

(SYLABUS)

Name of the department / clinic providing the course: Department of Molecular Biology

Course title: A New Era in Cancer and Autoimmune Diseases Treatment: CAR-T Cell Immunotherapy

Course profile: academic

Speciality: -

Level of course unit: Doctoral School

Course unit title: A New Era in Cancer and Autoimmune Diseases Treatment: CAR-T Cell Immunotherapy

Course unit code:

Course aims:

To provide PhD students with an in-depth understanding of the scientific foundations, development, and clinical applications of CAR-T cell therapies in oncology.

To discuss current clinical achievements, challenges, and limitations of CAR-T therapies, including safety, toxicity management, and resistance mechanisms.

To develop the ability to critically evaluate current literature, clinical trial data, and translational research.

To stimulate interdisciplinary discussion on the role of CAR-T cell therapies in shaping the future of personalized cancer and autoimmune diseases treatment.

Form of study: on-line

Year of study: I–IV

Types of educational activities and number of hours allocated:

Subject	Language course	Self-study	Lecture	Exercises	Laboratory	Seminar	Practical	e-learning	Profession practice	Other (what?)	ECTS points
						10					

Number of ECTS credits allocated and their structure according to students' form of learning: -

Names of course unit's faculty: Faculty of Biomedical Sciences, Faculty of Medicine

Prerequisites: None

Learning activities and teaching methods:

Active work with the scientific article and worksheet (by submitting it online)

Course unit content:

During the series of classes the following issues will be analyzed:

CAR structure: receptor generations and domain functions.

Mechanisms of action and CAR-T effectiveness.

Safety: cytokine release syndrome (CRS) and neurotoxicity.

CAR-T in hematologic malignancies – overview of approved therapies.

CAR-T in solid tumors – challenges and barriers.

New engineering strategies (dual CARs, allogeneic CAR-T, in vivo CAR).

Ethics, cost, and access to CAR-T therapies.

CAR-T in autoimmune diseases.

Course objectives:

Knowledge

Understand the fundamental concepts of CAR-T cell therapy, including design, mechanisms of action, clinical applications, and main challenges.

Be familiar with recent advances and ongoing research directions in the field of CAR-T immunotherapy.

Skills:

Critically analyze and interpret scientific articles related to CAR-T cell therapy.

Summarize and present research findings in a clear and concise manner.

Attitudes and transferrable (generic) competencies:

Demonstrate the ability to independently acquire and evaluate new knowledge in the field of immuno-oncology.

Recognize the ethical, clinical, and societal implications of novel therapies such as CAR-T.

Collaborate and communicate effectively in an international scientific environment.

Required and recommended learning resources (readings):

Required:

The necessary materials (scientific articles) will be made available to students during classes.

Recommended:

The necessary materials (scientific articles) will be made available to students during classes.

Assessment methods and criteria:

Credit for the course is awarded on the basis of attendance and activity in class.

Rules for making up absences from classes:

Absences can be made up within another group if more than one class group is formed.

Additional information: -

Contact to the lecturer: Adrianna Rutkowska, PhD

Statement and signature of the course leader:

I hereby state that the content of the curriculum included in the syllabus below is the result of my individual work completed as part of work contract/cooperation resulting from a civil law contract, and that author rights to this title are not the property of a third party.

Dean's signature:

Data: