

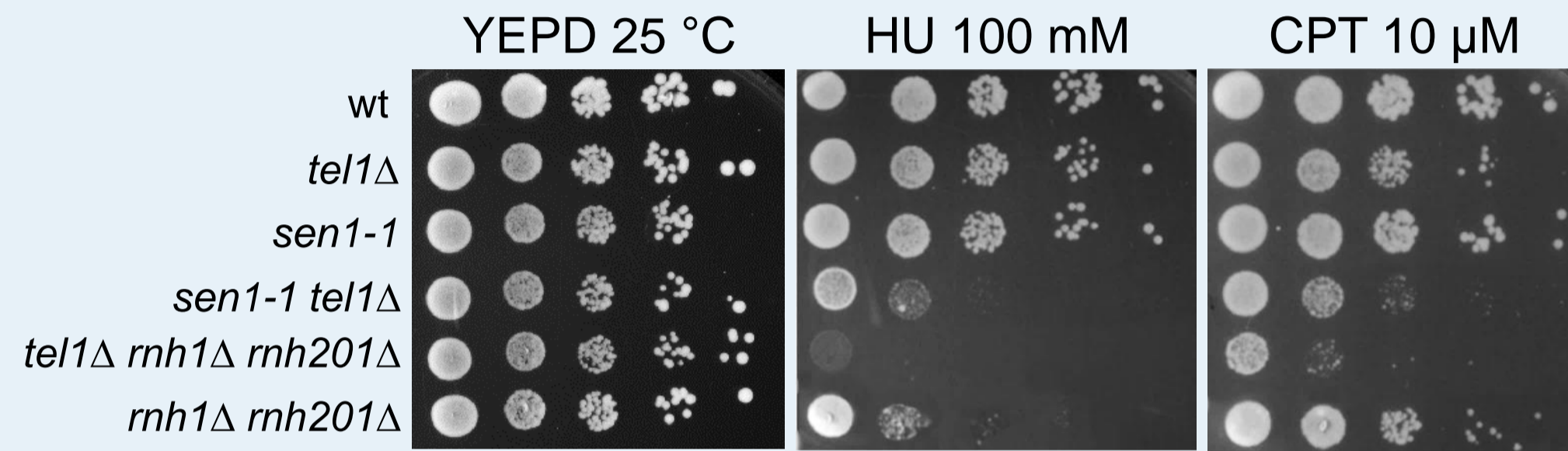
# Role of DNA damage response in R-Loops recognition and signalling

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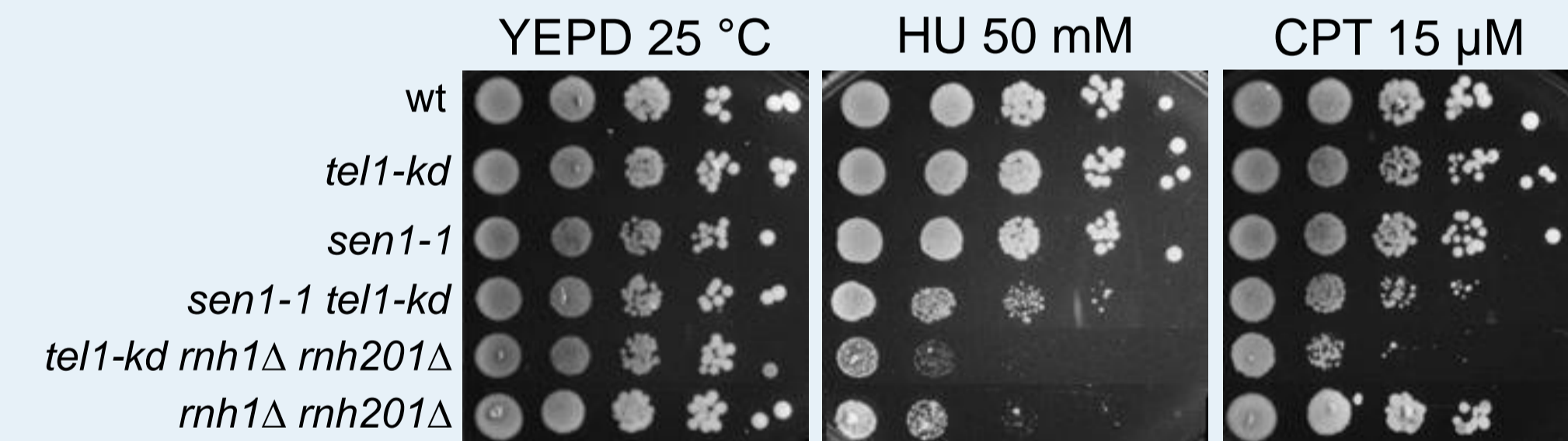
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## Accumulating R-Loops cells require Tel1 in presence of DNA damaging drugs



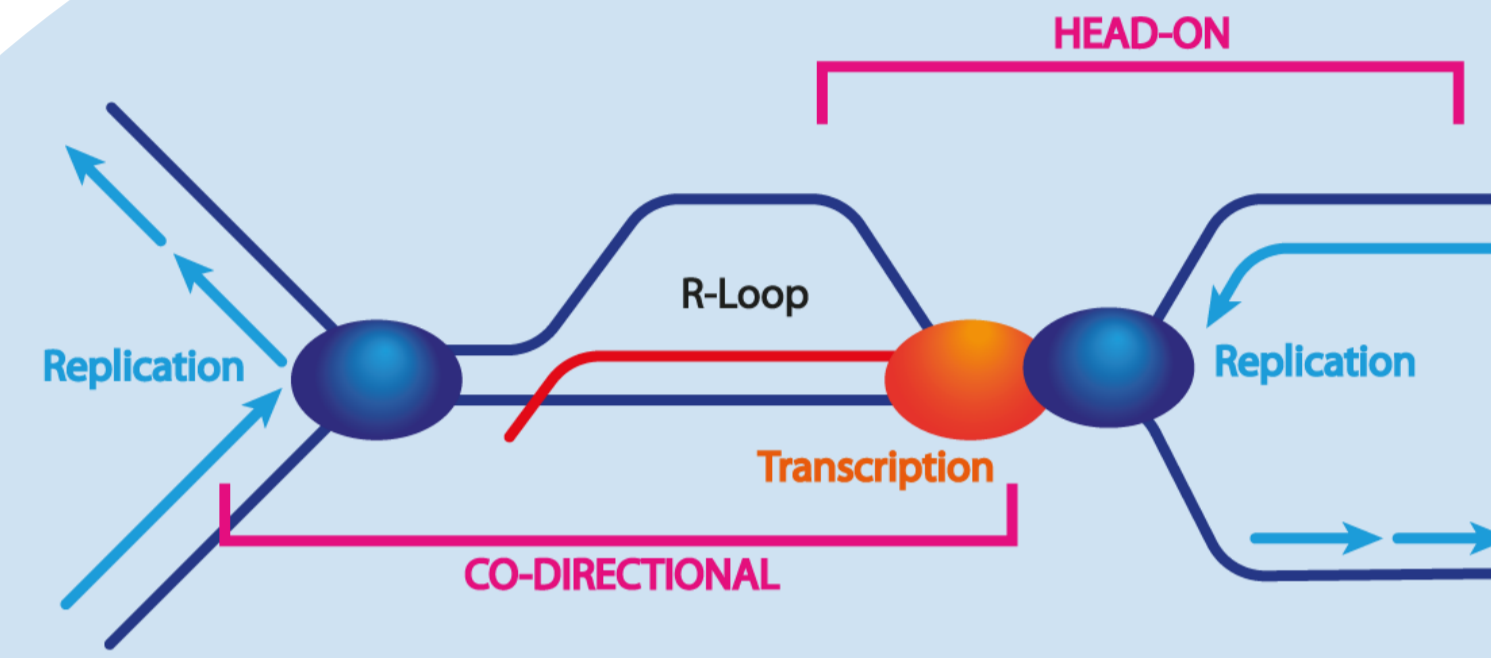
Exponentially growing cells were serially diluted (1:10) and each dilution was spotted out onto YEPD plates with or without HU or CPT.

## Tel1 kinase activity is necessary to prevent drug sensitivity in cells with high levels of R-Loops



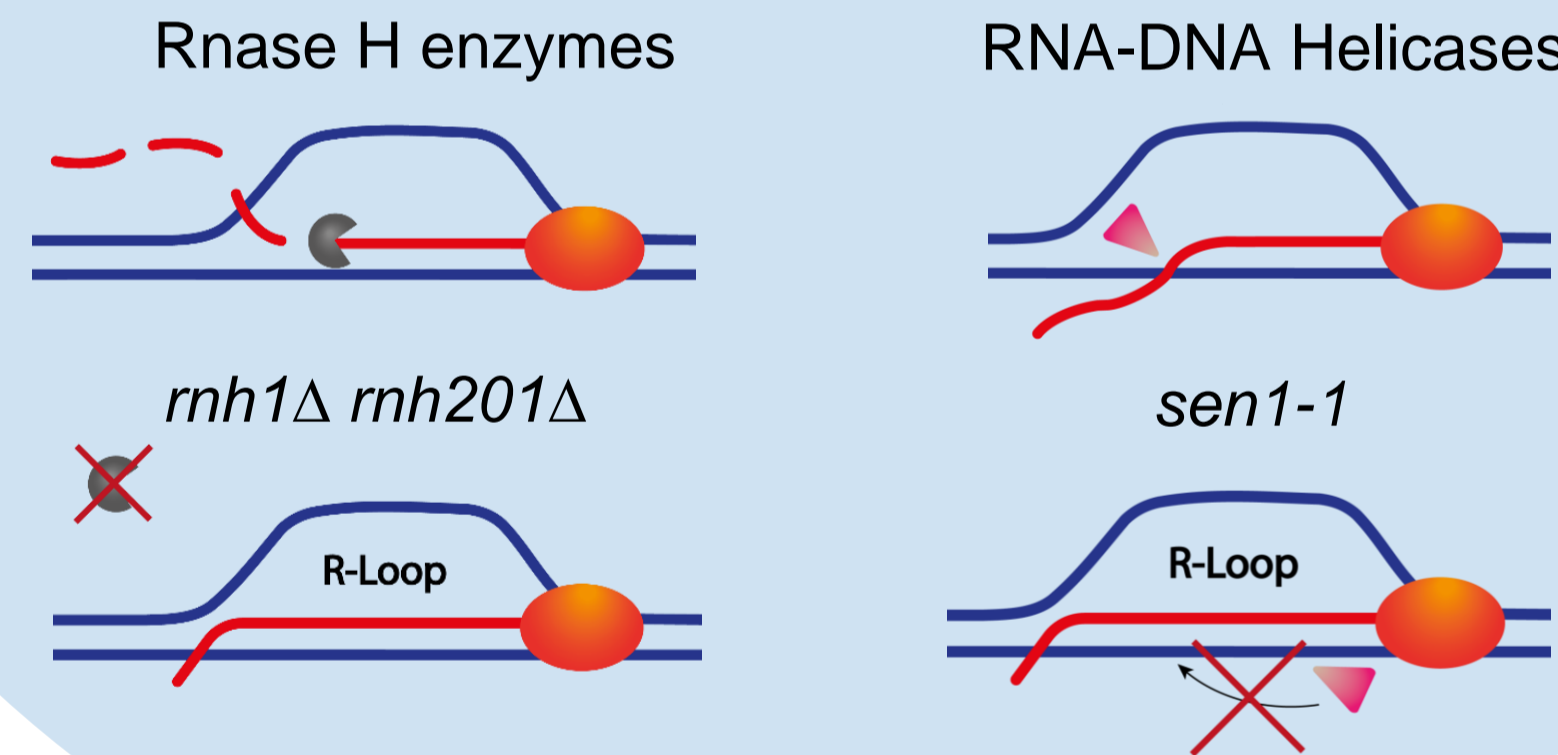
Exponentially growing cells were serially diluted (1:10) and each dilution was spotted out onto YEPD plates with or without HU or CPT.

## R-Loops formation

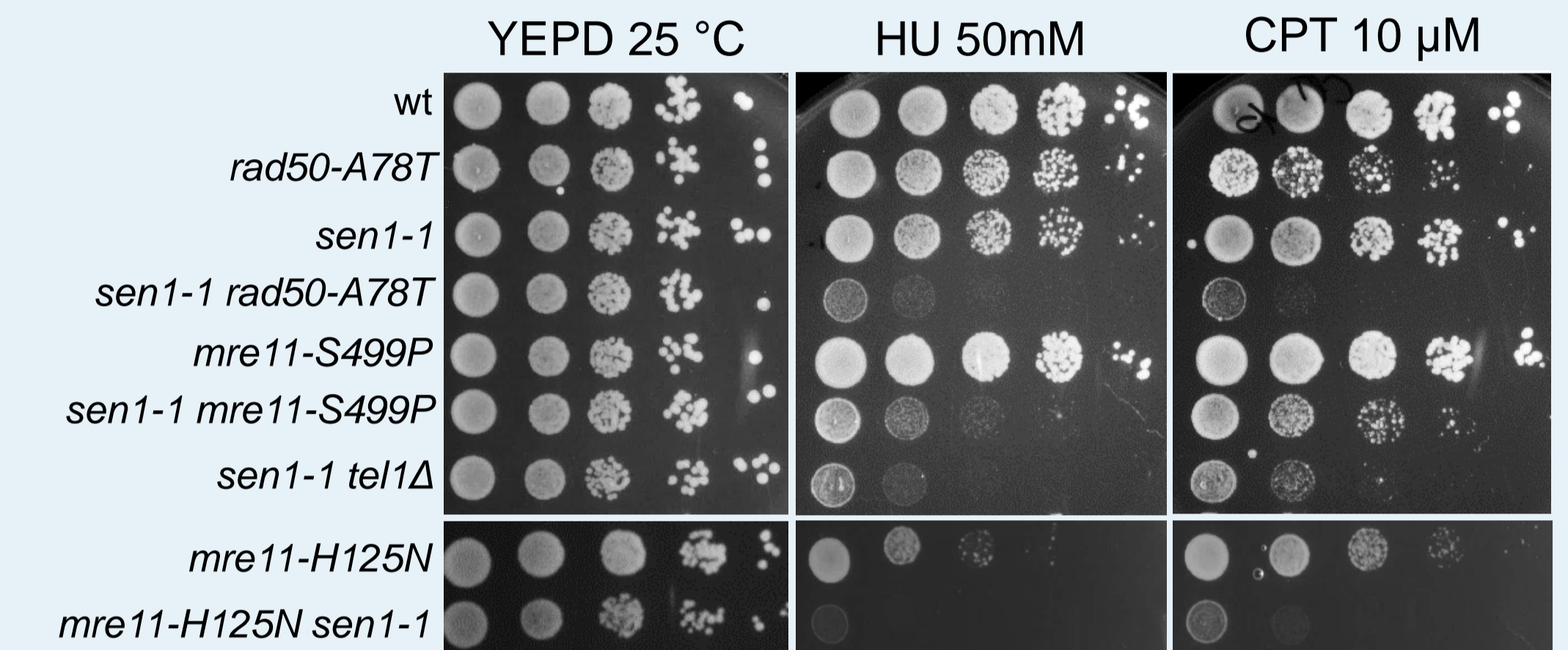


DNA transcription and replication compete for the same DNA substrate. For this reason, the machineries could collide in a head-on or in a codirectional manner both causing R-Loops accumulation.

## Saccharomyces cerevisiae strains that accumulate R-Loops



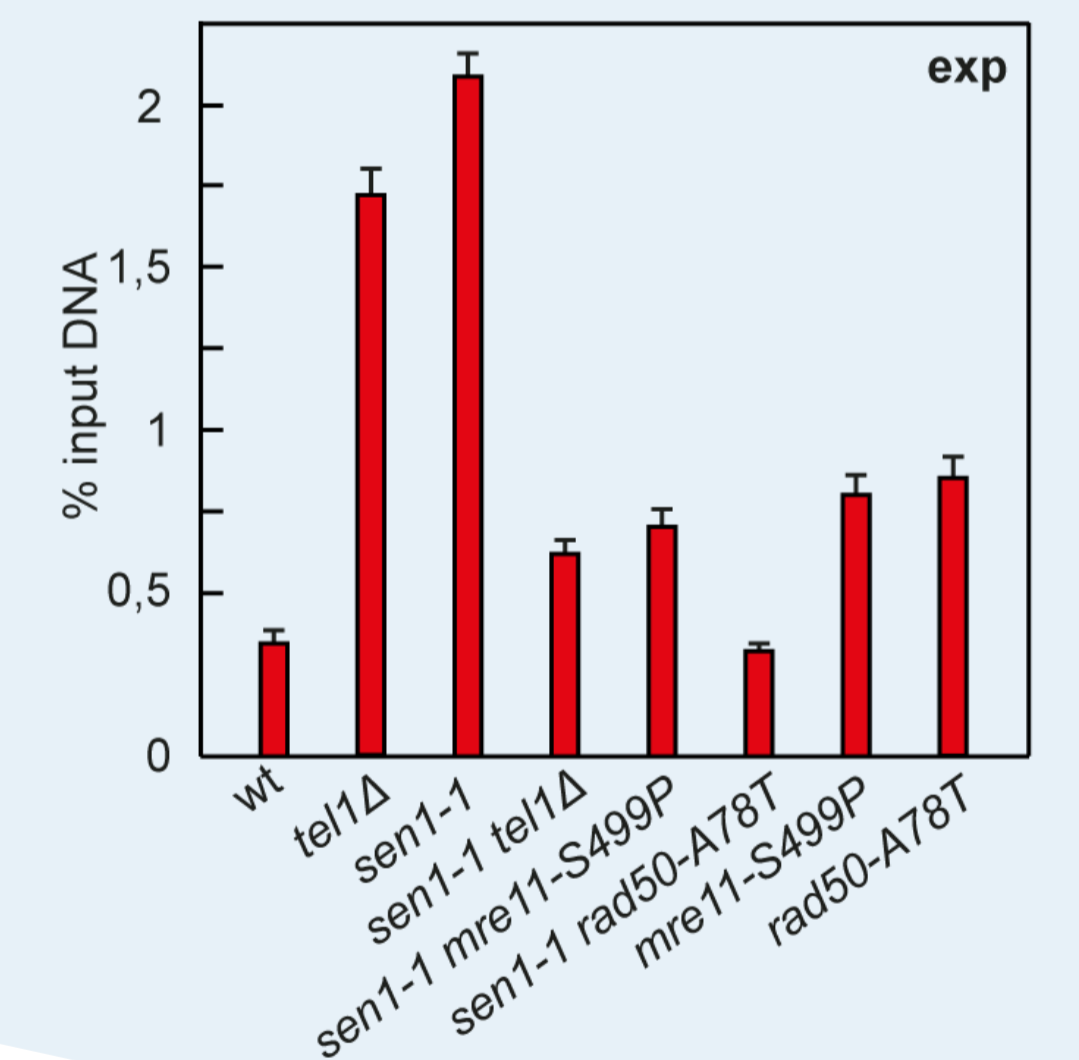
## MRX mutants show comparable phenotype to Tel1-lacking cells in presence of high levels of R-Loops



Exponentially growing cells were serially diluted (1:10) and each dilution was spotted out onto YEPD plates with or without HU or CPT.

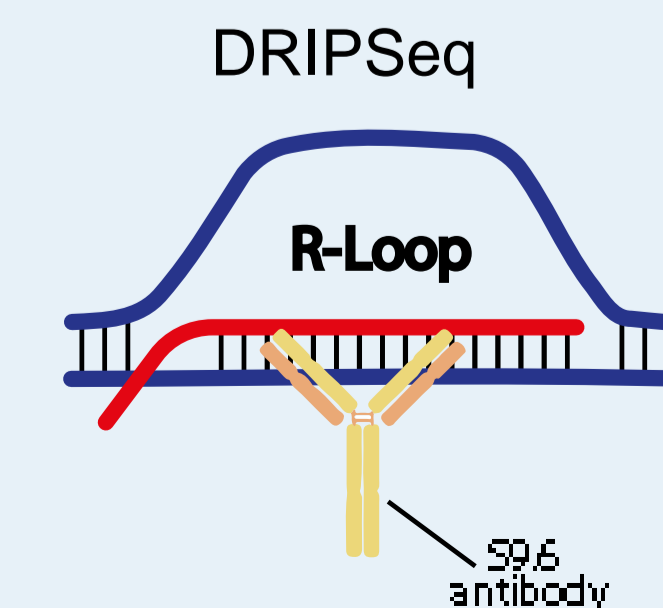
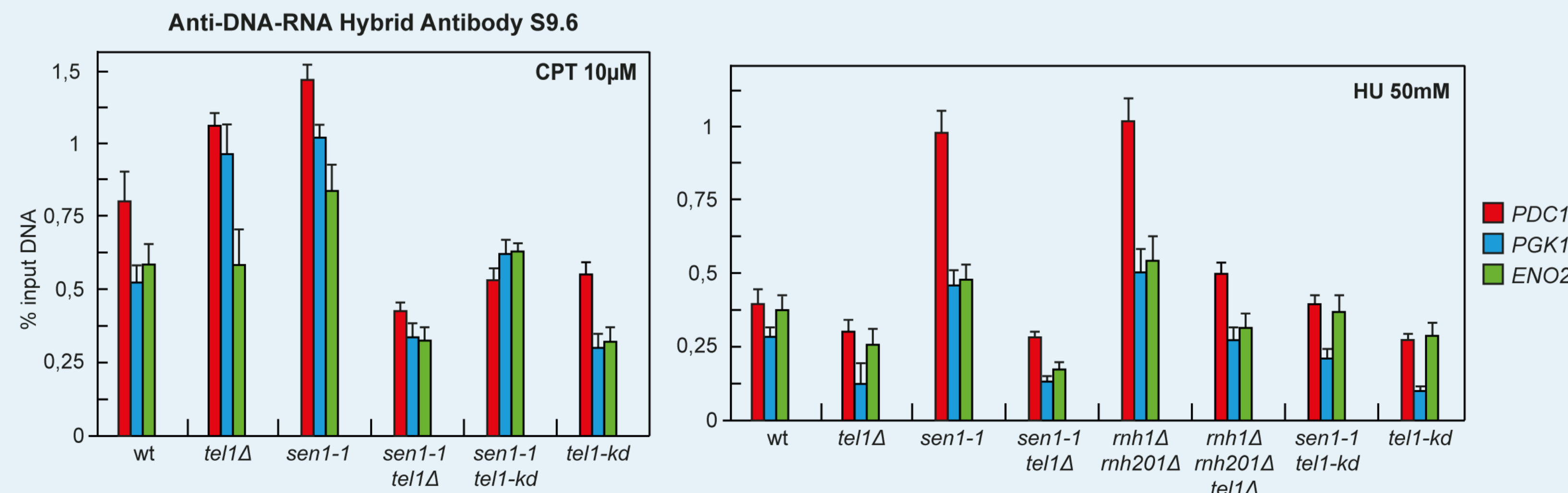
## Anti-DNA-RNA Hybrid Antibody S9.6

DNA-RNA ImmunoPrecipitation (DRIP) analysis. Exponentially growing YEPD cell cultures. Relative RNA-DNA hybrids enrichment in the indicated yeast strain was determined after ChIP with the S9.6 antibody and qPCR analysis at *PDC1* locus.



## The lack of Tel1 in R-Loop accumulating cells does not cause a further increase of RNA-DNA hybrids

DNA-RNA ImmunoPrecipitation (DRIP) analysis. Exponentially growing YEPD cell cultures added with the indicated genotoxic drug. Relative RNA-DNA hybrids enrichment in the indicated yeast strain was determined after ChIP with the S9.6 antibody and qPCR analysis at the indicated genomic loci.



## Future plans

Genome wide investigation of R-Loops variation and Tel1 DNA-binding sites in presence or absence of CPT (camptothecin).

