálnych látok	2009/2010	+
Cytokíny a imunokompetentné bunky po aplikácii probiotík u kurčiat infikovaných *Salmonella enteritidis*	2009/2010	-
Complementary structural investigation of intrinsically disordered protein tau, involved in neurodegenerative diseases	2009/2010	+
Evaluation of stem cells therapeutic efficiacy in Alzheimer disease	2009/2010	+
Misfolded tau as an driving force in the synaptic damage in human tauopathies	2010/2011	+
Immunoproteomic aspects of selected tick-borne diseases	2011/2012	+
Selekcia probiotických baktérií a expresia cytokínov pri salmonelovej infekcii u kurčiat.	2011/2012	+

Vzťah produkcie IgA k expresii mucínového génu v čreve kurčiat po bakteriálnej infekcii	2012/2013	+
In vitro štúdium antioxidačnej a imunomodulačnej aktivity látok prírodného pôvodu	2012/2013	+
Vplyv probiotík na zmeny imunitnej odpovede u kurčiat infikovaných bakteriálnymi patogénmi	2013/2014	+
Štúdium vplyvu probiotických laktobacilov a látok naturálneho pôvodu na imunitný systém	2014/2015	+
Neuroimunology of Alzheimer,s disease , could dendritic cells change progression of the disease?	2014/2015	+
Imunomodulátory naturálneho pôvodu v chovoch rýb a včiel	2016/2017	+
Štúdium účinku látok naturálneho pôvodu s imunomodulačným účinkom na modelový organizmus	2016/2017	+
Štúdium interakcií medzi neurónmi a gliovými bunkami v Alzheimerovej chorobe	2017/2018	+
Development of a bioinformatics platform for analysing big data from Omics analyses – Omnalysis	2018/2019	+
Štúdium interakcií medzi neurónmi a gliovými bunkami v Alzheimerovej chorobe	2018/2019	+
Establishing in-vitro intestinal epithelial cell models in translational animal nutrition	2019/2020	+
Protein synthesis rates, effect of diet, health and innate immune responses in chicken	2019/2020	+
In vitro štúdium imunomodulačného účinku exopolysacharidov Lactobacillus reuteri	2019/2020	+
Imunomodulátory na báze probiotických baktérií a ich vplyv na imunitnú odpoveď lososovitých rýb	2019/2020	+
Vývoj probiotického prípravku na báze autochtónnych baktérií mliečneho kvasenia pre lososovité ryby	2020/2021	+
The interconnection of senescence and alpha-synuclein related pathologies in neurodegeneration	2021/2022	+
Mitochondrial transplantation as a new therapeutic strategy for treament of human neurodegenerative diseases	2021/2022	+
Štúdium vplyvu zápalového prostredia na regeneračný potenciál kmeňových buniek a ich metabolitov	2021/2022	+
Produkcia monodoménových protilátok (nanoprotilátok) proti neuroinvazívnym patogénom a ich konjugácia s nosičmi na uľahčenie prechodu cez hematoencefalickú bariéru	2021/2022	+

i) UVMP in Košice has laid down:
- the rules for assigning, processing, opposing, defending and evaluating dissertation theses in Articles 1, 8, 9, 10, 25, 26, 27 and 28 of the Study Guidelines of the UVMP, Part B,
- possibilities and procedures for participation in student mobility in Article 42 of the internal regulation Study Guidelines of the UVMP, Part B,
- Code of Academic Ethics in the internal regulation Disciplinary_Procedure_for_Students, in the internal regulation UVMP Employee Code of ethics for employees of the UVMP and in the internal regulation Student code of ethics at the UVMP,
- procedures applicable to students with special needs in Part II, Article 2, point 7; Article 3, point 12 of the Study Guidelines of the UVMP, Part B,
- the procedures for filing complaints and appeals by the student are specified, in addition to the Study Regulations of UVMP in Košice, in particular in the internal regulation Directive on the handling of complaints at the UVMP.

5. Information sheets of study programme courses

The information sheets of individual courses of the study programme have the structure established by the Decree of the Ministry of Education of the Slovak Republic No. 614/2002 Coll., as amended.

6. Current academic year schedule and current timetable

The current schedule of the academic year and the current class schedule are listed in the bulletin "Information about studying at UVMP in Košice" for the given academic year and are also available on the UVMP's website: Study Guide Book at the UVMP for academic year 2022/2023. PhD students study according to an individual study plan drawn up by the supervisor and the PhD student and approved by the person with the main responsibility for the implementation, development and quality assurance of the study programme.

7. Staff

a) The person responsible for the implementation, development and quality of the study programme is Prof. Ľudmila Tkáčiková, DVM PhD., who holds the position of a professor; she works at the Department of Microbiology and Immunology of UVMP in Košice; e-mail ludmila.tkacikova@uvlf.sk; mobile +421915984603.

b) List of persons teaching core courses of the study programme:
Assoc. Prof. Dagmar Mudroňová, DVM PhD.; Department of Microbiology and Immunology
Assoc. Prof. Mangesh Bhide, MVSc. PhD.; Laboratory of Biomedical Microbiology and Immunology
Assoc. Prof. Viera Revajová, DVM PhD.; Department of Morphological Disciplines
Assoc. Prof. Martin Levkut, DVM PhD.; Department of Morphology

c) Scientific/artistic/pedagogical characteristics of persons providing profile subjects of the study programme are available on the quality portal of UVMP in Košice and direct links are given in Annex 1 of the internal evaluation report.

d) List of teachers of the study programme with assignment to the course and link to the central register of university staff, with contact details:

Teacher	***Course)***	***e-mail***	***mobile***	***CRZ***
Profile courses				
Prof. Ľudmila Tkáčiková, DVM PhD.	General immunology	ludmila.tkacikova@uvlf.sk	+421915984603	https://www.portalvs.sk/regzam/detail/5991
Assoc. Prof. Dagmar Mudroňová, DVM PhD.		dagmar.mudronova@uvlf.sk	+421915986954	https://www.portalvs.sk/regzam/detail/6094
Assoc. Prof. Dagmar Mudroňová, DVM PhD.	Clinical immunology	dagmar.mudronova@uvlf.sk	+421915986954	https://www.portalvs.sk/regzam/detail/6094
Prof. Ľudmila Tkáčiková, DVM PhD.		ludmila.tkacikova@uvlf.sk	+421915984603	https://www.portalvs.sk/regzam/detail/5991
Assoc. Prof. Mangesh Bhide, MVSc. PhD.	Molecular biology	bhidemangesh@gmail.com	+421915984604	https://www.portalvs.sk/regzam/detail/6102

Assoc. Prof. Viera Revajová, DVM PhD.	Cytochemical and immunochemical methods	viera.revajova@uvlf.sk	+421915984708	https://www.portalvs.sk/regzam/detail/6011
Assoc. Prof. Martin Levkut, DVM PhD.	Mucosal immune system	martin.levkut@uvlf.sk	+421905472877	https://www.portalvs.sk/regzam/detail/17786
Compulsory optional courses				
Assoc. Prof. Dagmar Mudroňová, DVM PhD.	Statistical evaluation of a biological experiment	dagmar.mudronova@uvlf.sk	+421915986954	https://www.portalvs.sk/regzam/detail/6094
Prof. Emil Pilipčinec, DVM PhD.	Special microbiology	emil.pilipcinec@uvlf.sk	+421905899434	https://www.portalvs.sk/regzam/detail/5988
Assoc. Prof. Jana Koščová, DVM PhD.		jana.koscova@uvlf.sk	+421915984587	https://www.portalvs.sk/regzam/detail/6093
Assoc. Prof. Tomáš Csank, DVM PhD.		tomas.csank@uvlf.sk	+421905480897	https://www.portalvs.sk/regzam/detail/6133
Prof. Anna Ondrejková, DVM PhD.	Infectious diseases of animals	anna.ondrejkova@uvlf.sk	+421915984647	https://www.portalvs.sk/regzam/detail/2007
Assoc. Prof. Ľuboš Korytár, DVM PhD.		lubos.korytar@uvlf.sk	+421907816472	https://www.portalvs.sk/regzam/detail/20446
Assoc. Prof. Marián Prokeš, DVM PhD.		marian.prokes@uvlf.sk	+421905568677	https://www.portalvs.sk/regzam/detail/6118
Prof. Zita Faixová, DVM PhD.	Pathological physiology	zita.faixova@uvlf.sk	+421915984704	https://www.portalvs.sk/regzam/detail/6015
Assoc. Prof. Mária Fialkovičová, DVM PhD.	Pathological reactions of the immune system	maria.fialkovicova@uvlf.sk	+421915986681	https://www.portalvs.sk/regzam/detail/6018

e) List of thesis supervisors with assignment to topics (with contact details):

Dissertation topic	***Supervisor***	***Contact***
Monoclonal antibodies as a tool for structural and functional analysis of tau protein in Alzheimer's disease Štúdium interakcií medzi neurónmi a gliovými bunkami v Alzheimerovej chorobe Štúdium interakcií medzi neurónmi a gliovými bunkami v Alzheimerovej chorobe	prof. RNDr. Eva Kontseková, DrSc.	eva.kontsekova@savba.sk
Cytokíny a imunokompetentné bunky po aplikácii probiotík u kurčiat infikovaných *Salmonella enteritidis* Selekcia probiotických baktérií a expresia cytokínov pri salmonelovej infekcii u kurčiat. Vzťah produkcie IgA k expresii mucínového génu v čreve kurčiat po bakteriálnej infekcii Vplyv probiotík na zmeny imunitnej odpovede u kurčiat infikovaných bakteriálnymi patogénmi	prof. MVDr. Mikuláš Levkut, DrSc.	
Modulácia imunitnej odpovede prasiat pomocou probiotických laktobacilov a naturálnych látok Štúdium vplyvu probiotických laktobacilov a látok naturálneho pôvodu na imunitný systém In vitro štúdium imunomodulačného účinku exopolysacharidov Lactobacillus reuteri In vitro štúdium antioxidačnej a imunomodulačnej aktivity látok prírodného pôvodu	prof. MVDr. Ľudmila Tkáčiková, PhD.	ludmila.tkacikova@uvlf.sk
Establishing in-vitro intestinal epithelial cell models in translational animal nutrition	prof. MVDr. Juraj Pistl, PhD.	juraj.pistl@uvlf.sk

Vzájomná interakcia povrchových proteínov borélií s komplementovým faktorom H a ich prežívanie v hostiteľovi	prof. MVDr. Ivan Mikula, DrSc.	
Štúdium vplyvu zápalového prostredia na regeneračný potenciál kmeňových buniek a ich metabolitov.	prof. MVDr. Daša Čížková, DrSc.	dasa.cizkova@uvlf.sk
Analýza degenerácie neurónov centrálneho nervového systému v experimentálnom modeli ľudských tauopatií Vnútrobunková degradácia patologickej formy proteínu tau	doc. RNDr. Peter Filipčík, CSc.	peter.filipcik@savba.sk
Misfolded tau as an driving force in the synaptic damage in human tauopathies The neurobehavioural, biochemical and histopathological features of the transgenic rats expressing three repeat form of Alzheimer,s tau Role of genetic backgroun in the neurodegeneration of Alzheimer,s type Stress as a modulator of the tau-driven neurodegenerative cascade Evaluation of stem cells therapeutic efficiacy in Alzheimer disease	doc. MVDr. Norbert Žilka, PhD.	norbert.zilka@savba.sk
Protein synthesis rates, effect of diet, health and innate immune responses in chicken Development of a bioinformatics platform for analysing big data from Omics analyses – Omnalysis Interactions between *Borrelia durgdorferi sensu lato* and bloo-brain bariier Immunoproteomic aspects of selected tick-borne diseases Produkcia monodoménových protilátok (nanoprotilátok) proti neuroinvazívnym patogénom a ich konjugácia s nosičmi na uľahčenie prechodu cez hematoencefalickú bariéru.	doc. MVSc. Mangesh Ramesh Bhide, PhD.	mangesh.bhide@uvlf.sk
Imunomodulátory naturálneho pôvodu v chovoch rýb a včiel Štúdium účinku látok naturálneho pôvodu s imunomodulačným účinkom na modelový organizmus Imunomodulátory na báze probiotických baktérií a ich vplyv na imunitnú odpoveď lososovitých rýb Vývoj probiotického prípravku na báze autochtónnych baktérií mliečneho kvasenia pre lososovité ryby	doc. MVDr. Dagmar Mudroňová, PhD.	dagmar.mudronova@uvlf.sk
Complementary structural investigation of intrinsically disordered protein tau, involved in neurodegenerative diseases	RNDr. Rostislav Škrabana, PhD.	rostislav.skrabana@savba.sk
The interconnection of senescence and alpha-synuclein related pathologies in neurodegeneration	MUDr. RNDr. Dominika Fričová, PhD.	dominika.fricova@savba.sk
Mitochondrial transplantation as a new therapeutic strategy for treament of human neurodegenerative diseases	MVDr. Mgr. Tomáš Smolek, PhD.	tomas.smolek@savba.sk
Proteomika tau proteínu v neurofibrilárnej degenerácii: Interakcie normálneho a Alzheimerovho tau	Mgr. Branislav Kováčech, PhD.	Branislav.kovacech@savba.sk
Neuroimunology of Alzheimer,s disease , could dendritic cells change progression of the disease?	Ing. Jozef Hanes, DrSc.	jozef.hanes@savba.sk

f) Supervisors of PhD students are university teachers in the position of professor and associate professor in the relevant field of study, scientists with scientific qualification degree I and IIa and other distinguished experts from the Slovak Academy of Sciences. The supervisors are approved by Scientific Board of UVMP.
Scientific and pedagogical characteristics of thesis supervisors are available on the quality portal of UVMP in Košice through the study plan or directly at https://qa.uvlf.sk/vupch-viewer/?regzam=X where X is the employee number on the HE Portal (e.g.. https://www.portalvs.sk/regzam/detail/5991 - Employee record on the University portal, https://qa.uvlf.sk/vupch-viewer/?regzam=5991 - VUPCH employee on the quality portal of UVMP in Košice).

g) Student representatives who represent the interests of PhD students (name and contact details):
The member of the study programme committee was student of veterinary medicine Marek Ratvay, DVM e-mail: marek.ratvay@student.uvlf.sk;

h) Study programme advisor: vice-rector for research and PhD studies at UVMP in Košice

i) Other study programme support staff - assigned study officer: Júlia Jančura, Mgr. e-mail julia.jancura@uvlf.sk; career counsellor: the position of the career counsellor is performed by the PhD student's supervisor.

8. Premises, tools and technical equipment

a) List and characteristics of the study programme classrooms and their technical equipment with assignment to learning outcomes and courses:

Course	Characteristics of material and technical equipment	Pavilion number and room designation
General immunology	Material and equipment for bacteriological diagnostics and molecular biology: Thermostats, autoclaves, refrigerators, BSL2 laminar boxes, PCR box, centrifuges and ultracentrifuge, thermocyclers for PCR and qPCR, Synergy 2 spectrophotometer with culture equipment, fluorescence microscope with apotome and culture equipment, CO_2 incubator, electrophoretic apparatus, deep freezing boxes, flow cytometer, isolators for gnotobiological animals	P3 Workplace Pri hati 10 Department of Microbiology and Immunology
Clinical immunology	Material and equipment for bacteriological diagnostics and molecular biology: Thermostats, autoclaves, refrigerators, BSL2 laminar boxes, PCR box, centrifuges and ultracentrifuge, thermocyclers for PCR and qPCR, Synergy 2 spectrophotometer with culture equipment, fluorescence microscope with apotome and culture equipment, CO_2 incubator, electrophoretic apparatus, deep freezing boxes, flow cytometer, isolators for gnotobiological animals, experimental menagerie	P3 Workplace Pri hati 10 Department of Microbiology and Immunology
Molecular biology	Polyacrylamide protein electrophoresis, Biolayer interferometry, ELISA, Western blot, dot-blot, 2D electrophoresis, Odyssey immunoreader LICOR, MALDI TOF MS, Sequencer (Sanger), CO_2 incubator, electrophoretic apparatus, deep freezing boxes, flow cytometer	P36 Laboratory of Biomedical Microbiology and Immunology
Mucosal immune system	laminar box; isolation box- PCR; centrifuges; thermocycler; microtomes; staining machine; fluorescence microscope; optical	P17 Department of Morphological Disciplines

	microscope; Elisa reader, CO_2 incubator; Bioscan- digital histopathological scanner; flow cytometer; statistical and analytical software- GraphPad, Morphometric software- NiS Element	
Cytochemical and immunochemical methods	Flow cytometer, deep freezing box, cooling centrifuge and exchange rotor, incubator CO_2 , tissue microtome, cryomicrotome, automatic sample dehydrator, automatic staining machine, fluorescence microscope for live cells, fluorescence microscope for tissues, sterilizer, material and equipment for immunohistochemical examination	P17 Department of Morphological Disciplines
Special microbiology	Material and equipment for bacteriological diagnostics and molecular biology: Thermostats, autoclaves, refrigerators, BSL2 laminar boxes, PCR box, centrifuges and ultracentrifuge, thermocyclers for PCR and qPCR, Synergy 2 spectrophotometer with culture equipment, fluorescence microscope with apotome and culture equipment, CO_2 incubator, electrophoretic apparatus, deep freezing boxes, flow cytometer, isolators for gnotobiological animals	P3 Department of Microbiology and Immunology
Infectious diseases of animals	Material and equipment for teaching infectious diseases of animals: the training rooms and laboratories are arranged and equipped to carry out laboratory diagnostics of viral (RNA, DNA viruses), bacterial and mycotic agents of infectious diseases: BSL2 laminar boxes, PCR boxes, robotic nucleic acid isolator, centrifuges and ultracentrifuge, thermocyclers for PCR, real-time PCR, digital droplet PCR, Synergy HTX multi-mode reader, ELISA reader, electrophoretic apparatus, automated imaging and documentation system, automated chip electrophoresis, deep freeze boxes, fluorescence microscope, thermostats, CO_2 incubators, autoclaves, refrigerators, and more.	P1 Department of Epidemiology, Parasitology and Public Health
Pathological physiology	ELISA reader (Apollo LB 913, Germany), spectrophotometer (Thermo Electron Corporation, Made in USA), spectrophotometer (VWR International bvba, Made in China), FRAS (FRAS BRAVO, H&H Parma Italy, light microscopes (Carl Zeiss Microscopy, Made in Germany), thermostat (Memmert, Made in Germany), freezer (Liebherr - MEDLine, Made in Austria), refrigerators (Gorenje, Made in	P8 Department of Biology and Physiology

	Slovenia), centrifuge (Eppendorf, Made in Germany)	
Pathological reactions of the immune system	Material and equipment for clinical diagnosis of diseases caused by pathological immune reactions, Microscope, IDEXX hematology analyzer, Pro Cyte DX, IDEXX biochemistry analyzer, catalyst One, ALOKA ultrasound machine	P26 Small Animal Clinic
Statistical evaluation of a biological experiment	Statistical software (IBM SPSS Statistics, GraphPad Prism)	P3 Department of Microbiology and Immunology

b) Availability of study materials (access to literature in line with syllabi sheets, access to information databases and other information sources, information technologies, etc.):
All literary resources for study outlined in the syllabi are available either in print or electronic form, all information databases purchased and licensed by the university are widely available to students.

c) Description and scope of distance education in the study programme with per course. Access data, manuals of e-learning portals. Procedures for the transition from in-person to distance learning.
UVMP in Košice also provides distance learning for all courses via the MOODLE and MS Teams platforms. Each student can access manuals either in electronic form or in the form of video instructions.

d) Partners of the university in the provision of educational activities of the study programme and characteristics of their participation: Institute of Neuroimmunology of the Slovak Academy of Sciences - external educational institution

e) Characteristics of social, sporting, cultural, spiritual and community facilities:
UVMP in Košice provides its students with a wide range of opportunities for all-round enjoyment in all of the above areas (a detailed description is included in the internal evaluation report).

f) Mobility and internships opportunities (with contact details), application instructions, rules for recognizing this education:
Students of the study programme are guaranteed the opportunity to participate in mobilities. The entire agenda containing instructions and conditions for applying for mobility, conditions and rules of participation as well as rules for recognizing mobility as part of the study plan is covered by the Vice-Rector for International Relations and Internationalisation and the organisational unit managed by her, which is the UVMP Mobility Office. The whole process requires coordination with the supervisor, and is recommended after the study part of the study plan has been completed. Participation in mobility and other contexts are regulated in Article 42 of the Study Guidelines of the UVMP, Part B.

9. Required abilities and prerequisites of the candidate for the study programme

a) Required competences and prerequisites for admission to study:
They are laid down in Article 1 and Article 2, Part B, Part II Organisation of Studies of the Internal Regulations of the Study Guidelines of the UVMP.

b) Admission procedures:
These are laid down in Article 3 and Article 4, Part B, Part II Organisation of Studies of the Internal Regulations of the Study Guidelines of the UVMP. Examination boards for admission examinations are at least 4-member and are appointed by the Rector on an ad hoc basis according to the the study programmes to which students apply.

c) The results of the admission procedure, which we consider to be the period of the standard length of study (4 academic years):
AY 2017/2018; 1 applicant registered, 1 applicant accepted and enrolled,
AY 2018/2019; 1 applicants registered, 1 applicant accepted and enrolled,
AY 2019/2020; 2 applicants applied, 2 applicants accepted and 2 accepted applicants enrolled,
AY 2020/2021; 1 applicant applied, 1 applicant accepted and enrolled.
Results of the admission procedure for the last 6 years: 9 registered applicants, 9 accepted.

10. Feedback on the quality of education provided

a) Procedures for monitoring and evaluating students' views on the quality of the study programme:
The students of UVMP in Košice can evaluate the quality of teaching anonymously through an anonymous questionnaire after graduation, where they evaluate the quality of a particular study programme and the quality of the lecturers who provide the course. Monitoring of study programmes is also continuously carried out by the coordinators of individual fields (5) of science and research at UVMP.

b) Results of student feedback and related measures to improve the quality of the study programme:
The feedback and measures to improve the quality of the study programme are part of the Annual Reports on the Educational Activity at UVMP in Košice for individual academic years and the Annual report on activities UVMP 2021 for individual academic years. As part of the measures to improve the quality of the study programme, the vice-rector for education, study advisors and coordinators of individual fields of science and research step in and address the issues resulting from the feedback.

c) Results of alumni feedback and related measures for improving the quality of the study programme:
The results of alumni feedback and related measures to improve the quality of the study programme are included in the Annual Reports on the Activities of UVMP in Košice and Annual Reports on the Quality of UVMP in Košice for individual academic years. As part of the study programme quality improvement, the results of graduate evaluations are discussed once a year at the relevant committee for the establishment, modification and periodic evaluation of study programmes, where individual comments and proposals for improving the quality of the study programme are discussed. From the academic year 2022/2023, the UVMP will evaluate the readiness of graduates in the form of an electronic questionnaire for employers, which is available at https://forms.gle/z1h9u3rd2g9H589P7.

11. Overview of long-term and continuous success in obtaining financial support – 10 years

P.no.	Project number	From	To	Project name	Provider	Principal Investigator / Co-Principal Investigator
1	APVV0701-11	2011	2014	Studying host-pathogen interactions to elucidate neuroinvasive mechanisms at the proteomic level	RDPA	Assoc. Prof.. Mangesh Ramesh Bhide, MVSc. PhD.
2	1/0054/12	2012	2014	Studying the basic protein interactions involved in the translocation of Borrelia and Francisella across the blood-brain barrier	SGA	Assoc. Prof.. Mangesh Ramesh Bhide, MVSc. PhD.
3	1/0313/12	2012	2014	Bacterial intestinal infection in chickens and influence of cytokine levels by application of probiotics	SGA	Prof.Mikuláš Levkut, DVM DSc.
4	1/0834/12	2012	2014	Study of the immunomodulatory effect of exopolysaccharides of probiotic lactobacilli in pigs	SGA	Prof. Ľudmila Tkáčiková, DVM PhD.
5	APVV - 0302 -11	2012	2015	Probiotic microorganisms and regulation of cytokine response in the prevention of immunopathological changes during intestinal bacterial infections in poultry	RDPA	Prof.Mikuláš Levkut, DVM DSc.
6	016UVLF-4/2015	2015	2017	Advanced bioinformatics methods for veterinary and medical students	CEGA	Assoc. Prof.. Mangesh Ramesh Bhide, MVSc. PhD.
7	/0258/15	2015	2018	Uncovering potential factors of neuroinvasive borrelia causing neuroinflammation in the CNS	SGA	Assoc. Prof.. Mangesh Ramesh Bhide, MVSc. PhD.
8	1/0358/16	2016	2018	Modulation of gut microbiocenosis and immune response in honey bees by probiotic lactobacilli in a new application form	SGA	Assoc. Prof. Dagmar Mudroňová, DVM PhD.
9	1/0633/17	2017	2019	Lactobacillus reuteri exopolysaccharides: study of their immunomodulatory effect on porcine intestinal epithelial cells (IPEC-1) after engraftment with enterotoxigenic E. coli	SGA	Prof. Ľudmila Tkáčiková, DVM PhD.
10	1/0439/18	2018	2021	Analysis of the effect of surface antigen (domain III of protein E) of selected flaviviruses on neurovascular unit cells and synthesis of an inhibitory peptide against domain III as a potential therapeutic agent	SGA	Katarína Bhide, RND PhD.
11	APVV-18-0302	2019	2022	Development of new approaches for tauopathies therapy using peptide transporters for drugs and antibodies to the brain	RDPA	Assoc. Prof.. Mangesh Ramesh Bhide, MVSc. PhD.

12	APVV-18-0259	2019	2023	Strategic development of therapeutic agents against neuroinfections caused by selected vector-borne pathogens	RDPA	Assoc. Prof.. Mangesh Ramesh Bhide, MVSc. PhD.
13	/0105/19	2019	2022	Study of the influence of borrelia surface ligands on host cells by transcriptome analysis and production of nanobody antibodies against selected ligands with potential therapeutic effect	SGA	Assoc. Prof.. Mangesh Ramesh Bhide, MVSc. PhD.
14	1/0505/19	2019	2021	Effect of application of autochthonous honey bee probiotic lactobacilli on pollen carrier on the immune status and product quality of honey bees	SGA	Assoc. Prof. Dagmar Mudroňová, DVM PhD.
15	PP-COVID-20-0044	2020	2021	Development of therapeutic biomolecules blocking SARS-CoV-2 infection	RDPA	Assoc. Prof.. Mangesh Ramesh Bhide, MVSc. PhD.
16	APVV-19-234	2020	2024	Development of a probiotic formulation based on autochthonous lactobacilli for salmonids to improve fish health and quality of food production	RDPA	Assoc. Prof. Dagmar Mudroňová, DVM PhD.
17	1/0454/22	2022	2025	Study of the possibility of using humic substances in combination with autochthonous probiotic bee lactobacilli to improve honey bee health and quality of bee products	SGA	Assoc. Prof. Dagmar Mudroňová, DVM PhD.

12. Links to other relevant internal regulations and information regarding the study or the student of the study programme:

Study Guide Book at the UVMP for academic year 2022-2023
Directive on support of students and applicants to study with specific needs at the UVMP
Study guidelines of UVMP in Košice
Annual report on activities UVMP 2021