

Description of Additional Supplementary Information

SUPPLEMENTARY FIGURES

Supplementary Figure 1: Generation of *Brca2*^{L2431P} knock-in mice.

Supplementary Figure 2: Whole mount of embryos and mammary gland .

Supplementary Figure 3: Evaluation of genomic instability and protection of stalled replication forks in MEFs

Supplementary Figure 4: Histological analysis of testis and ovary of mutant and control mice.

Supplementary Figure 5: Effect of *Dss1* overexpression or heterozygosity on RAD51 foci formation.

Supplementary Figure 6: Homologous recombination-mediated repair of radiation induced DSBs and Spo11-generated DSBs during meiosis I.

Supplementary Figure 7: EdU labeling and 53BP1 foci in MEFs in response to IR and Camptothecin treatment

Supplementary Figure 8: RAD51 foci at radiation and camptothecin induced DSBs in adult fibroblasts

Supplementary Figure 9: CRISPR/Cas9-based homologous recombination assay.

SUPPLEMENTARY TABLES

Supp Table 1: Average litter size of mating of mice of various genotypes

Supp Table 2: Observed and expected number of offspring of various genotypes obtained from

Brca2^{LP/+};*Dss1*^{+/-} X *Brca2*^{KO/+};*Dss1*^{+/-} cross

Supp Table 3: List of primers used in the study