



Full Syllabus



Course Title

Advanced cell biology: Cellular Responses to Stress in Health and Disease

Lecturer

Prof. Orna Elroy-Stein (OES); Prof. Marcelo Ehrlich (ME); Prof. Gerardo Lederkremer (GL);

Semester

Semester B, Wednesdays 8:00-10:00

Course requirements

Active participation (with short presentations)

Final grade components

50% active participation; 50% final exam

Course schedule

Class no. / Date	Subject and Requirements (assignments, reading materials, tasks, etc.)
1	OES1: Introduction to stress responses. Regulation at the translation level
2	OES2: eIF2 kinases and phosphatases. ISR. The role of uORFs
3	OES3: Stress granules. ER and the mitochondria connection. Energy stress. Oxidative stress. VWM Disease
4	OES4: UPR-am. mPOS. mt-UPR. Mitophagy. Hypoxia.
5	GL1: Protein folding, molecular chaperones. Protein misfolding and aggregation. Amyloid fibers. Prions.
6	GL2: Response to protein misfolding. HSF1. Genesis of ER stress. ER quality control. ER-associated degradation (ERAD), RESET.
7	GL3: Unfolded protein response (UPR), IRE1 and ATF6 pathways, RIDD. Late ER stress and apoptosis.
8	GL4: Protein misfolding diseases. Therapeutic strategies
9	ME1: The antiviral response, interferon, interferonopathies
10	ME2: Response to dsRNA (1): PKR, ADAR1
11	ME3: Additional mechanisms of response to dsRNA
12	ME4: Viral mechanisms of inhibition of antiviral response
13	Final Discussion

Required course reading

Scientific publications along the course

Comments

Attendance in class is obligatory. No more than 3 missing classes are allowed.



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