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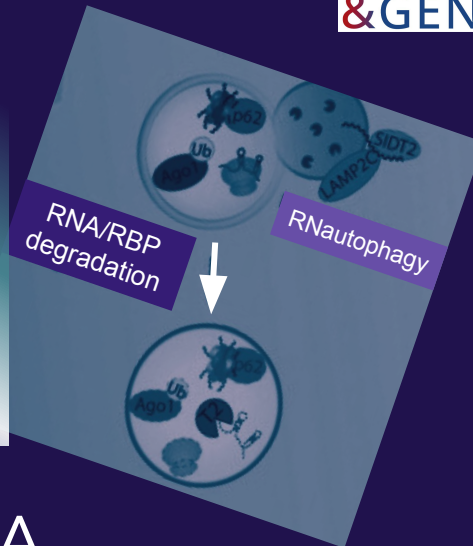


Italiadomani
PIANO NAZIONALE
DI RIPRESA E RESILIENZA

spoke.6

MUR PNRR National Center for Gene Therapy and Drugs based on RNA Technology

Spoke 6: RNA drug development



A webinar series about RNA

to share projects and competences,
increase networking, discuss issues
and new ideas, and disseminate results

*Every last Friday
of the month*

➡ <https://rb.gy/y40y6>

3rd veRNAAdi: Friday 26 January 2024, 15:00

The autophagy pathway: keeping cells tidy by RNA clearance

Stefano De Tito, PhD

Molecular Cell Biology of Autophagy Laboratory, The Francis Crick Institute, London, UK

Under nutrient limited conditions cells survive by degrading their cellular contents to maintain homeostasis, energy levels, and building blocks. Macro-autophagy is an intracellular degradation system that delivers cytoplasmic materials to the lysosome/vacuole. In response to autophagy induction, a cup-shaped membrane structure termed the phagophore (also known as the isolation membrane) appears in the cytoplasm. After the discovery of ATG (autophagy-related) genes, research into autophagy has been transformed from a descriptive phenomenon into a biochemical and molecular field using model organisms, cell culture systems and in vitro reconstitution approaches. The autophagy machinery components and related organelles have been found to play novel roles in processes such as secretion, intracellular transport, and the degradation of specific RNAs, RNA-binding proteins (RBPs) and ribonucleoprotein (RNP) complexes. This pathway contributes to various aspects of cellular RNA homeostasis and have far-reaching effects on global gene expression. The intricate interplay between autophagy and cellular processes sheds light on the multifaceted roles of this degradation system, expanding our understanding of how cells adapt and respond to nutrient limitations.