

## LECTURES

03.10.2016/ 1 Basic principles of medical microbiology. Morphology and function of bacterial cell, virulence factors; microbiological diagnosis.

10.10.2016/ 2 Pathogenic Gram positive bacteria. Mechanisms of bacterial pathogenesis; epidemiological data; therapy

24.10.2016/ 3 Pathogenic Gram negative bacteria.

Mechanisms of bacterial pathogenesis; epidemiological data; therapy

19.10.2016/ 4 Characterization and classification of viruses and viroids, Viral infection and infectious diseases. Role of viruses in cancer, the novel properties of viruses, diagnosis of viral diseases.

26.10.2016/ 5 Innate and adaptive immunity, defense mechanism and protection against viral infections. Cell-mediated and humoral immune responses in viral diseases, immune prevention and therapy of viral infections.

16.11.2016/ 6 Clinical virology: families of human viruses AIDS and other immune disorders, viral diseases of the skin and wounds, viral diseases of the nervous system, viral cardiovascular and systems diseases, viral diseases of Upper and lower respiratory system, viral diseases of digestive system, viral diseases of urinal and reproductive system, sexually transmitted viral infectious (STIs) and diseases (STDs), haemorrhagic fevers, Zika virus.

## SEMINARS

07.10.2016/ 1 Classification of pathogenic microorganisms. Relationships between microbes and their hosts. Population of microorganisms in human organism. General epidemiology. Hospital infections.

14.10.2016/ 2 Defence mechanisms and protection against diseases. Innate, adaptive and acquired immunity. Defence mechanisms of mucous membranes (MALT) and skin (SALT), Importance of TLR and NETosis in protection against diseases

04.11.2016/ 3 Therapy of bacterial and viral diseases. Resistance to antimicrobial drugs: mechanisms, multiple and cross resistance. Bacteriophages and bacteriocins – possibility of application in targeted therapy of bacterial diseases

02.12.2016/ 4 Vaccines and vaccination. Brief history of immunization. Type of vaccines and new perspectives. Programme of immunization – clinical verification.

09.12.2016/ 5 Zoonosis and antropozoonosis. Important viral diseases. Important prions diseases. Role of viruses in cancer.

## LABORATORY CLASSES

03.10.2016, 05.10.2016, 07.10.2016/ 1 Detection of HSV 1, HSV 2, CMV viruses by PCR method (part I)

Introduction of laboratory classes rules. DNA isolation. Polymerase Chain Reaction (PCR) - principles, procedure, application and variations of PCR. Human Herpesviruses – general characteristics, pathogenesis and epidemiology

10.10.2016, 12.10.2016, 14.10.2016/ 2 Detection of HSV 1, HSV 2, CMV viruses by PCR method (part II)

Human Herpesviruses – general characteristics, pathogenesis and epidemiology including HSV-1, HSV-2, CMV, EBV. Electrophoresis of PCR products. Visualization of PCR products after electrophoresis and analysis of the results

**17.10.2016, 19.10.2016/3** Introduction to Diagnostic Microbiology

Lab rules and equipment of the microbiology lab. Parts of the compound microscope and microscopy principles. The importance of microbiological preparation in diagnostic microbiology. Collection and transportation of clinical specimens. Criteria for rejection of specimens. Storage of specimens. Methods of specimens collection: blood, cerebrospinal fluid, sputum, wounds, urine, stool.

**24.10.2016, 26.10.2016/4** Bacterial cultivations

Types of bacteriological media and principles of bacterial cultures. The growth of bacteria on liquid and solid culture media. Principles of the Streak-Plate Technique. Isolation of bacteria from throat and skin.

**7.11.2016, 9.11.2016/5** Microbiological diagnostic of *Streptococcus* and *Staphylococcus*

Cultures on differential and selective media. Principles of biochemical, serological and genetic identification. Physiological analysis of the colonies – coagulase and catalase test.

**14.11.2016, 16.11.2016/6** Microbiological diagnostic of gram-negative rods

Urinary Tract Infections - the cultures on selective and differential media. The principles of biochemical identification of bacteria.

**21.11.2016, 23.11.2016/7** The influence of physical and chemical factors on bacteria

Decontamination methods: disinfection, sterilization, antysepsis and asepsis. Hand washing and disinfection – microbiological monitoring. Environmental monitoring of microbial flora

**28.11.2016, 30.11.2016/8** Anaerobic microorganisms

The cultures on selective and differentia media. The principles of biochemical, serological and molecular identification. Identification of bacteria from the teeth.

**05.12.2016, 07.12.2016/9** General principles of antibiotic therapy

Mechanisms of antimicrobial resistance in bacteria. Antibiotics susceptibility testing methods: Agar Disk Diffusion Technique, E-test.