

IMMUNOLOGY

Study Programme: MIMV Curricular Year: 2nd Semester: 4th Compulsory Credits: 4.0 ECTS

Lecturer(s): Profs Drs. Luis Tavares, Ana Duarte, Solange Gil, Ricardo Bexiga

1. Contact hours:

Lectures 28 Practicals 28 Total 56

2. Objectives:

Students must acquire the basic and up-to-date concepts of immunology, in order to understand the importance of the various functions of the immune system as fundamental component of balance and maintenance of health. Students must recognize the relevance changes to such balance in the etiology of several immunopathological processes; understand the strategies of immunomodulation, as in vaccination, a fundamental tool to animal health. Students must develop competencies of manipulating laboratory instruments and immunological techniques applied to veterinary diagnosis, understanding their meaning and relevance.

3. Programme:

Theoretical: Introduction to immunology. Constitution and characterisation of the immune system. Inate and adaptive immunity. Antigen recognition. The integrated immune response. Antigen presentation. Concept of "T-Help", TH1 and TH2 responses. Cytokines and lymphokines. Humoural immunity. Structure, isotypes and functions of antibody molecules. Immune system genetics. Origin of diversity. Common mucosal immune system. Maternal and perinatal immunity. Transfer of immunity. Cellular immunity. Mechanisms of cytotoxicity. The immune response towards bacteria, fungi, viruses and parasites. Immunity against tumours. Regulation of the immune system and immunological tolerance. Immunopathology – diseases of the immune system. Hypersensitivity, immunodeficiency and autoimmunity. Induction of the immune response – active immunization, basic principals and vaccination methods. Production and correct use of vaccines.

Practical –Serology: hemagglutination inhibition, immunoprecipitation, agar gel immunodiffusion, immunoprecipitation, seroagglutination. Immunofluorescence and immunohistochemistry. Monoclonal antibodies. Immunoblotting. ELISA. Hypersensitivity reactions: TB testing. Blood group determination of the dog and cat, immunocromatography.

4. Bibliography:

Day, M.J. (2012). *Clinical Immunology of the Dog and Cat*. (2nd ed.), Manson Publishing
Roitt, I., Brostoff, J. & Male, D. (2012). *Immunology*. (7th Ed.), Mosby Pub. (With STUDENT CONSULT Online Access
Tizard, I. (2012). *Veterinary Immunology: An Introduction*. (9th Ed.), W.B. Saunders Co.
Willey, J., Sherwood, L. & Woolverton, C. (2011). *Prescott's Microbiology*. (8th ed). McGraw-Hill.

4. Assessment:

Theoretical – Written exam. Practical – Continuous evaluation of practical work and final written exam.