28 November 2024
h 14.30-16.30

Seminar I

ER-phagy, protein folding and degradation: How the Endoplasmic Reticulum behaves in health and disease

Ilaria Fregno Ph.D

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Place: aula Zancan
Department of Pharmaceutical and Pharmacological Sciences

29 November 2024
h 09.00-11.00

Seminar II

ER-phagy, protein folding and degradation: How the Endoplasmic Reticulum behaves in health and disease

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Place: aula Zancan
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Seminar 1 (28.11.2024):

The endoplasmic reticulum (ER) is the major membranous system of eukaryotic cell, deputed to protein production, lipid synthesis and calcium storage. The ER is a plastic organelle whose size and function can be dynamically adapted according to the cell need. Here, we will deeply discuss the selective degradation of the ER within the lysosomal compartment, a process defined as ER-phagy. A particular focus will be given to RecovER-phagy, the process that delivers the excess ER generated during the stress phase to lysosomal compartments for clearance. Experimental procedures introduced during the seminar: mammalian cell culture, immunofluorescence analysis, cell lysis and WB analysis, CRISPR-Cas9 technology, molecular dynamics simulation, Nuclear magnetic resonance, Immunogold Electron Microscopy.

Seminar 2 (29.11.2024):

The ER produces about 40% of the total cell proteome. Polypeptides that do not attain their native structure are recognized by the ER quality control system, translocated across the ER membrane and degraded by cytosolic 26S proteasomes via ER-associated degradation (ERAD). ERAD-resistant polypeptides are segregated in ER subdomains and delivered to endolysosomes under the control of “ER-phagy receptors”. These processes are collectively defined as ER-to-lysosome associated degradation (ERLAD). ERLAD of the Z variant of alpha one antitrypsin (ATZ) will be widely discussed. Experimental procedures introduced during the seminar: cell culture, immunofluorescence analysis, cell lysis and WB analysis, CRISPR-Cas9 technology, Immunogold Electron Microscopy, Halo-tag pulse/chase.

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