

## SUMOylation of Rad52-Rad59 synergistically change the outcome of mitotic recombination - DTU Orbit (09/11/2017)

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Homologous recombination (HR) is essential for maintenance of genome stability through double-strand break (DSB) repair, but at the same time HR can lead to loss of heterozygosity and uncontrolled recombination can be genotoxic. The post-translational modification by SUMO (small ubiquitin-like modifier) has been shown to modulate recombination, but the exact mechanism of this regulation remains unclear. Here we show that SUMOylation stabilizes the interaction between the recombination mediator Rad52 and its paralogue Rad59 in *Saccharomyces cerevisiae*. Although Rad59 SUMOylation is not required for survival after genotoxic stress, it affects the outcome of recombination to promote conservative DNA repair. In some genetic assays, Rad52 and Rad59 SUMOylation act synergistically. Collectively, our data indicate that the described SUMO modifications affect the balance between conservative and non-conservative mechanisms of HR.

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