



K-H, a Novel Regulator of DNA Topoisomerase 1 in R-loop Homeostasis

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Abstract

R-loops are RNA-DNA hybrids with a displaced single strand of DNA that arise naturally during transcription and are a potent source of DNA damage. Unresolved R-loops promote replication stress and DNA breaks that can lead to pathological conditions such as cancer, neurodegenerative diseases, and autoimmune disorders. At the cellular level, R-loops are tightly regulated by a large number of proteins and enzymes. DNA topoisomerase 1 (TOP1) is one of the major enzymes involved in R-loop metabolism. TOP1 prevents R-loop formation and consequent DNA damage by restoring the DNA topology. Our previous work identified a novel interaction of TOP1 with the small transcription termination factor Kub5-Hera (K-H) that is also known to regulate R-loops. However, the significance of this novel interaction remains unknown. In my presentation, I will discuss the potential cooperation of TOP1 and K-H in regulating R-loops and avoiding genomic instability.

All are welcome. Please join us!

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