

**TableS2** Primers used in this study.

| Primers                        | Sequence (5'-3')   |
|--------------------------------|--|
| <i>ATG13</i> (WT)-1F           | TCCCCCGGGGATTCCCCACCACGTCTTTTATC   |
| <i>ATG13</i> (WT)-1R           | GGGGTACCCCTTATTCGTTTTGGGGCTGGTTG   |
| <i>ATG13</i> (269-738aaΔ/Δ)-1R | GATTAAAGCTCTTTTTCTATTTTCATTCATGTAGACAA<br>AACTCGGAATCC                                   |
| <i>ATG13</i> (269-738aaΔ/Δ)-2F | GGATTCCGAGTTTTGTCTACATGAATGAAAATAGAAA<br>AAGAGCTTTAATC                                   |
| <i>ATG13</i> (1-268aaΔ/Δ)-1R   | GAAATGGGACAGTAGTAACTCTTCATTAGTTAGAAGA<br>ATAGGTATCGTATTC                                 |
| <i>ATG13</i> (1-268aaΔ/Δ)-2F   | GAATACGATACCTATTCTTCTAACTAATGAAGAGTTAC<br>TACTGTCCCATTTTC                                |
| <i>ATG13</i> (461-640aaΔ/Δ)-1R | GTTACATGAGGTATTCTTGAACCTATGGTTTGACCCAT<br>TAAATCGGATTGG                                  |
| <i>ATG13</i> (461-640aaΔ/Δ)-2F | CCAATCCGATTTAATGGGTCAAACCATAAGTTCAAGA<br>ATACCTCATGTAAC                                  |
| <i>ATG13</i> (461-474aaΔ/Δ)-1R | CATACGGACAAAGTCACTTATGTCGGTTTGACCCATT<br>AAATCGGATTGG                                    |
| <i>ATG13</i> (461-474aaΔ/Δ)-2F | CCAATCCGATTTAATGGGTCAAACCGACATAAGTGAC<br>TTTGTCCGTATG                                    |
| <i>MEC1</i> -KO-F              | CATTTCTTATTTGTATATTATTAAATACGTATATCGCGA<br>GAAACTGTATAAATACTCTTGTTTCCCAGTCACGACG<br>TT   |
| <i>MEC1</i> -KO-R              | CATCTGGGTTACTCATTAATTGGTATGTATACTGGACT<br>ATGTTCAACGTCTTACGAATAACGTGGAATTGTGAGC<br>GGATA |
| <i>MEC1</i> -DE-F              | TCAAGAGACCCTTAAATCC  |
| <i>MEC1</i> -DE-R              | CATCTGTATAGTTTAATGA  |
| <i>MEC1</i> -IN-F              | ATGACGTCGAATCAATCAAT   |

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| <i>MEC1-IN-R</i>  | CCAAATTTTCCTACTACAACTC                  |
| <i>MEC1-CP-F</i>  | CTAGCTAGCTAGATGACGTCGAATCAATCAAT        |
| <i>MEC1-CP-R</i>  | TCCCCCGGGGGACATATAAGCTGCCCAACCTG        |
|                   | GTTAATGTTGTATGTTGAAGATTTGATGTTGAAAAAAG  |
| <i>RAD53-KO-F</i> | AAAAAAGATTTGTTCAAATTGTTTCCCAGTCACGAC    |
|                   | GTT                                     |
|                   | GTAAATGAGAAGTTAAAAGTACATAAACCAAACATCC   |
| <i>RAD53-KO-R</i> | CAAAGACCAAATGTCAACCAAGGGTGGAATTGTGAG    |
|                   | CGGATA                                  |
| <i>RAD53-DE-F</i> | GTTTGTAGATTGCCTGACG                     |
| <i>RAD53-DE-R</i> | GATTGCGATAAACTCAATG                     |
| <i>RAD53-IN-F</i> | ATGGAAGTAACACAACGGAC                    |
| <i>RAD53-IN-R</i> | TGCGTCTTCTCCTATTGCAC                    |
| <i>RAD53-CP-F</i> | ATTTGCGGCCGCTTTAGTAACCACATCAACATTGG     |
| <i>RAD53-CP-R</i> | CCATCGATGGGTTTAGTATCTCGGTATATAC         |
| <i>ATG1-NG-F</i>  | TCCCCCGGGGGAATGATACCTCAGTCGAACC         |
| <i>ATG1-NG-R</i>  | CGGGATCCCGTCATTTCCCATGAAATTC            |
| <i>ATG13-NG-F</i> | TCCCCCGGGGGAATGTTGTCAGATTTCAAAC         |
| <i>ATG13-NG-R</i> | CGGGATCCCGTCAAAAATTCCTTGAATTC           |
|                   | GATTAATTAATCTACTGCTTTTTAATTGATTGACTTTAA |
| <i>PSP2-KO-F</i>  | TTACTAACAGAATTATATTTTTTTTCCCAGTCACGACGT |
|                   | T                                       |
|                   | CAACTGGTTTGGCACCACCAAATGGATTTGGCTTGG    |
| <i>PSP2-KO-R</i>  | GTTTAGAAGTGGAAGTGGCAGATGAGTGGAATTGTG    |
|                   | AGCGGATA                                |
| <i>PSP2-DE-F</i>  | GTATTTTAATTTAATTTATTC                   |
| <i>PSP2-DE-R</i>  | CTTCGTCGGGGTTTTCTTC                     |
| <i>PSP2-IN-F</i>  | ATGTCCTTACAGGAGTTTTTC                   |
| <i>PSP2-IN-R</i>  | CTTTCAAAGTCGTCTAAAAG                    |

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| <i>PSP2-CP-F</i>  | <i>ATTTGCGGCCGCTTTAGATGTTACGGTGATTATAT</i>                     |
| <i>PSP2-CP-R</i>  | <i>CCATCGATGGGTGAGAAATCAGTGTTACAG</i>                          |
|                   | CACACAAGTTGTTTATCCAGTATACAAACATCAATACA                         |
| <i>DCP2-KO-F</i>  | ATTTTGAATCAATTTTAATTACTTTCCCAGTCACGACG<br>TT                   |
|                   | GTTAGTCTTGGGCTTCTGAAAGCTTTGAGGGTTAGG                           |
| <i>DCP2-KO-R</i>  | GGGTTGTTGGTTATGTGGACTAACATGTGGAATTGTG<br>AGCGGATA              |
| <i>DCP2-DE-F</i>  | CGTTTACCAGTCCACAAGG  |
| <i>DCP2-DE-R</i>  | CAAGTTCATTCTCATTCTCAAC   |
| <i>DCP2-IN-F</i>  | ATTTGTTAGTTAGATTTGTG   |
| <i>DCP2-IN-R</i>  | CATAATTTCTTCCTCGTTC  |
| <i>DCP2-CP-F</i>  | <i>ATTTGCGGCCGCTTTAGCTTAATCTATTGTCTAATG</i>                    |
| <i>DCP2-CP-R</i>  | <i>CCATCGATGGGAGTCTATTTGCTCTAGG</i>                            |
|                   | CAGGAAGTGAAGAAAATAATTGAAAAAATTAACCTCCC                         |
| <i>ATG1-HA-F</i>  | GTTTGAAGAATTTTCATGGGGAAACCCGGGTACCCAT<br>ACGATGTTC             |
|                   | CGAAGAGACAAAGGATAAGGTAGCAGAAATTAGTGA                           |
| <i>ATG1-HA-R</i>  | AAAGGTTGAAGATGTCAAGGAAGCTAGAAGGACCAC<br>CTTTG                  |
| <i>ATG1-IN-F</i>  | GTAAAAGTGATTTTACTGCTG<br>GATAGTGAAGATGACGAAGATTTGTTGTTTACTATGA |
| <i>ATG13-HA-F</i> | GTGATATGAATTCAAGGAATTTTCCCGGGTACCCATA<br>CGATGTTC              |
|                   | CTATGACTTGCATCAGGTGAAAACAGGAATGACGGC                           |
| <i>ATG13-HA-R</i> | TTTCAAATTTGGGAGGAACTTGCCTAGAAGGACCA<br>CCTTTG                  |
| <i>ATG13-IN-F</i> | AACAAACTCCCCAATCCGAT   |
| <i>URA3-IN-F</i>  | CCTATAGTGAGAGAGCAG   |

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|-------------------|---|
| <i>URA3-IN-R</i>  | ATGGAAGTAACACAACGGAC<br>CAAGAAGCTACATCATTAGAGAGATTATCACAAATGTA                              |
| <i>MEC1-HA-F</i>  | TGCAGGTTGGGCAGCTTATATGCCCGGGTACCCATA<br>CGATGTTC<br>ATAAAAGATTTATAGTACATAATAAGAAGTAGATTTGTT |
| <i>MEC1-HA-R</i>  | ATGAAATTTGACATTTATTCACTAGAAGGACCACCTTT<br>G   |
| <i>MEC1-IN-F</i>  | GTCCGCCTGTTTTACATACT<br>CAAACCTCAGAAGAAATGAATATTATTCCACTTATTTTC                             |
| <i>RAD53-HA-F</i> | GGGTTTAAGTAGTATAAGTTCACCCGGGTACCCATAC<br>GATGTTC<br>GTTTCGGTTGCTATCTCAATCATTGCGTTTAGTATCTCG |
| <i>RAD53-HA-R</i> | GTATATACCCCCACAGTTTTATCCTAGAAGGACCACC<br>TTTG   |
| <i>RAD53-IN-F</i> | ATGGAAGTAACACAACGGAC  |

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