

Course:	M547 - Veterinary Nursing in Small Animals Master
Degree:	Master
Curriculum Unit:	4001002 - Immunology and Prophylaxis
Scientific field:	Veterinary Sciences
ECTS^(*):	6
Curriculum year:	1st
Curriculum semester:	1st
Frequency Regime:	Semestrial
Teacher(s):	Helena Maria Vala Correia
Contact hours ^(**):	TP-30; TO-20
Total work time (hours):	150

(*) - ECTS - European Credit Transfer and Accumulation System

(**) – T- Theoretical; TP- Theoretical/Practical; LP- Lab Practice; S- Seminars; I- Internships; TU - Tutorials; TO – Tutorial Orientation; O- Other (Evaluations)

Objectives / Competences

Knowing the basics of immunology, innate immunity and specific immunity, as well as its role in the response against pathogens.

Learn how to identify the elements involved in both responses.

Understanding the structural and functional components of the innate and adaptive immunity. Being able to describe the components of the immune system and the particularities of domestic animals, especially regarding to organs, cells and molecules.

Being able to perform diagnostic tests, which are based on immune responses, to report tests' results and also be able to transmit the results to the veterinary surgeon.

Making proper use and maintenance of equipment and materials, in accordance with its rules for proper functioning and safety.

Being able to use, implement and interpret some of the methods and techniques used in immunology.

Syllabus

The immune system. Immune Response: Innate immunity and acquired immunity or specific. Humoral and cellular immunity.

Antigen presenting cells and Major Histocompatibility Complex. Antigens and Antibodies. Immunoglobulins in domestic animals.

Other antigen receptors. Monoclonal and polyclonal antibodies. Production and function of soluble mediators, cytokines, antibodies and complement. Pathways of complement activation and action. Inflammation and cell migration.

Immunopathologic mechanisms. Mechanisms of immunity to disease. Dysfunctions of the immune system. Hypersensitivity reactions. Immunodeficiencies. Autoimmune Diseases. Immunology of transplantation. Immunology of tumors. Principles of immunization. Types of immunizations: active and passive. Syllabus practical: Anatomy and histology of immune system components. Immune cells. Immunohistochemistry: fundamentals and applications. Enzyme immunoassays and agglutination tests: fundamentals and applications.

Teaching methodologies and evaluation criteria

This CU will have theoretical lectures, using real schemes and real photographs; questioning of subjects and giving space to reflect, debating and presenting answers; presentation of bibliography or compiled material on some subjects to be worked on and discussed in group.

The lessons of the practical component begin with the presentation of real cases where the immunological diagnostic techniques will be applied and with the use of the practical demonstration. Follow-up of protocols of diagnostic methodologies will be done, as well as the integrated and sustained management of veterinary residues are carried out. Subsequently, proceeds to the individual or group execution of methodologies discussed.

At the end the results are observed together, time is given for research, in order to discuss the results obtained in each case and the debate will be stimulated.

At the end, an individual written work will be presented that reflects all the work done.

Short bibliography

Abbas, A.K., Lichtman, A.H., Pober J.S. (2009) Cellular and Molecular Immunology, Saunders; 6 ed.

Cunha, M.V., Inácio, J. (2014). Abordagens moleculares em veterinária: como desvendar a etiologia e a epidemiologia da infecção. Lisboa, Lidel - Edições Técnicas: XXIV. 273p

Liu, J., Harberts, E., Tammara, A., Girard, N., Filler, R.B., Fischelevich, R., Temann, A., Licona-Limón, P., Girardi, M., Flavell, R.A., Gaspari, A.A. (2014). IL-9 regulates allergen-specific Th1 responses in allergic contact dermatitis. J Invest Dermatol;134(7):1903-11. Retirado de <https://www.ncbi.nlm.nih.gov>

Ochsenbein, A.F., Zinkernagel, R.M. (2000). Natural antibodies and complement link innate and acquired immunity. Immunology Today. 21: 624-630. Retirado de <http://www.sciencedirect.com>

Santos, A.K.M., Assis, E., Musso, M.T., Siqueira, M.M. (2010). Produção de Anticorpos Monoclonais e suas Aplicações.

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