Table S1. Primers used in this study.

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| Purpose | Primer number | Primer name | Sequence (5′-3′) |
| 3×sAID tagging | P121 | TAG-F | CGGATCCCCGGGTTAATTAA |
| 3×sAID tagging | P122 | TAG-R | GAATTCGAGCTCGTTTAAAC |
| 3×sAID tagging | P707 | mcm4\_up\_ov\_R3 | TTAATTAACCCGGGGATCCGATCAGTCTGTGCAATTGAACG |
| 3×sAID tagging | P708 | mcm4\_dn\_ov\_F3 | GTTTAAACGAGCTCGAATTCTAATTTTTTAGCGAATAAGCT |
| 3×sAID tagging | P709 | mcm4\_dn\_R | GCCTCTACGAATCATGGCGA |
| 3×sAID tagging | P710 | mcm4\_ver\_R | TTCTGCAGACATTGATGGTT |
| 3×sAID tagging | P711 | mcm4\_orf\_F | TGCAACTGATCCTGCAACAG |
| 3×sAID tagging | P815 | cdc45\_orf\_F | GGAGCAAGAACGAGAATTTGGA |
| 3×sAID tagging | P816 | cdc45\_up\_ov\_R3 | TTAATTAACCCGGGGATCCGTAATAGTGTTTTGAAGGACAG |
| 3×sAID tagging | P817 | cdc45\_dn\_ov\_F3 | GTTTAAACGAGCTCGAATTCTAAAGATTGGGTAAATAATGG |
| 3×sAID tagging | P818 | cdc45\_dn\_R | CGGCGAAGAATTTGCTCTCTG |
| 3×sAID tagging | P819 | cdc45\_ver\_R | AGTGGTTTTCATGGACCGGT |
| 3×sAID tagging | P820 | pol1\_orf\_F | CGAACACGACAAATGAGTGTGT |
| 3×sAID tagging | P821 | pol1\_up\_ov\_R3 | TTAATTAACCCGGGGATCCGCGATGAAAATATCAGTCCCAT |
| 3×sAID tagging | P822 | pol1\_dn\_ov\_F3 | GTTTAAACGAGCTCGAATTCTGAAGCTTTAATTCATTCTAC |
| 3×sAID tagging | P823 | pol1\_dn\_R | TGACCGTATTACCACCAGCT |
| 3×sAID tagging | P824 | pol1\_ver\_R | TCTTGTGTCATGACAAAGTCCCT |
| 3×sAID tagging | P825 | cdc20\_orf\_F | CGGATGGTCTTGTTCCAGCT |
| 3×sAID tagging | P826 | cdc20\_up\_ov\_R3 | TTAATTAACCCGGGGATCCGGTTCAGCACAGAAAGTATGGA |
| 3×sAID tagging | P827 | cdc20\_dn\_ov\_F3 | GTTTAAACGAGCTCGAATTCTAACATTTCTCGCCTGACCAT |
| 3×sAID tagging | P828 | cdc20\_dn\_R | AGGTGACTCATTTGGCGTGT |
| 3×sAID tagging | P829 | cdc20\_ver\_R | TTTGAGGACCTCCAAGCGAC |
| 3×sAID tagging | P830 | orc2\_orf\_F | TCACCAACTCGAACGCATGA |
| 3×sAID tagging | P831 | orc2\_up\_ov\_R3 | TTAATTAACCCGGGGATCCGTACGTCTTCCATCATATCCTC |
| 3×sAID tagging | P832 | orc2\_dn\_ov\_F3 | GTTTAAACGAGCTCGAATTCTAAAATAGGACCCTTTTAGAC |
| 3×sAID tagging | P833 | orc2\_dn\_R | AGATTCTGTTCGTTTGGTGAAC |
| 3×sAID tagging | P834 | orc2\_ver\_R | TCGTTGTCTTTGTAAACGCGT |
| 3×sAID tagging | P835 | orc6\_orf\_F | TCACACCGAGAGAAGAAAGGC |
| 3×sAID tagging | P836 | orc6\_up\_ov\_R3 | TTAATTAACCCGGGGATCCGTGAAGCAGTACCATCTTTTTC |
| 3×sAID tagging | P837 | orc6\_dn\_ov\_F3 | GTTTAAACGAGCTCGAATTCTGAATACAATTTACTATATTA |
| 3×sAID tagging | P838 | orc6\_dn\_R | AGAGGGGCCATTCTCTCCTT |
| 3×sAID tagging | P839 | orc6\_ver\_R | CATTGAAATCTCCCGCAGCG |
| 3×sAID tagging | P840 | cdc23(mcm10)\_orf\_F | GGACACCCGTTCCACAAGAT |
| 3×sAID tagging | P841 | cdc23(mcm10)\_up\_ov\_R3 | TTAATTAACCCGGGGATCCGGGGAACTATTTCTAAGTCATC |
| 3×sAID tagging | P842 | cdc23(mcm10)\_dn\_ov\_F3 | GTTTAAACGAGCTCGAATTCTGAATTTTACGTTGTTTTTCT |
| 3×sAID tagging | P843 | cdc23(mcm10)\_dn\_R | GTCAAAAGCTGTAACGGCCG |
| 3×sAID tagging | P844 | cdc23(mcm10)\_ver\_R | GTACCTCAGTTTGGCTGGCT |
| 3×sAID tagging | P850 | ssl3\_orf\_F | TGGCAATTTCCGCTTTAGAACT |
| 3×sAID tagging | P851 | ssl3\_up\_ov\_R3 | TTAATTAACCCGGGGATCCGAACAAAGCTGTATATATCCTC |
| 3×sAID tagging | P852 | ssl3\_dn\_ov\_F3 | GTTTAAACGAGCTCGAATTCTAGCTGTTTTCTATTCAGCCA |
| 3×sAID tagging | P853 | ssl3\_dn\_R | TTCTTACCTCGTAACCGGAG |
| 3×sAID tagging | P854 | ssl3\_ver\_R | TGAGTAAACATACCACTGCCA |
| 3×sAID tagging | P863 | cdc45-F | GAGCCATTGTTCGTACTGGAA |
| 3×sAID tagging | P864 | pol1-F | GTCCATCCTGTAATGCTACATCA |
| 3×sAID tagging | P865 | cdc20-F | AGCATCTGTGCTGTTTTTGAAC |
| 3×sAID tagging | P866 | orc2-F | GTCATGCACGATGCGACTACC |
| 3×sAID tagging | P867 | orc6-F | GGGGGCTCAACTGCTATACCT |
| 3×sAID tagging | P868 | cdc23-F | GGGTAATCCCACTGCTCTTTC |
| 3×sAID tagging | P870 | ssl3-F | CGAGAAGGTCCCCAAGTGCAT |
| 3×sAID tagging | P886 | sec8\_orf\_F | TCATGGCGACGTTGAATTTCC |
| 3×sAID tagging | P887 | sec8\_up\_ov\_R3 | TTAATTAACCCGGGGATCCGAGGATTTTTTCTCGCACCACC |
| 3×sAID tagging | P888 | sec8\_dn\_ov\_F3 | GTTTAAACGAGCTCGAATTCTAACCGTATAATATAGAATTT |
| 3×sAID tagging | P889 | sec8\_dn\_R | AACTTCGAGCGCTGGAAAGA |
| 3×sAID tagging | P890 | sec8\_ver\_R | TCCAAGCAAGATGAAGAGCA |
| 3×sAID tagging | P891 | sec16\_orf\_F | TTCCGGGAATCCAGGAATGC |
| 3×sAID tagging | P892 | sec16\_up\_ov\_R3 | TTAATTAACCCGGGGATCCGACTATTTCTCATGACATCCAC |
| 3×sAID tagging | P893 | sec16\_dn\_ov\_F3 | GTTTAAACGAGCTCGAATTCTGATGGAAGTTACTTTTTGTT |
| 3×sAID tagging | P894 | sec16\_dn\_R | ATCCATGCAACTCCACCTCC |
| 3×sAID tagging | P895 | sec16\_ver\_R | TCAGCTTCGGTGTTTCCCAC |
| 3×sAID tagging | P904 | sec8-F | GTTTGTATTCCAAGGTCTGAGTG |
| 3×sAID tagging | P905 | sec16-F | GGGGAGAAATCCCATTTGCAT |
| 3×sAID tagging verify | P793 | AID-R | TCCACCGGAAGACTTTTGGCAAG |
| 3×sAID tagging verify | P141 | *LD207-R* | GGTATTCTGGGCCTCCATGTCGC |
| 3×sAID tagging verify | P142 | *LD307-F* | CATCTGCCCAGATGCGAAGTTAAG |
| 3×sAID tagging verify | P928 | AID3-F2 | GGCCACCTGTCCGTTCTTACCG |
| plasmids construction | P855 | ura4-up-F | GCGGCCGCGTGAGTGTCATTATTGAGG |
| plasmids construction | P856 | B110-F | CGTTTGTTTTCCTAGGATCAGAAAATTATCGCCATAAAAGACAGAATAAGTCA |
| plasmids construction | P857 | B109-F | CGTTTGTTTTCCTAGGCATGCCCTACAACAACTAAGAAAATGG |
| plasmids construction | P858 | B109-R | ACATAAAACGCCTAGATATTACCCTGTTATCCCTAGCGGA |
| plasmids construction | P859 | B110-R | ACATAAAACGCCTAGATATTACCCTGTTATCCCTAGCGGA |
| plasmids construction | P860 | ura4-dn-R | GCGGCCGCCATGGATCCTAACTATGTC |
| plasmids construction | P861 | ura4-F | GGAAGGCATATCAGCAAAGAC |
| plasmids construction | P862 | LD129 | ACTTGGTTATAAACATTGGTG |
| ura4 integration verify | P907 | adh1-ter-ver-F | GTGTATACAAATTTTAAAGTGACTCTTAGG |
| ura4 integration verify | P908 | ura4-ver-dn-right | GCGTAGTGTAGTATTGCTGACAT |