

SCHEDULE OF CLASSES FOR 3rd YEAR OF MEDICINE

summer semester 2020/2021

Gene Therapy and Immunotherapy

Group 3, Dates: 26.02. - 03.03. 8⁰⁰ - 12³⁰

Tutorials: (remote/hybrid learning); contact: mpkopins@cm.umk.pl; e.wedrowska@cm.umk.pl;

Tutorial topics:

1. Introduction to gene therapy and immunotherapy laboratory classes - principles/techniques of laboratory work
2. principles of culturing established and primary human cell lines.
3. design of gene therapy experiments using RNA interference.
4. Transfection of selected cancer cell lines - use of siRNA sequences silencing target oncogenes.
5. Evaluation of the efficiency of silencing target oncogene expression using immunofluorescence techniques.
6. Principles of mononuclear isolation/dendritic cell generation and establishment of dual cultures (for distance learning: pt. 1-6 - discussion of the presented topics based on "step by step" videos of the exercises prepared by the teaching team)
7. discussion and preparation of a credit project on the selection and application of appropriate gene therapy/immunotherapy technique in the selected disease entity; description of the action, potential treatment effects and monitoring of the therapy, its advantages and disadvantages (with the guidance and under the control of the instructor)
8. presentation of the credit project, group discussion with the participation of the instructor, possible amendments, summary of the class.

Tutorial instructors:

Piotr Kopiński, M.D., Professor of Medicine, Ewelina Wędrowska, M.D., Arkadiusz Goede, M.D., Maciej Chmielarski, M.D.

Seminars (remote learning); contact: mpkopins@cm.umk.pl; e.wedrowska@cm.umk.pl;

Seminar topics:

1. Basic concepts of immune therapy. TSA and TAA (including system: growth factor and its receptor) as targets of the immune system.
2. Induction of a specific immune response - summary.
3. Examples of anti-tumor vaccines, including the CART technique.
4. Modes of oncogene suppression and its relationship to immune therapy.

Literature:

- Giacca M: Gene Therapy. Springer-Verlag Italia, Mediolan 2010
- Walther W, Stein US: Gene Therapy of Cancer. Methods and Protocols. Second Edition, Berlin Germany 2009
- Szala S: Terapia genowa, PWN, Warszawa 2003
- Patofizjologia nowotworów. W: Patofizjologia. Podręcznik dla studentów. Red. Maśliński, PZWL, Warszawa 2009
- Stokłosowa S: Hodowla komórek i tkanek, PWN, Warszawa 2004
- Bal J: Biologia molekularna w medycynie, Elementy genetyki molekularnej PWN, Warszawa, 2011
- Supporting materials for classes available in the Department of Gene Therapy