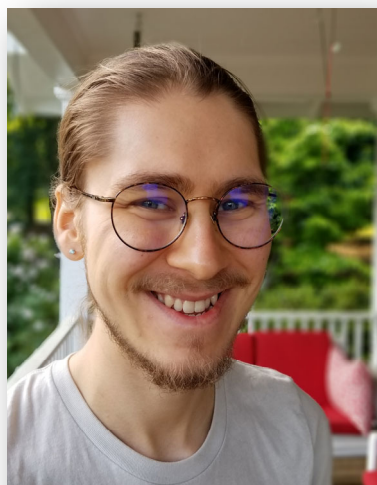


# BIOCHEMISTRY SEMINAR SERIES

Midstream Presentation - Spring 2021



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**Samuel Demario**  
Chanfreau Group

## "Substrate specificity of the Yeast TRAMP complex"

Stability of RNAs in eukaryotes varies widely; some long-lived species have half-lives of over 12 hours while other shorter-lived species degrade completely in a matter of minutes. The exosome is a protein complex responsible for the degradation of many coding and non-coding transcripts. It is necessary for proper cell division, development and cancer progression in humans. Efficient RNA degradation by the exosome requires accessory complexes to give in specificity and processivity. The TRAMP complex is critical to activate the exosome; it adds short oligoA tails to the 3' ends of transcripts to target them for degradation by the exosome. TRAMP is present throughout Eukaryotes and is composed of three highly conserved proteins: The RNA helicase - Mtr4, either of two polyA polymerases - Trf4 or Trf5, and either of two RNA binding proteins - Air1 or Air2. One of the key questions in understanding exosome activity is how Air1 and Air2 confer differential exosome specificity. Air1 and Air2 are paralogs with significant differences in sequence identity, particularly in the N-terminal and C-terminal domains. While the biological targets of the TRAMP complex have been well characterized, the contribution of the Air proteins to substrate specificity remains elusive. They have been suggested to have RNA binding domains which may aid in substrate specificity. Presently, specific motifs recognized by Air1 and Air2 have not been identified. Recent work by the Tollervey group has shown distinct binding patterns for the 2 Air proteins. We performed polyA based next-gen sequencing on strains lacking Air1, Air2 or both, in a context where RNA 3'-ends normally targeted by the exosome are stabilized (*rrp6Δ*). In this talk I will discuss our current progress in identifying the characteristics of TRAMP-targeted RNAs.

**Friday, May 14, 2021**

**via Zoom**

**4:00 pm**

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