

**Table S1** The list of primers used in this study

| Primer name     | Primer sequence (5' to 3')  | Purpose                                   |
|-----------------|-----------------------------|---|
| M1F             | TTGTAACCACCAGCAGCAGGG       | InDel marker for fine mapping <i>WLS5</i> |
| M1R             | AGCAATGGTACAAATAGCCAAGC     |   |
| M2F             | ATTCAGTACAAGGCACCCATGC      | InDel marker for fine mapping <i>WLS5</i> |
| M2R             | AGGGAGTACCAACTTGCTGTTC      |   |
| M3F             | TTATGCATGGATTTCGACGATC      | InDel marker for fine mapping <i>WLS5</i> |
| M3R             | GAAAAGCATAGGAGGAGCATT       |   |
| M4F             | TCCAACATGGCAAGAGAGAG        | InDel marker for fine mapping <i>WLS5</i> |
| M4R             | TATCACATTCGATTCCAGCATG      |   |
| M5F             | TTTTCTTCCCATCCCTCTTTA       | InDel marker for fine mapping <i>WLS5</i> |
| M5R             | CCTCCTCTAGTAACCTACGTG       |   |
| M6F             | TCGGGACCATAGCAAGTC          | InDel marker for fine mapping <i>WLS5</i> |
| M6R             | GCTGTCTTGCGATGACTC          |   |
| M7F             | TGAAATGTCAGTTTAGCCGG        | InDel marker for fine mapping <i>WLS5</i> |
| M7R             | GGCCGTTTGAAGAGTACAATA       |   |
| M8F             | AGATTTTAAGGACGTTTCGCTT      | InDel marker for fine mapping <i>WLS5</i> |
| M8R             | CGGCAATTAGGAGTATGATCG       |   |
| M9F             | TTGCTGTCTTGCTCATTACC        | InDel marker for fine mapping <i>WLS5</i> |
| M9R             | AAGAGGACGATGTGCCAA          |   |
| M10F            | TGCAGACATAGAGAAGGAAGTG      | InDel marker for fine mapping <i>WLS5</i> |
| M10R            | AGCAACAGCACAACCTTGATG       |   |
| <i>qUBQ</i> F   | AACCAGCTGAGGCCCAAGA         | Real time RT-PCR of <i>UBQ5</i>           |
| <i>qUBQ</i> R   | ACGATTGATTTAACCAGTCCATGA    |   |
| <i>qSGR</i> F   | GCAATGTCGCCAAATGACG         | Real time RT-PCR of <i>SGR</i>            |
| <i>qSGR</i> R   | GCTCACCACTCATTCCCTAAAG      |   |
| <i>qOsh36</i> F | CCTGGTGATCTGAAGGTTGT        | Real time RT-PCR of <i>Osh36</i>          |
| <i>qOsh36</i> R | CATGGCAACCAGTGTAAGC         |   |
| <i>qRCCR1</i> F | GGATCGACGATTGATTTTCATG      | Real time RT-PCR of <i>RCCR1</i>          |
| <i>qRCCR1</i> R | GTCGAGGCGTTCAGAAAGAT        |   |
| <i>qOs157</i> F | ACCCTAAAGTAAATGAAGTC        | Real time RT-PCR of <i>Os157</i>          |
| <i>qOs157</i> R | CCTGCTCTTGCTTGTGTTA         |   |
| <i>qCAOI</i> F  | TTGGCTCAGTTAATGAGGGCAGAATCC | Real time RT-PCR of <i>CAOI</i>           |
| <i>qCAOI</i> R  | GGATGCGCACGTTGAGCATCTTTGTGG |   |
| <i>qCHLHF</i>   | AACTGGATGAGCCAGAAGAGA       | Real time RT-PCR of <i>CHLH</i>           |
| <i>qCHLHR</i>   | AAATGCAAAAGACTTGCGACT       |   |

|                  |                           |                                   |
|------------------|---------------------------|-----------------------------------|
| <i>qDVR</i> F    | AGCCCAGGTTTCATCAAGGT      | Real time RT-PCR of <i>DVR</i>    |
| <i>qDVR</i> R    | TGATCACCTCTCGAAGAACT      |                                   |
| <i>qOsPORA</i> F | ATGGCTCTCCAAGTTCAG        | Real time RT-PCR of <i>OsPORA</i> |
| <i>qOsPORA</i> R | TGGCTCACGCTAAGGAAC        |                                   |
| <i>qOsPORB</i> F | CCGCAAGGAGGGAGCGGTG       | Real time RT-PCR of <i>OsPORB</i> |
| <i>qOsPORB</i> R | CCCTCTTGGTGCTAAGGCCG      |                                   |
| <i>qLchP2</i> F  | GAAGAAGATCAAGAACGGCC      | Real time RT-PCR of <i>LchP2</i>  |
| <i>qLchP2</i> R  | TTGCCGGGGACGAAGTTGGT      |                                   |
| <i>qPsbA</i> F   | AGAGACGCGAAAGTACAAGC      | Real time RT-PCR of <i>Psb</i>    |
| <i>qPsbA</i> R   | AAGTTGCGGTCAATAAGGTA      |                                   |
| <i>qRpoC1</i> F  | TCCGTCGGAACAACAATCTTG     | Real time RT-PCR of <i>RpoC1</i>  |
| <i>qRpoC1</i> R  | TCCACGGCTTCTTGTACCAAT     |                                   |
| <i>qRpoC2</i> F  | ATGCATCGCAGGTACACCAA      | Real time RT-PCR of <i>RpoC2</i>  |
| <i>qRpoC2</i> R  | CCCTCGCGTAAATTGCTTTG      |                                   |
| <i>qRps15</i> F  | AGATACGGAGACTTGCTTCA      | Real time RT-PCR of <i>Rps15</i>  |
| <i>qRps15</i> R  | GCTCCCTAATATCCAACCTGACT   |                                   |
| <i>qV1</i> F     | AGAATCAGCGCGAGAAGAGAACCT  | Real time RT-PCR of <i>V1</i>     |
| <i>qV1</i> R     | TACACCAGCTTTGGAGGAGCTGAA  |                                   |
| <i>qV2</i> F     | AGCAGATCCGTGATTACATGGCGA  | Real time RT-PCR of <i>V2</i>     |
| <i>qV2</i> R     | TGCCTCTTCACTCTCTGCAACCAA  |                                   |
| <i>qV3</i> F     | AACGAGAGATCTGGGCTGAATGCT  | Real time RT-PCR of <i>V3</i>     |
| <i>qV3</i> R     | AGCATTCAAGCCAGATCTCTCGTT  |                                   |
| <i>qAOX1a</i> F  | CTTCGCATCGGACATCCATTA     | Real time RT-PCR of <i>AOX1a</i>  |
| <i>qAOX1a</i> R  | TCCTCGGCAGTAGACAAACATC    |                                   |
| <i>qAOX1b</i> F  | CCTGCTCAGTTCATCACCATCA    | Real time RT-PCR of <i>AOX1b</i>  |
| <i>qAOX1b</i> R  | GCATAAAACGGAGTGACAATAGC   |                                   |
| <i>qAPX1</i> F   | AGGTGCCACAAGGAAAGATCTGGT  | Real time RT-PCR of <i>APX1</i>   |
| <i>qAPX1</i> R   | TCAGCAGGGCTTTGTCACTAGGAA  |                                   |
| <i>qAPX2</i> F   | TGGGAAGATGCCACAAGGAGAGAT  | Real time RT-PCR of <i>APX2</i>   |
| <i>qAPX2</i> R   | TCCGCAGCATATTTCTCCACCAGT  |                                   |
| <i>qcatA</i> F   | CAACCGCAACGTCGACAACCTTCTT | Real time RT-PCR of <i>catA</i>   |
| <i>qcatA</i> R   | TTCACCGGCAGCATCAGGTAGTTT  |                                   |
| <i>qcatB</i> F   | GCTTGCTTTCTGCCCAGCGATAAT  | Real time RT-PCR of <i>catB</i>   |
| <i>qcatB</i> R   | AAATAGTTTGGGCCAAGACGGTGC  |                                   |
| <i>qOsPOD1</i> F | ACGTCGGGGTCGCCAACAAC      | Real time RT-PCR of <i>OsPOD1</i> |
| <i>qOsPOD1</i> R | CGAACTCGTCCACCGACGCC      |                                   |

|                 |                          |   |
|-----------------|--------------------------|---|
| <i>qSODAI</i> F | ATCTGGATGGGTGTGGCTAGCTTT | Real time RT-PCR of <i>SODAI</i>                    |
| <i>qSODAI</i> R | AGTACGCATGCTCCCAGACATCAA |   |
| <i>qSODB</i> F  | TCCGCCGTATAAACTTGATGCCCT | Real time RT-PCR of <i>SODB</i>                     |
| <i>qSODB</i> R  | TGGGTGCCGTTGTTGTATGCTTC  |   |
| <i>wls5g</i> ++ | ggcaGATGGTGGCCAGCGTGCCGA | pC1300-UBI:Cas9 vector construction, genome editing |
| <i>wls5g</i> -- | aaacTCGGCACGCTGGCCACCATC |   |

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