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### Nuclear organization and cell-cycle regulation of intron-retained RNAs

Intron removal is a central step in RNA maturation, but its timing also provides an opportunity to regulate RNA function. Retained introns can maintain transcripts in the nucleus, influencing both their subcellular activities and their availability for translation. In this talk, I will discuss intron retention as a mechanism connecting these processes, from the regulation of individual transcripts to the coordinated release of nuclear RNA across the cell cycle.

I will first show how intron retention regulates the balance between nuclear RNA and cytoplasmic translation, and how targeted modulation of splicing allows us to shift this balance.

I will then discuss a class of RNAs that retain introns for extended periods and persist in the nucleus for hours. We define their molecular properties, nuclear organization, and relationship to cell-cycle transitions. Our findings reveal how intron-retained RNAs interact with nuclear architecture and compartmentalization to regulate mRNA availability across the cell cycle, with coordinated splicing during mitosis releasing mature transcripts into the cytoplasm of daughter cells.

Together, these studies highlight distinct functions of intron retention in controlling RNA localization and timing, illustrating how regulated intron removal can shape RNA fate and gene expression.

**Monday, November 30, 2026, 03:00 pm**  
**Ludwig Prandtl Hall, Faßberg-Campus, MPI-NAT, Göttingen**

**Hosted by Prof. Dr. Argyris Papantonis**