

Supplementary Materials for **CTCF facilitates DNA double-strand break repair by enhancing homologous recombination repair**

Khalid Hilmi, Maika Jangal, Maud Marques, Tiejun Zhao, Amine Saad, Chenxi Zhang, Vincent M. Luo, Alasdair Syme, Carlis Rejon, Zhenbao Yu, Asiev Krum, Marc R. Fabian, Stéphane Richard, Moulay Alaoui-Jamali, Alexander Orthwein, Luke McCaffrey, Michael Witcher

Published 24 May 2017, *Sci. Adv.* **3**, e1601898 (2017)

DOI: 10.1126/sciadv.1601898

This PDF file includes:

- fig. S1. Live-cell imaging of CTCF at laser micro-irradiation tracks.
- fig. S2. CTCF association with PARylation increases as a response to DNA-damaging agents.
- fig. S3. Impact of CTCF loss on γ H2AX and 53BP1 foci resolution.
- fig. S4. Loss of CTCF increases sensitivity to PARP inhibitors.
- fig. S5. Loss of CTCF impairs Rad51 foci formation following infrared.
- fig. S6. DNA damage increases the association between CTCF and BRCA2.
- table S1. sgRNA sequences targeting Cas9 to CTCF.

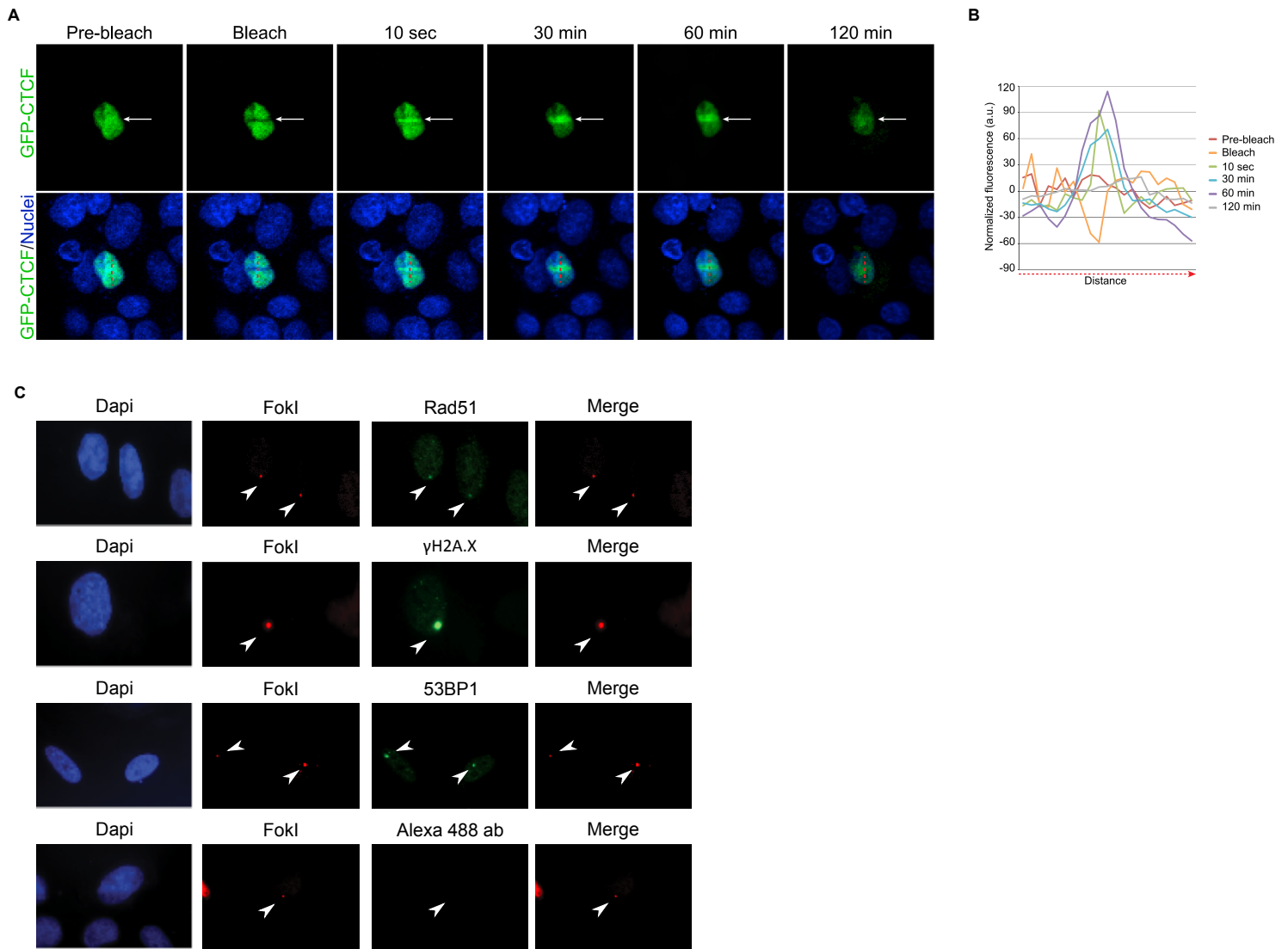


fig. S1. Live-cell imaging of CTCF at laser micro-irradiation tracks.

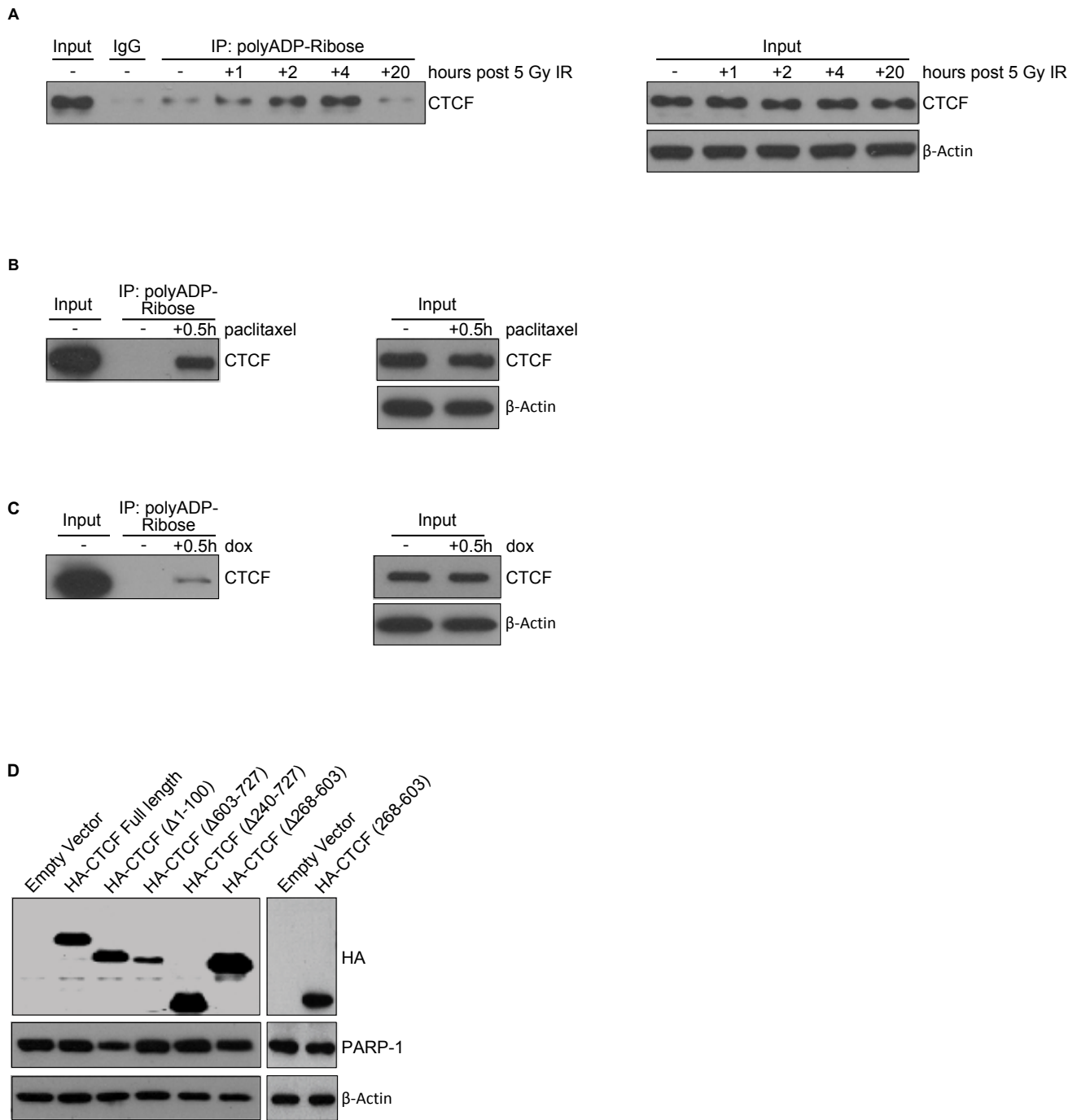


fig. S2. CTCF association with PARylation increases as a response to DNA-damaging agents.

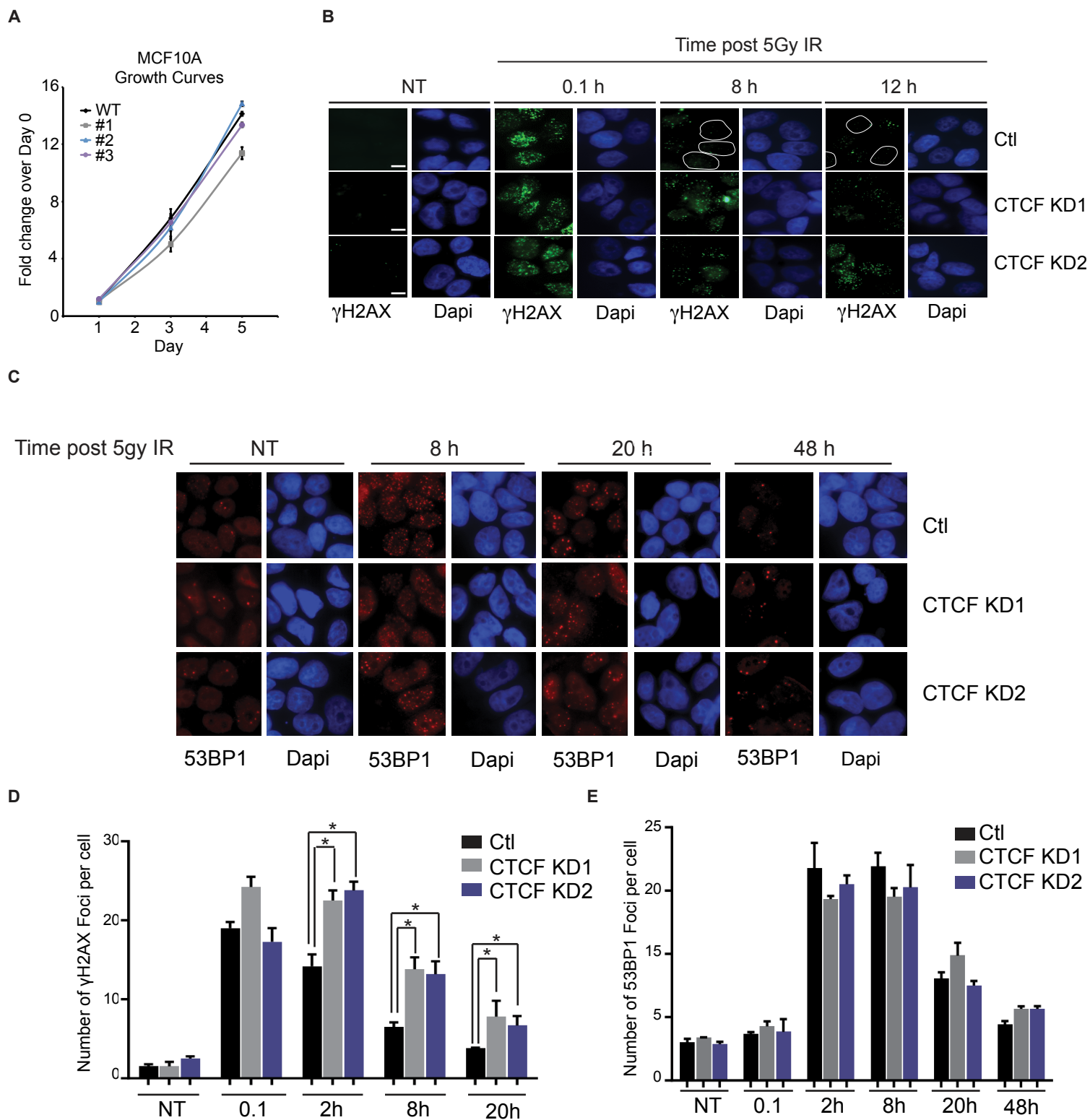


fig. S3. Impact of CTCF loss on γ H2AX and 53BP1 foci resolution.

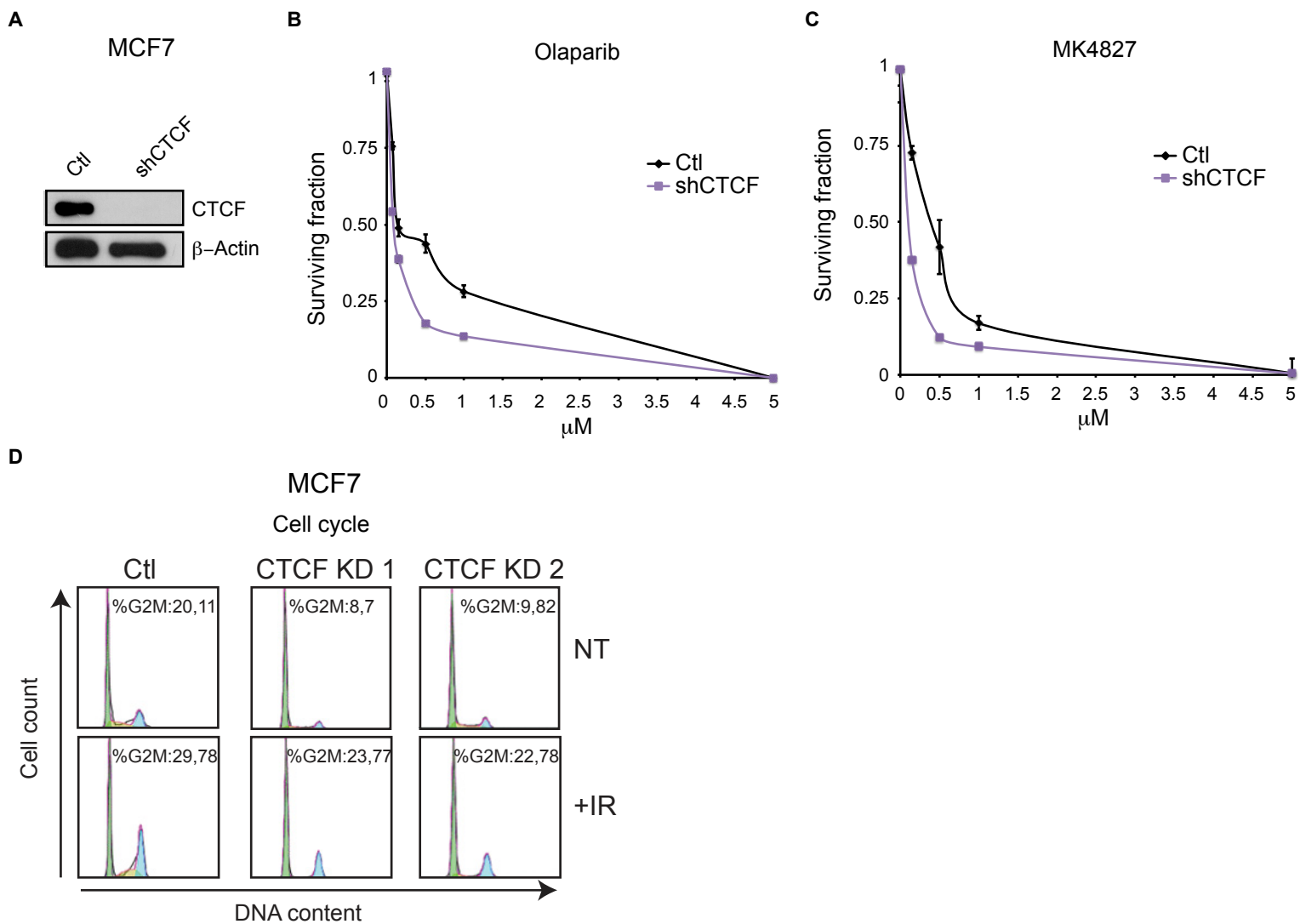


fig. S4. Loss of CTCF increases sensitivity to PARP inhibitors.

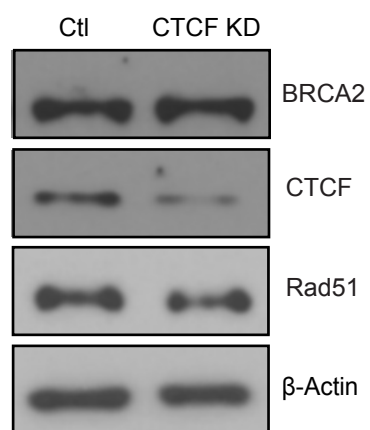
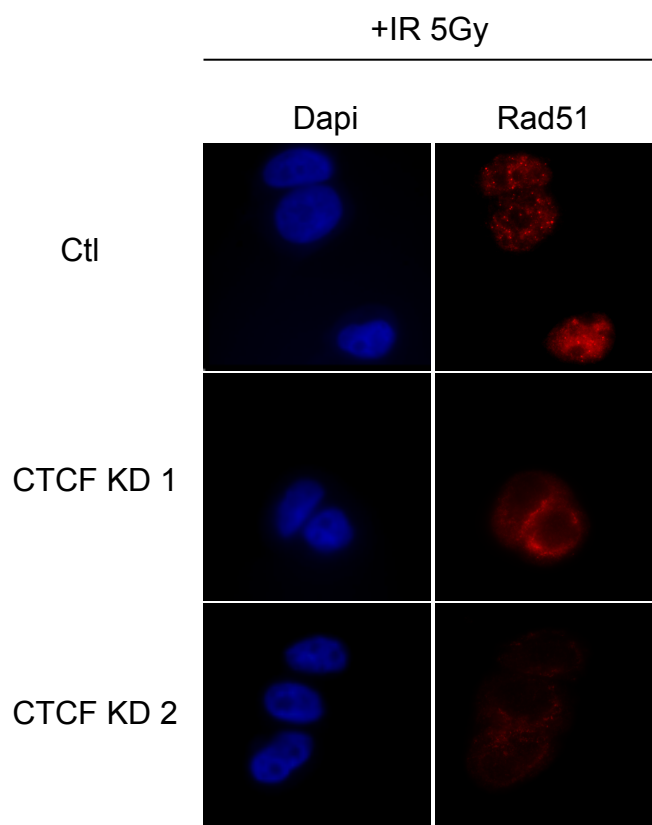
A**B**

fig. S5. Loss of CTCF impairs Rad51 foci formation following infrared.

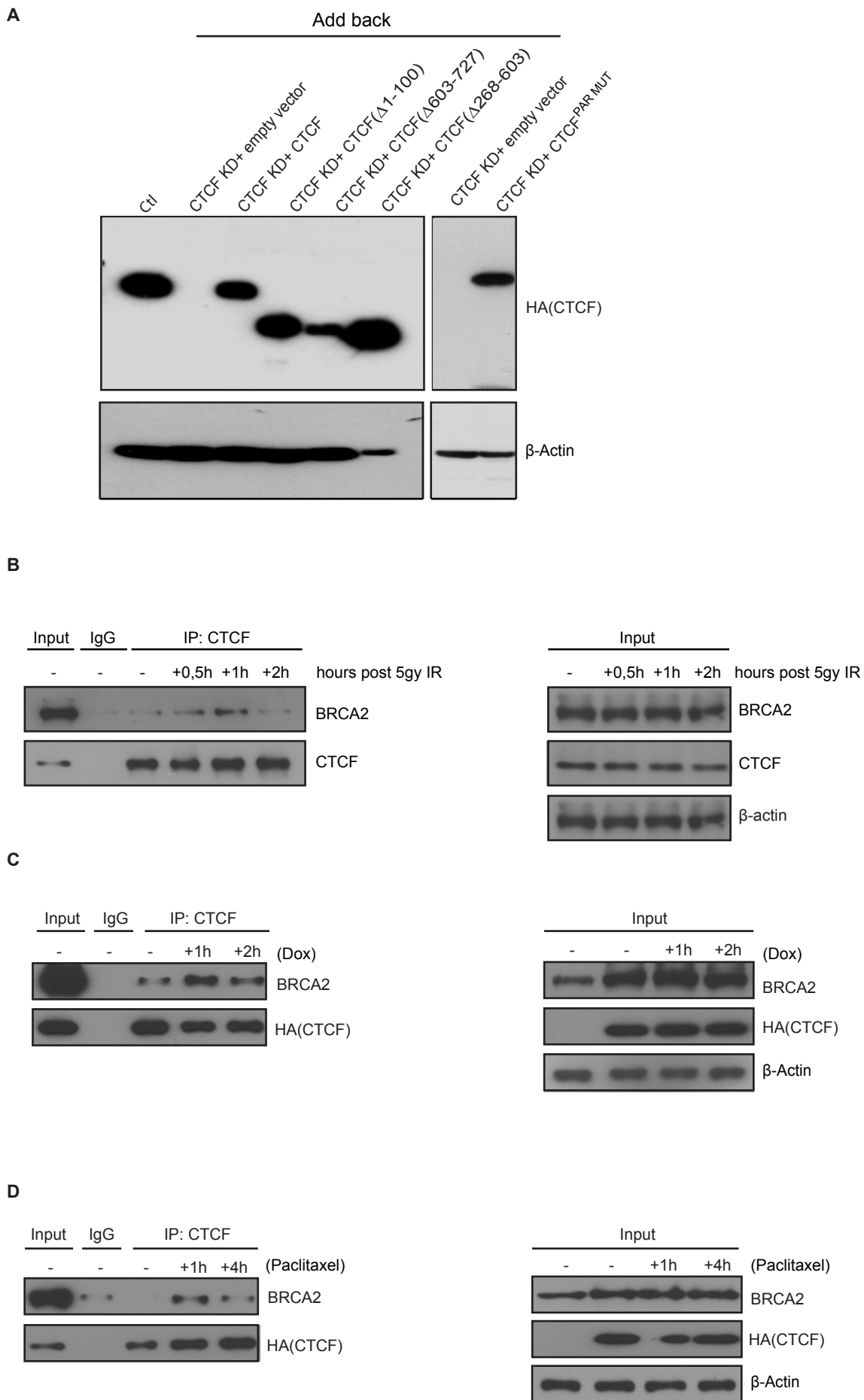


fig. S6. DNA damage increases the association between CTCF and BRCA2.

table S1. sgRNA sequences targeting Cas9 to CTCF.

U6 promoter and target sgRNA-1	TGTACAAAAAAGCAGGCTTTAAAGGAACCAATTCAGTCGACTGG ATCCGGTACCAAGGTCGGGCAGGAAGAGGGCCTATTTCCCATGA TTCCTTCATATTTGCATATACGATACAAGGCTGTTAGAGAGATA ATTAGAATTAATTTGACTGTAAACACAAAGATATTAGTACAAA ATACGTGACGTAGAAAGTAATAATTTCTTGGGTAGTTTGCAGTT TTAAAATTATGTTTTAAAATGGACTATCATATGCTTACCGTAAC TTGAAAGTATTTTCGATTTCTTGGCTTTATATATCTTGTGGAAAG GACGAAACACCGTGGAGAAGTCCTACCTGAAGTTTTAGAGCTAG AAATAGCAAGTTAAAATAAGGCTAGTCCGTTATCAACTTGAAA AAGTGGCACCGAGTCGGTGCTTTTTTTCTAGACCCAGCTTTCTT GTACAAAGTTGGCATT
U6 promoter and target sgRNA-2	TGTACAAAAAAGCAGGCTTTAAAGGAACCAATTCAGTCGACTGG ATCCGGTACCAAGGTCGGGCAGGAAGAGGGCCTATTTCCCATGA TTCCTTCATATTTGCATATACGATACAAGGCTGTTAGAGAGATA ATTAGAATTAATTTGACTGTAAACACAAAGATATTAGTACAAA ATACGTGACGTAGAAAGTAATAATTTCTTGGGTAGTTTGCAGTT TTAAAATTATGTTTTAAAATGGACTATCATATGCTTACCGTAAC TTGAAAGTATTTTCGATTTCTTGGCTTTATATATCTTGTGGAAAG GACGAAACACCGTGTGATTACGCTTGTAGACGTTTTAGAGCTAG AAATAGCAAGTTAAAATAAGGCTAGTCCGTTATCAACTTGAAA AAGTGGCACCGAGTCGGTGCTTTTTTTCTAGACCCAGCTTTCTT GTACAAAGTTGGCATT
PCR primers	
Cas9 target-1-Fwd	TATGCCAGCAGGGACACATA
Cas9 target-1-Rev	CAGAGGATATGCCGGAGAAG
Cas9 target-2-Fwd	TTCACATTACCCTGGGCTTT
Cas9 target-2-Rev	ACCGAGAAAGCACCAACAAC