

## 66151 - Mechanisms of cell death and their possible immunogenic character/External seminars

### Syllabus Information

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**Academic year:** 2023/24

**Subject:** 66151 - Mechanisms of cell death and their possible immunogenic character/External seminars

**Faculty / School:** 104 - Facultad de Medicina

**Degree:** 637 - Masters degree in Tumor Immunology and Cancer Immunotherapy

**ECTS:** 6.0

**Year:** 1

**Semester:** First semester

**Subject type:** Compulsory

**Module:**

### 1. General information

The general objective of the subject is to provide the student with the fundamental knowledge about the molecular mechanisms of the different types of cell death, the signals that can make this death immunogenic and its relationship with the initiation of the antitumor immune response.

These goals are aligned with the Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>), so that the acquisition of the learning results of the subject provides training and competence to contribute to some extent to their achievement:

Goal 3: Health and well-being

Goal 4: Quality education

Goal 8: Decent work and economic growth

In order to take this subject students should have previously taken the subject Oncoimmunology.

### 2. Learning results

The student, in order to pass this subject, must demonstrate the following results:

-Use and understanding of basic terminology used in cell death analysis.

-Understanding of the main characteristics of cell death mechanisms.

-Understanding of the immunogenic or tolerogenic nature of the different types of cell death.

-Knowledge of the mechanisms of cell death and their tolerogenic or immunogenic nature has been fundamental for the recent advances in cancer immunotherapy, but above all it will be crucial to determine the optimal combinations between chemotherapy, radiotherapy and immunotherapy that will allow cancer treatments with greater guarantees of success.

### 3. Syllabus

#### Mechanisms of cell death and their possible immunogenic nature

1. Lethal receptor-induced apoptosis
2. Mitochondrial apoptotic pathway.
3. Stress death in the endoplasmic reticulum.
4. Necroptosis
5. Other mechanisms of cell death.
6. Polly Matzinger's Danger Theory
7. Concept of immunogenic cell death. DAMPs
8. Relationship between immunogenic cell death, innate immune system and adaptive immune system.

#### External seminars

-International Minisymposium on Cancer Immunotherapy: full-day international minisymposium to be held in March 2024.

-9 lectures by external experts, to be announced.

#### **4. Academic activities**

-Participative master classes. 2.6 ECTS.

-Preparation of problems and exercises by students to be solved in the classroom. 0.4 ECTS.

-Scientific seminars by external experts. 3 ECTS.

The program offered to the student includes, in addition to the theoretical classes, the preparation of problems and exercises to be solved in the classroom. They will be available before the start of the classes on the ADD (*Anillo Digital Docente*).

In addition, a program of external seminars on current scientific topics related to cancer immunotherapy is offered by external experts.

#### **5. Assessment system**

The student must demonstrate that they has achieved the expected learning outcomes through the following assessment activities:

- Practical problem solving: 25% of the grade
- Attendance to external seminars: 50% of the grade
- Active participation in lectures: 25% of the grade