RAD52 promotes single strand annealing at resected DNA DSBs

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**Introduction**

Reactome is open-source, open access, manually curated and peer-reviewed pathway database. Pathway annotations are authored by expert biologists, in collaboration with Reactome editorial staff and cross-referenced to many bioinformatics databases. A system of evidence tracking ensures that all assertions are backed up by the primary literature. Reactome is used by clinicians, geneticists, genomics researchers, and molecular biologists to interpret the results of high-throughput experimental studies, by bioinformaticians seeking to develop novel algorithms for mining knowledge from genomic studies, and by systems biologists building predictive models of normal and disease variant pathways.

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**Literature references**


Reactome database release: 74

This document contains 1 reaction (see Table of Contents)

https://www.reactome.org
RAD52 promotes single strand annealing at resected DNA DSBs

**Stable identifier:** R-HSA-5686642

**Type:** transition

**Compartments:** nucleoplasm

RAD52 promotes annealing of 3’ ssDNA overhangs at resected DNA double strand breaks (DSBs) through complementary regions. The complementarity between the two 3’ ssDNA overhangs at resected DNA DSBs exists if 3’ ssDNA overhangs contain direct repeats. While single strand annealing (SSA) requires significant homology between the annealed sequences it is nonetheless mutagenic. The parts of two 3’ overhanging DNA single strands at resected DSBs that lie 3’ to the annealed regions become displaced as flaps and subsequently excised. This results in the deletion (loss) of the DNA sequence lying between the two regions of homology used for SSA, as well as the deletion of one of the repeats used for annealing (Parsons et al. 2000, Van Dyck et al. 2001, Singleton et al. 2002, Stark et al. 2004, Mansour et al. 2008).

**Literature references**


**Editions**

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