**Supplementary Information**

**Cell lines**

Stable clones were selected and maintained in Dulbecco´s modified Eagle´s medium supplemented with 10% foetal calf serum, in the presence of 250μg/ml G418 (Sigma), 1μg/ml Puromycin (Sigma) and 8μg/ml Tetracycline (Sigma). The parental (wt p53) and the somatic p53 knock-out (p53KO) HCT116 cell lines were grown in 10% FCS McCOY´s 5A medium (GIBCO). MCF/7 cells were grown in 10% FCS DMEM and MDA-MB-231 cells in 10% FCS RPMI medium (GIBCO).

**Cloning of Rad51 promoter**

Sequence from –948 to +1427 of the Rad51 promoter (GI: 7407070) was amplified by PCR using the following primers: forward (5´- TTACGCGTCACGTTGGCCAGGTTT ATCT-3´) and reverse (5´- TTCTCGAGCACAGGAAGGCTTCTGAGGA- 3´). The PCR product was cloned into pCR-Blunt plasmid (Invitrogene) and the Rad51 promoter fragment of interest was obtained by KpnI and EcoRV digestion. The fragment was sub-cloned into pGL-3 Basic plasmid (Promega) at Kpn I/Sma I sites (Rad51-luc). Nucleotide sequence was confirmed by DNA sequence analysis with an ABI-PRISM 377 automatic sequencer.

The deletion of 42 bp encompassing the p53 binding sites (DEL Rad51-luc) was obtained by mutagenesis of the Rad51-luc plasmid (described above), following the procedure described by QuikChange® II site-directed mutagenesis kit (Stratagene). The following primers were used: (5´-GGGAAGAGGGCAGTCTGTAGCGC GCAGGGCGGAAGC-3´) and (5´- GCTTCCGCCCTGCGCGCTACAGACTGCCCT CTTCCC-3'). Nucleotide sequence was further confirmed by DNA sequence analysis with an ABI-PRISM 377 automatic sequencer.

The mutant promoter (MUT Rad51-luc) was obtained performing two-step site-directed mutagenesis on the Rad51-luc plasmid (described above). Basically, we followed the protocol of the QuikChange® II site-directed mutagenesis kit (Stratagene). The following primers were used for the first mutagenesis: (5′-GGGCAGTCTGTAAATTCACGCAGGATTAAACTCTCGAGCTCCCG-3′) and (5′-CGGGAGCTCGAGAGTTTAATCCTGCGTGAATTTACAGACTGCCC-3′). The second mutagenesis was performed with primers: (5′-CTCGAGCTCCCGTTTTAGGTTAGCGCGCAGG-3′) and (5′-CCTGCGCGCTAAC CTAAAACGGGAGCTCGAG-3′). Nucleotide sequence was confirmed by DNA sequence analysis with an ABI-PRISM 377 automatic sequencer.

**Real-time qRT-PCR**

Total RNA was isolated with TRIzol reagent (GIBCO) and reverse-transcribed using the TaqMan Reverse Transcriptase Kit (Applied Biosystems). Quantitative PCR was performed on the ABI Prism 7700 Sequence detection System with Taq-Man specific primers and probes for RAD51 (Hs00153418_m1) and human GAPDH (4333764F) (Applied Biosystems). Cycling conditions were: 2 minutes at 50ºC and 10 minutes at 95ºC, followed by 40 cycles of 15 seconds at 95ºC and 1 minute at 60ºC. Error bars show SD from four experiments.

**ChIP Assay**

ChIP experiments were performed following the protocol of Chromatin-Immunoprecipitation Assay Kit (Upstate Biotechnology) with minor modifications. $2x10^6$ Tet-Off inducible cells per experimental sample were plated in 100-mm culture dishes. Cells were cross-linked and incubated in 100µl of SDS lysis buffer per $1x10^6$ cells with a protease-inhibitor mixture, and sonicated to generate 200-500bp DNA fragments. After incubation with 2 µg of anti-p53 antibody (DO-1) and cross-linking

reversal, bound DNA was obtained by phenol chloroform extraction and ethanol precipitation, and resuspended in 20µl of $H_2O$. PCR was performed with 2 µl of immunoprecipitated target DNA. Input material corresponding to 1% of total sample was recovered prior to inmunoprecipitation, and PCR was performed with 0.5 µl of purified DNA. Primer sets used were the following: 5´-CCT CGAACTCCTAGGCTCAGA-3´ and 3'-TATGCAATGCAGCTGCGCC-5' for Rad51 promoter; and 5´-CTTTCCACCTTTCACCATTCC-3´ and 3'-CGACCACC GATAAAACAGGAA-5, for the p21 promoter (kindly provided by S. Taylor). PCR cycling conditions, determined to be within the linear range, were the following: 5 minutes at 94ºC followed by 34 cycles for ChIP samples and 30 cycles for input samples of 45 seconds at 95ºC, 45 sec at 60ºC and 45 seconds at 72ºC, ending with one step of 10 minutes at 72ºC.

**Luciferase reporter assay**

Cells were transfected by calcium phosphate method with pRc/CMV coding for p53 wt (a gift from Dr. A.Levine) or p53R280K mutant (obtained by site-directed-mutagenesis performed in p53wt pRc/CMV with QuikChange® II site-directed mutagenesis kit, Stratagene) together with the luciferase reporter plasmid containing the Rad51 promoter (Rad51-Luc) or the mutant RAD51 promoters together with pRL-CMV Renilla luciferase for internal transfection control. Luciferase activity was determined in protein extracts with DUAL-Luciferase assay following the manufacter´s protocol (Promega).

**Analysis of Rad51 foci formation**

Tet-Off inducible p53wt-B2I and p53R280K-A3 and HCT166 cells were fixed and permeabilized. After blocking with IFF (PBS-3% BSA-1%NGS), cells were treated with DNAse I (1000u/ul Boehringer) for 2 hours at 37Cº and stained with 1/100 dilution of the rabbit polyclonal anti-RAD51 antibody (BD-Bioscience). Cells were washed and

incubated with 1/1000 diluted ALEXA-555 conjugated anti-rabbit IgG in IFF for 40 minutes at 22ºC. Finally, cells were incubated with TO-PRO-3 iodide (1: 10,000 Molecular Probes) to visualize nuclei. Rad51 *foci* were counted using a Leica TCS-SP2 confocal microscope.