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MUR PNRRNational 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

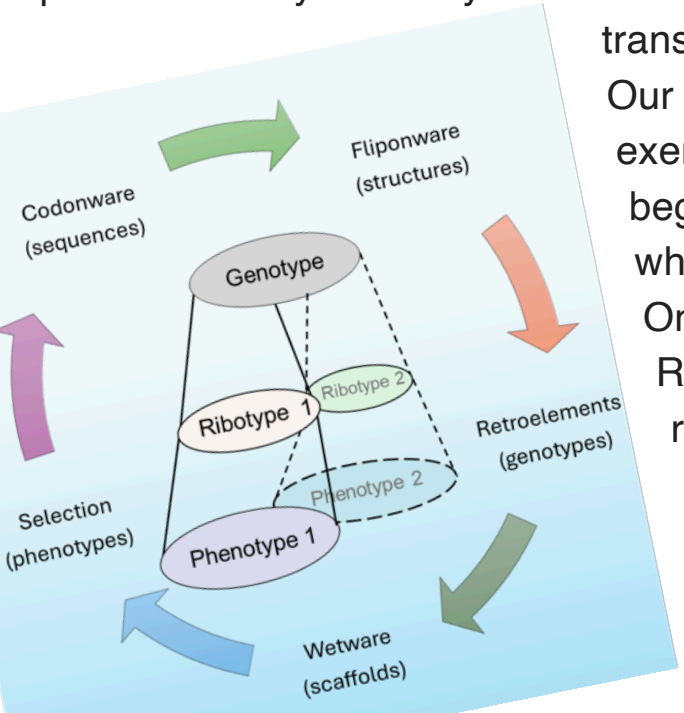
Every last Friday of the month

https://rb.gy/y40y6

XXIII veRNAdì: April 24, 2026, 15:00

Retroelements and their transcripts shape the modern genome

Alan Herbert

InsideOutBio, Charlestown

With the explosion of data generated by the genomic revolution, the old concepts of just a few years ago no longer align with the data. Rather than being based on precisely engineered pathways regulated by sequence-specific transcription factors, the cell exploits alternative DNA conformations and intrinsically disordered proteins to dynamically assemble context-specific machinery. The recoding of transcripts by RNA editing is just one example. Our work on the left-handed Z-DNA conformation exemplifies many of the principles involved and began with the identification of the Zα domain, which binds left-handed DNA with high affinity. Only two proteins in the human genome, the RNA-editing enzyme ADAR and the cell-death regulator ZBP1, possess this domain, which traces back to the earliest eukaryotic progenitor. These proteins help defend against a wide range of threats posed by retroelements and other non-host replicants.