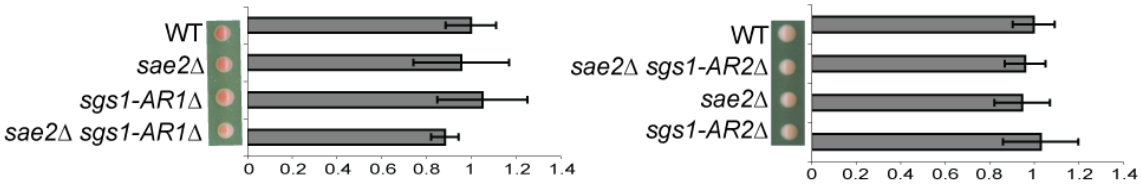

Figure S1 *sgs1-AR1* and *sgs1-AR2* cells do not exhibit a synthetic interaction when combined with *sae2Δ*. Yeast with *sgs1-AR1Δ* or *sgs1-AR2Δ* were mated to *sae2Δ* haploid cells. The diploids were sporulated and the meiotic products analyzed by tetrad analysis. The size of the spore colonies were quantitated and their size relative to WT (set at one) are plotted on the graph with standard deviations shown.

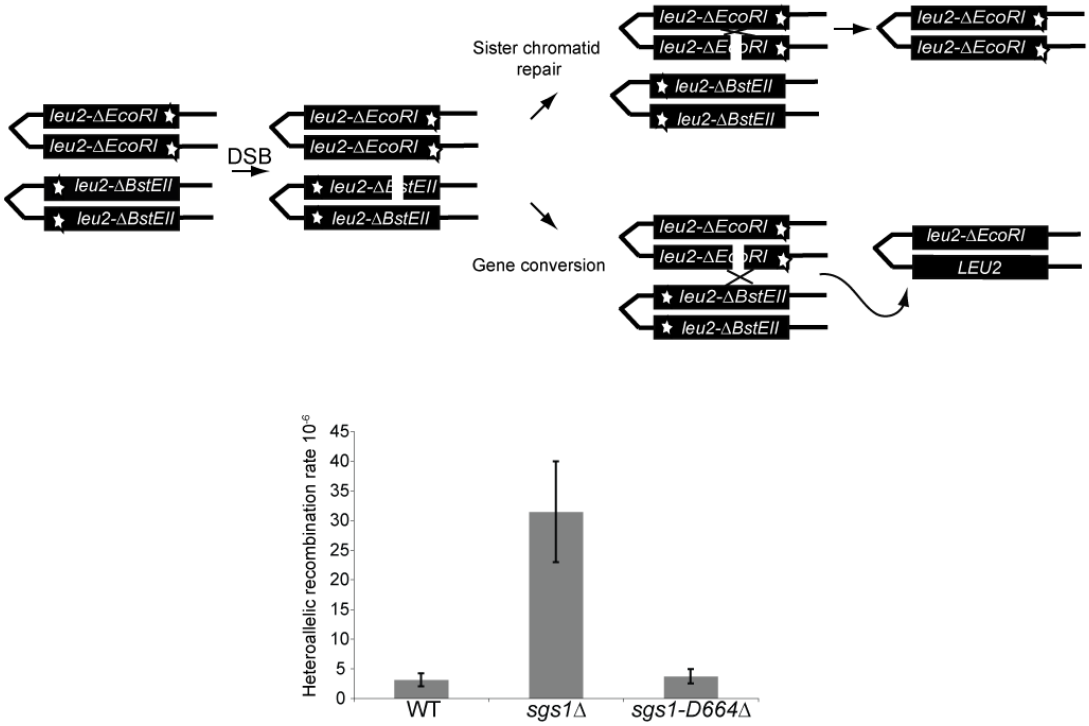

Figure S2 *sgs1-D664Δ* cells do not exhibit increased inter-homologue recombination rates. Diploid strains containing *leu2-ΔEco*RI and *leu2-ΔBst*EII alleles were monitored for formation of *LEU2*+ recombinants in WT, *sgs1Δ*, and *sgs1-D664Δ* strains and plotted with standard deviations. WT and *sgs1-D664Δ* are not significantly different ($p \leq 0.1$).

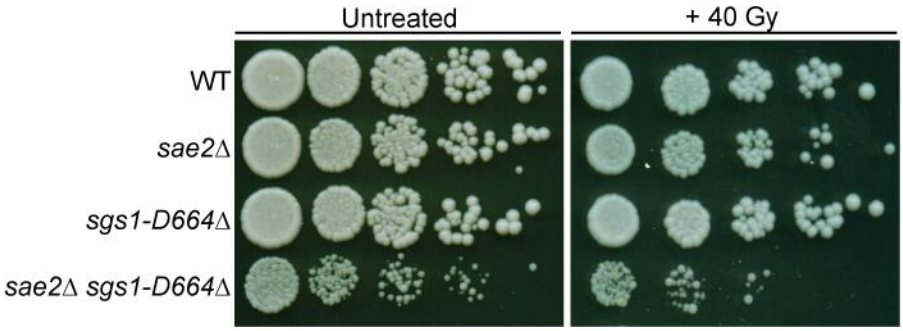

Figure S3 Growth of WT, *sgs1-D664Δ,* and *sae2Δ* cells relatively unaffected by 40 Gy IR. WT, *sgs1-D664Δ, sae2Δ,* and *sae2Δ sgs1-D664Δ* cells were grown to early log-phase and five-fold serially diluted onto YPD medium. The treated plate was exposed to 40 Gy IR and incubated for 24-36 hours at 30˚C.

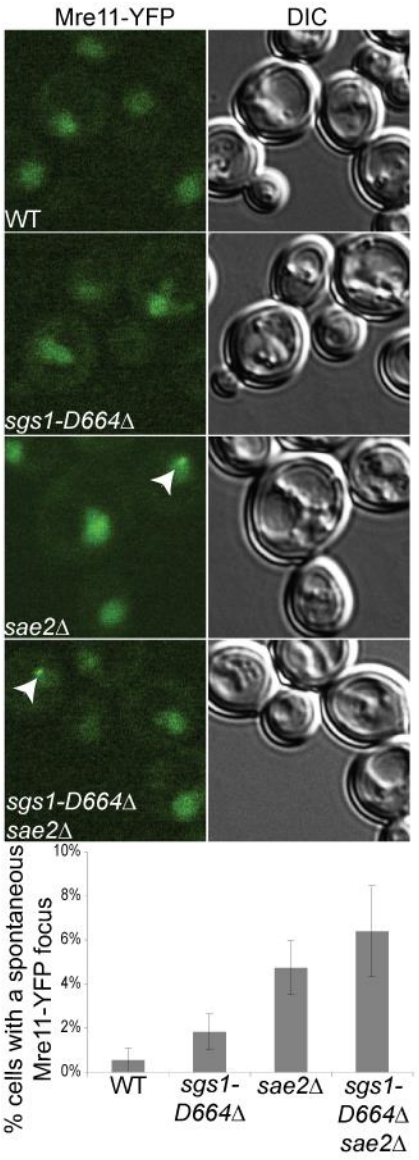

Figure S4 More spontaneous Mre11 foci are observed in *sae2Δ* and *sae2Δ sgs1-D664Δ* cells. Cells expressing Mre11-YFP were analyzed in *WT, sgs1-D664Δ, sae2Δ,* and *sgs1-D664Δ sae2Δ* for formation of spontaneous Mre11 foci. For each strain, a single Z-stack is shown and the white arrowheads indicate a focus. Each experiment was done in triplicate with a total of 200-300 cells analyzed with standard errors plotted.

Table S1 Strains and plasmids

Name	Description
W1588-4A	*MATα ade2-1 can1-100 his3-11,15 leu2-3,112 trp1-1 ura3-1 RAD5*
W5909-1B	*MAT***a** *ADE2 TRP1 lys2Δ*
W7644	*MAT***a**/α *sae2::kanMX/SAE2 sgs1::HIS3/SGS1*
W7645	*MAT***a**/α *sae2::kanMX/SAE2 sgs1-D664Δ/SGS1 leu2ΔEcoR1::URA3::leu2ΔBsteII*
W7348	*MAT***a**/α *mre11::LEU2/MRE11 sgs1::HIS3/SGS1*
KBY31	*MAT***a**/α *mre11::LEU2/MRE11 sgs1-D664Δ/SGS1*
W7634	*MAT***a**/α *xrs2::URA3/XRS2 sgs1::HIS3/SGS1*
KBY29	MATa/α *xrs2::URA3/XRS2 sgs1-D664Δ/SGS1*
W7636	*MAT*a/α *rad50::URA3/RAD50 sgs1::HIS3/SGS1*
KBY30	*MAT*a/α *rad50::URA3/RAD50 sgs1-D664Δ/SGS1*
LSY1709-9D	*MAT***a** *rad51::LEU2 ade2-n::TRP1::ade2*-I-*Sce*I *lys2::GAL*-I-*Sce*I
W8823-4C	*MAT***a** *sgs1::hphMX4 rad51::LEU2 ade2-n::TRP1::ade2*-I-*Sce*I *lys2::GAL*-I-*Sce*I
LSY1983-16B	*MAT***a** *rad51::LEU2 ade2-n::TRP1::ade2*-I-*Sce*I *lys2::GAL*-I-*Sce*I *sgs1::hphMX4*
LSY1983-32B	*MAT***a** *rad51::LEU2 ade2-n::TRP1::ade2*-I-*Sce*I *lys2::GAL*-I-*Sce*I *exo1::HIS3 sgs1::hphMX4*
LSY2090-5B	*MAT***a** *rad51::LEU2 ade2-n::TRP1::ade2*-I-*Sce*I *lys2::GAL*-I-*Sce*I *sgs1-D664Δ*
LSY2090-4D	*MAT***a** *rad51::LEU2 ade2-n::TRP1::ade2*-I-*Sce*I *lys2::GAL*-I-*Sce*I *exo1::HIS3 sgs1-D664Δ*
LSY2172-24C	*MAT***a** *rad51::LEU2 ade3::GAL-HO*
LSY2172-17C	*MAT***a** *rad51::LEU2 sgs1::hphMX4 ade3::GAL-HO*
LSY2173-25D	*MAT***a** *rad51::LEU2 exo1::HIS3 ade3::GAL-HO*
LSY2208-4B	*MAT***a** *rad51::LEU2 sgs1::D664Δ ade3::GAL-HO*
LSY2179-11B	*MAT***a** *rad51::LEU2 exo1::HIS3 sgs1::hphMX4 ade3::GAL-HO*
LSY2208-3C	*MAT***a** *rad51::LEU2 sgs1-D664Δ exo1::HIS3 ade3::GAL-HO*
W9208-10A	*MAT***a** *yku70::LEU2*
W5927-20A	*MAT*α *sgs1-D664Δ*
W4318-1D	*MAT***a** *sae2::KanMX bar1::LEU2*
W9208-17C	*MAT*α *yku70::LEU2 sgs1-D664Δ leu2ΔEcoR1::URA3::leu2ΔBsteII*
W9208-17D	*MAT***a** *sae2::KanMX yku70::LEU2 leu2ΔEcoR1::URA3::leu2ΔBsteII*
W9208-19A	*MAT***a** *sgs1-D664Δ sae2::KanMX*
W9208-2A	*MAT***a** *sgs1-D664Δ sae2::kanMX yku70::LEU2*
KBY126-14D	*MATα dnl4::URA3*
KBY126-8B	*MATα dnl4::URA3 sgs1-D664Δ MRE11-YFP RAD52-RFP*
KBY126-2C	*MAT***a** *dnl4::URA3 sae2::KanMX*
KBY126-18A	*MAT***a** *dnl4::URA3 sae2::kanMX sgs1-D664Δ MRE11-YFP RAD52-RFP*
KBY42-8D	*MAT***a** *bar1::LEU2 MRE11-YFP RAD52-RFP*

KBY48-4B	*MATα sae2::kanMX MRE11-YFP RAD52-RFP*
KBY48-11A	*MAT***a** *sgs1-D664Δ MRE11-YFP RAD52-RFP*
KBY48-4D	*MATα sae2::kanMX sgs1-D664Δ MRE11-YFP RAD52-RFP*
KBY64-13D	*MAT***a** *sae2::kanMX MRE11-YFP ura3::3xURA3-TetOx112 I-Sce*I *(ura3-1) TetR-mRFP (iGL119w) pWJ1089*
KBY64-14B	*MATα sgs1-D664Δ MRE11-YFP ura3::3xURA3-TetOx112 I-Sce*I *(ura3-1) TetR-mRFP (iGL119w) pWJ1089*
KBY64-5A	*MAT***a** *MRE11-YFP ura3::3xURA3-TetOx112 I-Sce*I *(ura3-1) TetR-mRFP (iGL119w) pWJ1089*
KBY69-13B	*MAT***a** *sgs1-D664Δ sae2::kanMX MRE11-YFP ura3::3xURA3-TetOx112 I-Sce*I *(ura3-1) TetR-mRFP (iGL119w) pWJ1089*
KBY89-2B	*MATα rad51::LEU2 ade2-n::TRP1::ade2*-I-*Sce*I *lys2::GAL*-I-*Sce*I
KBY89-14B	*MATα rad51::LEU2 sae2::KanMX ade2-n::TRP1::ade2*-I-*Sce*I *lys2::GAL*-I-*Sce*I
KBY89-3D	*MATα rad51::LEU2 sgs1-D664Δ ade2-n::TRP1::ade2*-I-*Sce*I *lys2::GAL*-I-*Sce*I
KBY89-9B	*MATα rad51::LEU2 sae2::KanMX sgs1-D664Δ ade2-n::TRP1::ade2*-I-*Sce*I *lys2::GAL*-I-*Sce*I
KBY80-22C	*MAT***a** *ku70::HIS3 MRE11-YFP RAD52-RFP*
KBY80-8C	*MATα ku70::HIS3 sae2::kanMX sgs1-D664Δ MRE11-YFP RAD52-RFP*
pSM502	*pRS424-EXO1, 2-micron, T7 promoter, TRP1, AMP^R*
pRS424	*pRS424, 2 micron, T7 promoter, TRP1, AMP^R*
pWJ1089	*GAL-NLS-I-Sce*I*, CEN, KAN^R, HIS3*

All yeast strains are *RAD5* derivatives of the W303 background (Thomas and Rothstein, 1989) W1588 (Zhao et al., 1998) and only the relevant genotype is shown. The strains are listed in the order they appear in the text.

SUPPLEMENTAL REFERENCES

Thomas, B.J., and R. Rothstein. 1989. Elevated recombination rates in transcriptionally active DNA. *Cell*. 56:619-630.

Zhao, X., E.G. Muller, and R. Rothstein. 1998. A suppressor of two essential checkpoint genes identifies a novel protein that negatively affects dNTP pools. *Mol. Cell*. 2:329-340.