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

Spoke 6: RNA drug development

veRNAdì

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>

16th veRNAdì: 4 July 2025, 15:00

Functional role of Transcribed-Ultraconserved Regions in cancer:
from biology to clinical perspectives

Amelia Cimmino

Molecular Oncology Laboratory, IGB-CNR, Naples, Italy

Transcribed-Ultraconserved Regions (T-UCRs) are a unique class of long non-coding RNAs transcribed from genomic regions that are 100% conserved across human, mouse, and rat. This remarkable sequence conservation suggests that T-UCRs play essential roles in fundamental biological processes, particularly in the regulation of gene expression. In recent years, growing evidence has pointed to their involvement in key cellular pathways such as proliferation, apoptosis, differentiation, and stress response. Importantly, dysregulation of T-UCR expression has been observed in various human cancers, highlighting their potential as diagnostic, prognostic, and predictive biomarkers.

In this seminar, I will present our latest findings on the role of T-UCRs in regulating cellular homeostasis in cancer, focusing on solid tumors. I will also discuss the potential of T-UCRs as emerging therapeutic targets and their implications for the development of personalized medicine strategies.

In addition, I will introduce recent activities carried out within the CN3 project, including the development and testing of siRNA-HSA and ferritin-based nanocomplexes. Our unit has specific expertise in the functional validation of these nanocarriers in 2D and 3D urothelial carcinoma models, including patient-derived organoids (PDOs) and pseudotumor systems. We also apply advanced imaging techniques to investigate the intracellular uptake, trafficking, and release dynamics of RNA-based therapeutics.