



CHEMISTRY DEPARTMENT SEMINAR

Role of CPSF73 Enzyme in R-loop Metabolism

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Our DNA is prone to damage from a variety of sources, including from inside our own cells. The transcription of DNA into RNA creates a temporary RNA:DNA hybrid with a displaced single strand of DNA, known as a R-loop. Typically, these R-loops resolve when transcription ends. However, when transcription fails to terminate correctly, these R-loops can become persistent and cause DNA damage and genomic instability. Several pathological

conditions, including cancer, have been linked to persistent R-loop formation. The cleavage and polyadenylation specificity factor 73 kDa subunit (CPSF73), an enzyme that cleaves the RNA component of R-loops, is necessary for efficient transcription termination. Previously, CPSF73 has been implicated in preventing transcription readthrough and resolving R-loops in Ewing's sarcoma cells. However, direct evidence of R-loop formation upon CPSF73 depletion leading to DNA damage and replication stress are virtually non-existent. Our lab is interested in understanding the molecular role of CPSF73 enzyme in preventing R-loop-induced genomic instability and its potential crosstalk with other proteins involved in DNA damage response. In this presentation, I will be summarizing the cellular stress response created by the deficiency of CPSF73 enzyme and discuss the underlying implications.

November 04th @12 pm – Lopez 106

Meeting ID: 951 3765 0274

<https://zoom.us/j/95137650274>