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Uncharacterized ORF *HURI* influences the efficiency of non-homologous end-joining repair in *Saccharomyces cerevisiae*

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Abstract

Non-Homologous End Joining (NHEJ) is a highly conserved pathway that repairs Double-Strand Breaks (DSBs) within DNA. Here we show that the deletion of yeast uncharacterized ORF *HURI*, Hydroxyurea Resistance1 affects the efficiency of NHEJ. Our findings are supported by Protein-Protein Interaction (PPI), genetic interaction and drug sensitivity analyses. To assess the activity of *HURI* in DSB repair, we deleted its non-overlapping region with *PMRI*, referred to as *HURI-A*. We observed that similar to deletion of *TPK1* and *NEJ1*, and unlike *YKU70* (important for NHEJ of DNA with overhang and not blunt end), deletion of *HURI-A* reduced the efficiency of NHEJ in both overhang and blunt end plasmid repair assays. Similarly, a chromosomal repair assay showed a reduction for repair efficiency when *HURI-A* was deleted. In agreement with a

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