

## TEACHING PLAN OF MEDICAL BIOLOGY

Spring semester of the academic year 2021/2022

(General Medicine – 1<sup>st</sup> year)

- 1. week:** 14.-18.2.  
Lecture: **Introduction to genetics I – genetics in medicine, Mendelian Inheritance, autosomal and gonosomal Inheritance, chromosome abnormalities** (prof. RNDr. Ondřej Slabý, Ph.D.)  
*Practice:* *Genetic disorders - autosomal inheritance*
- 2. week:** 21.-25.2.  
Lecture: **Introduction to genetics II – multifactorial inheritance, genetic linkage, population genetics** (prof. MUDr. Iva Slaninová, Ph.D.)  
*Practice:* *Genetic disorders - gonosomal inheritance*
- 3. week:** 28.2.-4.3.  
Lecture: **Human genome** (prof. RNDr. Ondřej Slabý, Ph.D.)  
*Practice:* *Extension to basic genetics*
- 4. week:** 7.-11.3.  
Lecture: **Epigenetics – interactions of genes and environment** (Mgr. Stjepan Uldrijan, CSc.)  
*Practice:* *Genetic prognosis and genetic counselling*
- 5. week:** 14.-18.3.  
Lecture: **Immunogenetics** (prof. RNDr. Ondřej Slabý, Ph.D.)  
*Practice:* *Human population genetics*
- 6. week:** 21.-25.3.  
Lecture: **Cancer biology I - carcinogenesis, hallmarks of cancer** (prof. RNDr. Ondřej Slabý, Ph.D.)  
*Practice:* **Control test 3 (knowledge of weeks 1 to 5)**
- 7. week:** 28.3.-1.4.  
Lecture: **Cancer biology II - application of cancer biology into cancer diagnostics and therapy** (prof. RNDr. Ondřej Slabý, Ph.D.)  
*Practice:* *Molecular diagnostics of human pathogenic bacteria (even group numbers)*
- 8. week:** 4.-8.4.  
Lecture: **Bacterial and viral genomics** (prof. MUDr. David Šmajš, Ph.D.)  
*Practice:* *Molecular diagnostics of human pathogenic bacteria (odd group numbers)*
- 9. week:** 11.-15.4.  
Lecture: **Gene therapy** (prof. RNDr. Ondřej Slabý, Ph.D.)  
*Practice:* *Gene engineering - production of human proteins in bacterial cells (even group numbers)*
- 10. week:** 18.-22.4.  
Lecture: **Human microbiome** (prof. MUDr. David Šmajš, Ph.D.)  
*Practice:* *Gene engineering - production of human proteins in bacterial cells (odd group numbers)*

- 11. week:** 25.-29.4.  
Lecture: **Stem cells and tissue engineering** (Mgr. Vladimír Rotrekl, Ph.D.)  
*Practice:* *Molecular diagnostics of cancer (even group numbers)*
- 12. week:** 2.-6.5.  
Lecture: **Introduction to human ontogeny (pre- and postnatal development)**  
(Mgr. Vladimír Rotrekl, Ph.D.)  
*Practice:* *Molecular diagnostics of cancer (odd group numbers)*
- 13. week:** 9.-13.5.  
Lecture: **Evolutionary Biology** (prof. RNDr. Ondřej Slabý, Ph.D.)  
*Practice:* **Control test 4 (knowledge of weeks 7 to 12)**
- 14. week:** 16.-20.5.  
**Dissection week** – no biology lecture and practices
- 15. week:** 23.-27.5.  
**Dissection week** – no biology lecture and practices

#### **COMPULSORY LITERATURE:**

- ALBERTS, Bruce, Karen HOPKIN, Alexander JOHNSON, David Owen MORGAN, Martin C. RAFF, Keith ROBERTS a Peter WALTER. ***Essential cell biology***. 5th edition. New York: W.W Norton, 2019.
- SNUSTAD, D. Peter a Michael J. SIMMONS. ***Principles of genetics***. 6th edition. Wiley, 2011.