**Supplementary Tables**

**Supplementary Table S1. Antibodies used for western blotting, immunofluorescence, and immunohistochemistry**

|  |  |  |  |
| --- | --- | --- | --- |
| Application | Antibody | Vendor | Catalog # |
| WB | anti-Actin | Sigma-Aldrich | A2066 |
| WB | Anti-p53 | Cell Signaling Technology | #9282 |
| WB, IHC, IF | anti-γH2AX | Cell Signaling Technology | #9718 |
| WB | anti-XRCC4 | Abcam | ab139092 |
| WB | anti-DNA Ligase IV | Cell Signaling Technology | #14649 |
| WB | anti-Artemis | Cell Signaling Technology | #13381 |
| WB | anti-53BP1 | Cell Signaling Technology | #4908 |
| WB | anti-BRD4 | Cell Signaling Technology | #13440 |
| WB | anti-phospho-Histone H3 | Cell Signaling Technology | #3377 |
| IHC | anti-phospho-Histone H3 | Cell Signaling Technology | #9701 |
| WB | anti-MYT1 | Cell Signaling Technology | #4282 |
| IF | anti-β-Tubulin | Cell Signaling Technology | #2128 |
| WB | anti-PARP | Cell Signaling Technology | #9532 |
| WB | anti-Cleaved Caspase-3 | Cell Signaling Technology | #9661 |

**Supplementary Table S2. Primers used for the quantitative RT-PCR**

|  |  |  |  |
| --- | --- | --- | --- |
| Gene symbol | Forward primer | Reverse primer | Amplicon length (nt) |
| *HPRT1* | TTGCTTTCCTTGGTCAGGCA | ATCCAACACTTCGTGGGGTC | 85 |
| *XRCC5* | CCAGCTTTGAGGAAGCGAGT | GGCTCGGATGCAGTCTATGC | 104 |
| *XRCC6* | TGGACCTGACATTGCCCAAG | TCTGGTGGGTAAACAAGCTCC | 98 |
| *PRKDC* | ATCCGCTACACAGTTTCTGCC | TGATGCTGTACATAAGGCCCG | 110 |
| *LIG4* | TCGACGCCACACCGTTTATT | TGCTCCATGAAACCGAAGCT | 112 |
| *XRCC4* | ATGACTGCTGACCGAGATCCA | TTACAGCAGCTGAAGCCAACC | 94 |
| *DCLRE1C* | CCTCTGTCCTGTGAACGCAT | GTACTTTGGGAAGACCGGCA | 102 |
| *NHEJ1* | GAAGCATCAAGGCGCTGGAG | GGGCTGAGGAGACCAGTTGT | 104 |
| *PAXX* | AAAGCCCGTTTTGGCCTGA | TGAAAGCGTCAGGGATGCTC | 117 |
| *SASS6* | CCTGAATGTGGTTGATGGTAGACTG | TTCTGGAATGCAAATGCAGAGGA | 81 |
| *TP53BP1* | TGGGAGTTCTCTCAGGCAAA | TCCTGCCCCTACAGGTTTTAC | 104 |
| *REV7* | GATAAAGAGCACCGCCCAGT | ACAGCGAGTCTGAGCTGATG | 82 |
| *SHLD1* | TGTGGATCCAGACACCAGTAA | AGAGTGAGTTTGCAGAGCCT | 185 |
| *SHLD2* | GCTGCTTGCCATTTACTATGAAGA | GAGGAAGGAACTATCACTCTGTTGA | 163 |
| *SHLD3* | GGGAAGGTTACAGACCAGCC | TCCATAGTCCTTTCACTGCTGC | 153 |
| *CDK1* | TTCAGAGCTTTGGGCACTCC | TCGAGAGCAAATCCAAGCCA | 148 |
| *WEE1* | ACCACAAGTGCTTTCCCAAGA | CAGTGCCATTGCTGAAGGTC | 88 |
| *CDC25* | AGAAGCCCATCGTCCCTTTG | GAGACCTGTCCTCTTCACGC | 117 |
| *CHK1* | GTCAGTTACTTGGCACCCCA | TTCTTTTGACCAACCGCTGC | 60 |
| *CHK2* | AGAAGAAGCCTTAAGACACCCG | CGACTAGTAGAAGGCTGGGC | 126 |
| *MYT1* | TCTCGCCAATATCCGCCTTC | GGTGCTCACATAGGCATCGA | 70 |
| *ATM* | GTTAAGGGCCGTGATGACCT | TCCTAGTTTCCGTGTTTCTCTGC | 94 |
| *ATR* | TATAAGGATGTGACCGCGTGC | GACCATGGGCATCAATTTGTCAT | 87 |
| *RAD50* | GAGATAAAGGATGCTAAAGAGCAGG | ATCCTGTGCTATTTTGTTGCTTGT | 117 |
| *RAD51* | TCAACAACCAGATTGTATCTGAGGA | AGGAAGACAGGGAGAGTCGT | 78 |
| *RAD52* | CGTTTGCCACCAGAAACCAC | TCCCAGTTTCCTGTTGTGCG | 87 |
| *BRCA1* | AAGGTCCAAAGCGAGCAAGA | TGAAGGGCCCATAGCAACAG | 78 |
| *BRCA2* | AAAGACTGTACTTCAGGGCCG | AGGAGAAGACATCAGAAGCTTGTTT | 75 |
| *MRE11* | TCGATGAGGAGGTACGTCGT | CTGGTCATAGCCTCACGGAC | 85 |
| *NBN* | CGAACTTTGAAGTCGGGGGA | GAGCATGCAACCAAAGGCTC | 86 |
| *XRCC2* | TCACCTGTGCATGGTGATATTCT | GGCCACCTTCTGATTTGGGA | 112 |