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Title: INTERPLAY BETWEEN HMGB PROTEIN HMO1 AND HISTONE H3 IN DNA DAMAGE RESPONSE IN BUDDING YEAST

Abstract

DNA damage responses are important for maintaining genomic integrity. DNA damage responses include checkpoint activation and DNA repair, all happening in the context of chromatin, in which cells sense damage and trigger a kinase-mediated signaling cascade leading to cell cycle arrest. The core histone H3 and non-histone chromatin protein Hmo1 play roles in cellular resistance to DNA damage reagents. To examine how chromatin contributes to the regulation of DNA damage response in budding yeast, I studied the functional relationship between the histone H3-N-terminal tail (H3NtT) and highmobility group protein Hmo1 in DNA damage response. I examined genotoxin-resistance and plasmids DNA supercoiling as a proxy of chromatin structure in a series of strains with histone H3NtT truncations in the presence or absence of Hmo1. I found evidence suggesting that the role of H3NtT in regulation DNA damage response is partially dependent on Hmo1. However, this dependence does not involve the Hmo1 C-terminal domain, which is involved in its DNA bending activity.