**Supplementary File 4. *De novo* telomere addition junction sequences**

**chrV L 25,817-2,793\_25,817-2,790 (in *CAN1* insertion)** – PGSP464 [bzg124] (*rad10*)

CACCACACCCACACCCACACACCACACCCA:CACA:AATTAGCAGAAAGAAGAGTGGTTGCGAACAGAGTAAACC

 |||| |||||||||||||||||||||||||||||||||||||||

 :CACA:AATTAGCAGAAAGAAGAGTGGTTGCGAACAGAGTAAACC

 :chrV 33708

**chrV L 25,817-2,220\_25,817-2,214 (in *CAN1* insertion)** – PGSP4907 (*slx1*)

CACACCACACACCCACACACCACAC:CCACACC:TCTGACCAACGCCGGCCCAGTGGGCGCT

 ||||||| ||||||||||||||||||||||||||||

 :CCACACC:TCTGACCAACGCCGGCCCAGTGGGCGCT

 :chrV 33135

**chrV L 25,817-2,208\_25,817-2,204 (in inserted *CAN1*)** – PGSP231 (*mus81*)

ACACCACACCCACACCACACCCACACCCACAC:CCAAC:GCCGGCCCAGTGGGCGCTCTTATATCA

 ||||| |||||||||||||||||||||||||||

 :CCAAC:GCCGGCCCAGTGGGCGCTCTTATATCA

 :chrV 33123

**chrV L 25,817-2,198\_25,817-2,195 (in inserted *CAN1*)** – PGSP4701 (*sgs1 yku80*)

ACCACACCCACACCACACCCACACCACACCCACA:CCCA:GTGGGCGCTCTTATATCATATTTATTTATGGGTT

 |||| ||||||||||||||||||||||||||||||||||

 :CCCA:GTGGGCGCTCTTATATCATATTTATTTATGGGTT

 :chrV 33113

**chrV L 25817-1749\_25817-1748 (in inserted *CAN1*)** – PGSP5096 (*sae2 exo1* chrV:25,817-1,749 gRNA)

CACACCACACCACACCCACACACAC:CC:TGGGGTCCAGGTATAATATCTAAGGATAAAAAC

 || |||||||||||||||||||||||||||||||||

 :CC:TGGGGTCCAGGTATAATATCTAAGGATAAAAAC

 :chrV 32664

**chrV L 25,817-1,321\_25,817-1,320 (in inserted *CAN1*)** – PGSP4613 (*sae2 pol32*)

ACACCCACACCACACCCACACCACACCCACACA:CC:TAAATTCCTGTCAAGGACCACCAAAGGTG

 || |||||||||||||||||||||||||||||

 :CC:TAAATTCCTGTCAAGGACCACCAAAGGTG

 :chrV 32236

**chrV L 25,817-1,263\_25,817-1,263** **(in inserted *CAN1*)** – PGSP4566 [bzg118] (*pol32*)

CCCACACACCACACCCACACACCCACAC:C:TGCTGCATTTGGCGCTTTGGCTTACATGGAGACATCTACTGG

 | ||||||||||||||||||||||||||||||||||||||||||

 :C:TGCTGCATTTGGCGCTTTGGCTTACATGGAGACATCTACTGG

 :chrV 32178

**chrV L 25,817-1,103\_25,817-1,103 (in inserted *CAN1*)** – PGSP4569 [bzg104] (*rrm3*)

CCCACACACCCACACCCACA:C:TCTCGTGACGAGTTACCATTTAAAGCTAAATTAATGCCCGGCTTGGC

 | |||||||||||||||||||||||||||||||||||||||||||||||

 :C:TCTCGTGACGAGTTACCATTTAAAGCTAAATTAATGCCCGGCTTGGC

 :chrV 32018

**chrV L 25,817-996\_25,817-992 (in inserted *CAN1*)** – PGSP4353 (*sgs1*)

ACCCACACCCACACACCCACACCCA:CACCA:AAATTCAATGGTGTTAGCTTTGCTGCCGCCTATATCT

 ||||| |||||||||||||||||||||||||||||||||||||

 :CACCA:AAATTCAATGGTGTTAGCTTTGCTGCCGCCTATATCT

 :chrV 31911

**chrV L 25,817-642 (in inserted *CAN1*)** – PGSP4695 (*sgs1 yku80*)

ACCACACCCACACAC::TCACCACAACAATCTTGCTCCCGAAAAGAAAGCAGA

 ||||||||||||||||||||||||||||||||||||

 ::TCACCACAACAATCTTGCTCCCGAAAAGAAAGCAGA

 :chrV 31557

**chrV L 25,817-639\_25,817-635 (in *CAN1* insertion)** - PGSP783 [bzg095] (*exo1*)

ACACCCACACCCACACCCACAC:CCACA:ACAATCTTGCTCCCGAAAAGAAAGCAGACGGAGTAGAAGC

 ||||| ||||||||||||||||||||||||||||||||||||||||

 :CCACA:ACAATCTTGCTCCCGAAAAGAAAGCAGACGGAGTAGAAGC

 :chrV 31554

**chrV L 25,817-636\_25,817-635 (in *CAN1* insertion)** – PGSP5078 (*sae2 mus81* chrV:25,817-1,749 gRNA)

CACCACACC:CA:ACAATCTTGCTCCCGAAAAGAAAGCAGACGGAGT

 || ||||||||||||||||||||||||||||||||||

 :CA:ACAATCTTGCTCCCGAAAAGAAAGCAGACGGAGT

 :chrV 31551

**chrV L 25,817-587\_25,817-586 (in *CAN1* insertion)** – PGSP333 (*rad52*)

CCACACCACACCCACACCACACCAC:AC:TCCTTCAGACCTTCAAGTATATATATATATATA

 || |||||||||||||||||||||||||||||||||

 :AC:TCCTTCAGACCTTCAAGTATATATATATATATA

 :chrV 31502

**chrV L 25,817-491\_25,817-490 (in *CAN1* insertion)** – PGSP4894 (*yen1*)

CCACACCCACACACACCACACCCAC:AC:TCATTTTTCGTTATCTTCACGTCACCCGAACCT

 || |||||||||||||||||||||||||||||||||

 :AC:TCATTTTTCGTTATCTTCACGTCACCCGAACCT

 :chrV 31406

**chrV L 26,329\_26,330** – PGSP462 [bzg122] (*rad10*)

ACCCACACCCACCACACCCACAC:AC:TGTATATCTGTGCATGGTTGACTAATTGTTGTTTGATGGCCTGAAGTTC

 || |||||||||||||||||||||||||||||||||||||||||||||||||

 :AC:TGTATATCTGTGCATGGTTGACTAATTGTTGTTTGATGGCCTGAAGTTC

 :chrV 26329

**chrV L 26,384\_26,388** – PGSP756 [bzg113] (*pol32*)

ACACCACACCCACACCACACCCACACCCA:CACAC:TCTGCAAATTATCCCGACATTCAGACGTACACG

 ||||| |||||||||||||||||||||||||||||||||

 :CACAC:TCTGCAAATTATCCCGACATTCAGACGTACACG

 :chrV 26384

**chrV L 26,384\_26,388** – PGSP4705 (*sae2 pif1*)

CCCACACACACCACACCCACACACCACACCCA:CACAC:TCTGCAAATTATCCCGACATTCAGACGTAC

 ||||| ||||||||||||||||||||||||||||||

 :CACAC:TCTGCAAATTATCCCGACATTCAGACGTAC

 :chrV 26384

**chrV L 26,384\_26,388** – PGSP227 (*mus81*)

CACACCACACCCACACACACCACACCCACACC:CACAC:TCTGCAAATTATCCCGACATTCAGACGTAC

 ||||| ||||||||||||||||||||||||||||||

 :CACAC:TCTGCAAATTATCCCGACATTCAGACGTAC

 :chrV 26384

**chrV L 26,384\_26,388** – PGSP4885 (*sae2 rad52*)

CCACACCCACACCCACACCCACACC:CACAC:TCTGCAAATTATCCCGACATTCAGACGTAC

 ||||| ||||||||||||||||||||||||||||||

 :CACAC:TCTGCAAATTATCCCGACATTCAGACGTAC

 :chrV 26384

**chrV L 26,401\_26,403** – PGSP4579 [bzg131] (*rad10*)

ACACCCACACCCACACCCACACCCACA:CCC:GACATTCAGACGTACACGTACAAAACACGAATGCTAC

 ||| |||||||||||||||||||||||||||||||||||||

 :CCC:GACATTCAGACGTACACGTACAAAACACGAATGCTAC

 :chrV 26401

**chrV L 26,401\_26,403** – PGSP4912 (*slx1*)

CACACCCACACACACCACACCCACA:CCC:GACATTCAGACGTACACGTACAAAACACGAAT

 ||| ||||||||||||||||||||||||||||||||

 :CCC:GACATTCAGACGTACACGTACAAAACACGAAT

 :chrV 26401

**chrV L 26,581\_26,583** - PGSP781 [bzg093] (*exo1*)

CCCACACACCCACACCCACACACCAC:ACC:TTCGCGAACAGTATACTGGAGAGTGTTGCGACAAGATAT

 ||| |||||||||||||||||||||||||||||||||||||||

 :ACC:TTCGCGAACAGTATACTGGAGAGTGTTGCGACAAGATAT

 :chrV 26581

**chrV L 26,678\_26,681** – PGSP4597 [bzg147] (*sae2 rrm3*)

CACACCCACACACCCACACACCCACA:CCCA:GACCCATCTCCACCTTTTGCAAGCACGAACCACGTAG

 |||| ||||||||||||||||||||||||||||| ||||||

 :CCCA:GACCCATCTCCACCTTTTGCAAGCACGAAGAACGTAG

 :chrV 26678

**chrV L 26831\_26839** – PGSP4935 (*pif1 yku80*)

CCACACCCACACACCACACCCACAC:CCAAAAAAC:GGTTATGCCTCCGGAAGTAGCCACCA

 ||||||||| ||||||||||||||||||||||||||

 :CCAAAAAAC:GGTTATGCCTCCGGAAGTAGCCACCA

 :chrV 26831

**chrV L 27,423\_27,427** – PGSP4703 (*sae2 pif1*)

CACCACACCCACACCCACACCCACAC:ACCCC:GAAGTTCATCGTTTACAATGTGCCGTAAAGAACAC

 ||||| |||||||||||||||||||||||||||||||||||

 :ACCCC:GAAGTTCATCGTTTACAATGTGCCGTAAAGAACAC

 :chrV 27423

**chrV L 27,423\_27,427** – PGSP4910 (*slx1*)

CACCCACACCCACACCCACACCCAC:ACCCC:GAAGTTCATCGTTTACAATGTGCCGTAAAG

 ||||| ||||||||||||||||||||||||||||||

 :ACCCC:GAAGTTCATCGTTTACAATGTGCCGTAAAG

 :chrV 27423

**chrV L 27,759\_27,761** – PGSP4572 [bzg107] (*rrm3*)

CACACCACACCCACACCCACACCACAC:CCA:ACGCTAACCACATCTTCTCCAGCACCTTCTTACATTG

 ||| |||||||||||||||||||||||||||||||||||||

 :CCA:ACGCTAACCACATCTTCTCCAGCACCTTCTTACATTG

 :chrV 27759

**chrV L 27,932\_27,934** – PGSP 4898 (*yen1*)

CACACCCACACACCCACACCACACC:CAC:TTTCCAGGCGTACGCGACTTCGTCGTACTCCC

 ||| ||||||||||||||||||||||||||||||||

 :CAC:TTTCCAGGCGTACGCGACTTCGTCGTACTCCC

 :chrV 27932

**chrV L 28540** – PGSP332 (*rad52*)

 TGTGGGTGTGTGGGGGTGGTGTG::TCGGGTGTGTATTGGTTCCATTCACCTTAGCGGGT

 |||||||||||||||||||||||||||||||||||

 ::TCGGGTGTGTATTGGTTCCATTCACCTTAGCGGGT

 :chrV 28540

**chrV L 27,851\_27,852** – PGSP4689 (*sae2 yku80*)

ACCCACACCACACCACACCCACACACCACAC:CC:GCCCGATCTACCGTGTCGCATTATTCTTCTCAC

 || |||||||||||||||||||||||||||||||||

 :CC:GCCCGATCTACCGTGTCGCATTATTCTTCTCAC

 :chrV 27851

**chrV L 28,643\_28,647** – PGSP4577 [bzg129] (*rad10*)

CACCCACACCCACACCCACACACAC:ACCAC:TGTACATGCTATGGGAAATAAAGTACTCGAGAC

 ||||| |||||||||||||||||||||||||||||||||

 :ACCAC:TGTACATGCTATGGGAAATAAAGTACTCGAGAC

 :chrV 28643

**chrV L 28,644\_28,647** – PGSP4727 (*sae2 yku80 pif1*)

CACACCCACACACCCACAC:CCAC:TGTACATGCTATGGGAAATAAAGTACTCGAGACATCCATTGACAC

 |||| |||||||||||||||||||||||||||||||||||||||||||||

 :CCAC:TGTACATGCTATGGGAAATAAAGTACTCGAGACATCCATTGACAC

 :chrV 28644

**chrV L 28,683\_28,685** – PGSP222 (*mus81*)

ACCACACCCACACCACACCCACACCACAC:CCA:TTGACACCTTGGGACTTGATTCAAGATAGAGGTATC

 ||| ||||||||||||||||||||||||||||||||||||

 :CCA:TTGACACCTTGGGACTTGATTCAAGATAGAGGTATC

 :chrV 28683

**chrV L 28,840\_28,841** – PGSP226 (*mus81*)

CACCACACCCACACCACACCCACACCCACAC:CC:TCCTTGTATTCATTTGTTTCTGTTATCGTTGGTA

 || ||||||||||||||||||||||||||||||||||

 :CC:TCCTTGTATTCATTTGTTTCTGTTATCGTTGGTA

 :chrV 28840

**chrV L 29,259\_29,261** - PGSP777 [bzg089] (*exo1*)

ACCCACACACACCACACCCACACCC:ACA:TTCATTACAACTTATACCTGGGGAACACCAGAAAGAATAG

 ||| ||||||||||||||||||||||||||||||||||||||||

 :ACA:TTCATTACAACTTATACCTGGGGAACACCAGAAAGAATAG

 :chrV 29259

**chrV L 29,511\_29,513** – PGSP4715 (*sae2 pif1*)

ACACCCACACACCACACCCACACCACACC:CAC:TTTACAAGCAGTAAAGATAGGAAAGATTAATATTATC

 ||| |||||||||||||||||||||||||||||||||||||

 :CAC:TTTACAAGCAGTAAAGATAGGAAAGATTAATATTATC

 :chrV 29511

**chrV L 30,170\_30,176** – PGSP4916 (*slx1*)

ACCCACACACCACACCCACACACCC:ACAAAAA:TTTCCATGGGGAATGTGGTTAGCATGTT

 ||||||| ||||||||||||||||||||||||||||

 :ACAAAAA:TTTCCATGGGGAATGTGGTTAGCATGTT

 :chrV 30170

**chrV L 30543\_30546** – PGSP4941 (*pif1 yku80*)

CCCACACCACACCCACACACCACAC:CCAC:TGTCAGTACAATTATAATCATACTTATAACG

 |||| |||||||||||||||||||||||||||||||

 :CCAC:TGTCAGTACAATTATAATCATACTTATAACG

 :chrV 30543

**chrV L 30,742\_30,745** – PGSP4710 (*sae2 pif1*)

AACCCACACACCCACACACCACACCCACA:CCCA:ATAATTATGCAATAACCAATACATCCACCAAATG

 |||| ||||||||||||||||||||||||||||||||||

 :CCCA:ATAATTATGCAATAACCAATACATCCACCAAATG

 :chrV 30742

**chrV L 30,844\_30,847** – PGSP4842 (wt chrV:30843-gRNA)

ACACCCACACCACACCCACACCCAC:ACCC:TGGTATGTTCTCTTGCCAGCAAGAGTCAAGT

 |||| |||||||||||||||||||||||||||||||

 :ACCC:TGGTATGTTCTCTTGCCAGCAAGAGTCAAGT

 :chrV 30844

**chrV L 30,844\_30,847** – PGSP4843 (wt chrV:30843-gRNA)

ACCCACACCCACACACCCACACCAC:ACCC:TGGTATGTTCTCTTGCCAGCAAGAGTCAAGT

 |||| |||||||||||||||||||||||||||||||

 :ACCC:TGGTATGTTCTCTTGCCAGCAAGAGTCAAGT

 :chrV 30844

**chrV L 30,844\_30,847** – PGSP4844 (wt chrV:30843-gRNA)

CACACCACACCCACACCACACCCAC:ACCC:TGGTATGTTCTCTTGCCAGCAAGAGTCAAGT

 |||| |||||||||||||||||||||||||||||||

 :ACCC:TGGTATGTTCTCTTGCCAGCAAGAGTCAAGT

 :chrV 30844

**chrV L 30,844\_30,847** – PGSP4845 (wt chrV:30843-gRNA)

CCCACACACCACACCACACCCACAA:ACCC:TGGTATCTTCTCTTGCCAGCCAGAGTCAAGT

 |||| |||||||||||||||||||||||||||||||

 :ACCC:TGGTATGTTCTCTTGCCAGCAAGAGTCAAGT

 :chrV 30844

**chrV L 30,844\_30,847** – PGSP4846 (wt chrV:30843-gRNA)

CACACACCACACCCACACACACCAC:ACCC:TGGTATGTTCTCTTGCCAGCAAGAGTCAAGT

 |||| |||||||||||||||||||||||||||||||

 :ACCC:TGGTATGTTCTCTTGCCAGCAAGAGTCAAGT

 :chrV 30844

**chrV L 30,844\_30,847** – PGSP4847 (wt chrV:30843-gRNA)

CCACACCCACACACCACACCCACAC:ACCC:TGGTATGTTCTCTTGCCAGCAAGAGTCAAGT

 |||| |||||||||||||||||||||||||||||||

 :ACCC:TGGTATGTTCTCTTGCCAGCAAGAGTCAAGT

 :chrV 30844

**chrV L 30,844\_30,847** – PGSP5029 (wt hs-del chrV:30843-gRNA)

 ACACACCCACCC:TGGTATGTTCTCTTGCCAGCAAGAGTCAAGT

 |||| |||||||||||||||||||||||||||||||

 :ACCC:TGGTATGTTCTCTTGCCAGCAAGAGTCAAGT

 :chrV 30844

**chrV L 30,844\_30,847** – PGSP5030 (wt hs-del chrV:30843-gRNA)

CACACCCACACCACACCACACCCAC:ACCC:TGGTATGTTCTCTTGCCAGCAAGAGTCAAGT

 |||| |||||||||||||||||||||||||||||||

 :ACCC:TGGTATGTTCTCTTGCCAGCAAGAGTCAAGT

 :chrV 30844

**chrV L 30,844\_30,847** – PGSP5032 (wt hs-del chrV:30843-gRNA)

CACACCCACACCACACCCACACCAC:ACCC:TGGTATGTTCTCTTGCCAGCAAGAGTCAAGT

 |||| |||||||||||||||||||||||||||||||

 :ACCC:TGGTATGTTCTCTTGCCAGCAAGAGTCAAGT

 :chrV 30844

**chrV L 30,844\_30,847** – PGSP5033 (wt hs-del chrV:30843-gRNA)

CCCACACCCACACCCACACACCCAC:ACCC:TGGTATGTTCTCTTGCCAGCAAGAGTCAAGT

 |||| |||||||||||||||||||||||||||||||

 :ACCC:TGGTATGTTCTCTTGCCAGCAAGAGTCAAGT

 :chrV 30844

**chrV L 30,890\_30,890** – PGSP5028 (wt hs-del chrV:30843-gRNA)

AGCAAGAGACAAGTTAATGACAATC:A:GTCTTAACGTCCAATCAACTATAAATCCGAGGGC

 | ||||||||||||||||||||||||||||||||||

 :A:GTCTTAACGTCCAATCAACTATAAATCCGAGGGC

 :chrV 30890

**chrV L 34,339-1,125\_34,339-1,126 (in inserted hisG sequence)**- PGSP4725 (*sae2 yku80 pif1*)

CCCACACACACCACACCACAC:CC:TACAGAACCCAAAATATCAACGCATTACGTAGGCCTGATAAG

 || ||||||||||||||||||||||||||||||||||||||||||

 :CC:TACAGAACCCAAAATATCAACGCATTACGTAGGCCTGATAAG

 :chrV 34339-1125

**chrV L 34,339-752\_34,339-751 (in inserted hisG sequence)**- PGSP4717 (*sae2 pif1 yku80*)

ACCACACCCACACACCACACCCACACACCCACA:CC:TGAATCACGCCCTGAATACGGGTCAGCAATT

 || |||||||||||||||||||||||||||||||

 :CC:TGAATCACGCCCTGAATACGGGTCAGCAATT

**chrV L 34339-649\_34339-647 (in inserted hisG sequence)** – PGSP4933 (*pif1 yku80*)

CACCCACACCCACACACCCACACAC:CCA:GCCCCGCGCGCGGCGCGACTTCGACAGAACCA

 ||| ||||||||||||||||||||||||||||||||

 :CCA:GCCCCGCGCGCGGCGCGACTTCGACAGAACCA

 :chrV 34339-649

**chrV L 34,339-645\_34,339-643 (in inserted hisG sequence)**- PGSP4709 (*sae2 pif1*)

ACACACACCCACACCACACCCACACACCCACA:CCC:CGCGCGCGGCGCGACTTCGACAGAACCATTTAACAGACACG

 ||| |||||||||||||||||||||||||||||||||||||||||

 :CCC:CGCGCGCGGCGCGACTTCGACAGAACCATTTAACAGACACG

 :chrV 34339-645

**chrV L 34,339-645\_34,339-643 (in inserted hisG sequence)**- PGSP4711 (*sae2 pif1*)

CACACCCACACACCACACCACACACCACAC:CCC:GCGCGCGGCGCGACTTCGACAGAACCATTTAACAGACACGATTT

 ||| |||||||||||||||||||||||||||||||||||||||||

 :CCC:CGCGCGCGGCGCGACTTCGACAGAACCATTTAACAGACACG

 :chrV 34339-645

**chrV L 34,339-497 (in inserted hisG sequence)**- PGSP775 [bzg097] (*exo1*)

CCACACACCCACACACCCACACACC::TCAACCGGTGTTGCCAGCGATAAACGGCAGCCGCCGAAGTCAA

 |||||||||||||||||||||||||||||||||||||||||||

 ::TCAACCGGTGTTGCCAGCGATAAACGGCAGCCGCCGAAGTCAA

 ::chrV 34339-497

**chrV L 34,339-494\_34,339-492 (in inserted hisG sequence)**- PGSP4599 [bzg149] (*sae2 rrm3*)

CCCACACCACACCACACCCACACCCAC:ACC:GGTGTTGCCAGCGATAAACGGCAGCCGCCGAAGTC

 ||| |||||||||||||||||||||||||||||||||||

 :ACC:GGTGTTGCCAGCGATAAACGGCAGCCGCCGAAGTC

 :chrV 34339-494

**chrV L 34,339-344\_34,339-341 (in inserted hisG sequence)**- PGSP773 [bzg085] (*exo1*)

ACCCACACCCCACACCCACACACACCCAC:ACCA:GACCCGGAATGTCATCATCACGCACGCGCAGG

 |||| ||||||||||||||||||||||||||||||||

 :ACCA:GACCCGGAATGTCATCATCACGCACGCGCAGG

 :chrV 34339-344

**chrV L 34,339-78\_34,339-78 (in inserted hisG sequence)**- PGSP757 [bzg114] (*pol32*)

CACCCACACACCCACACACACCACACCCACACA:C:TTTCTCATGCGTTCATGCACCACTGGAAGATC

 | ||||||||||||||||||||||||||||||||

 :C:TTTCTCATGCGTTCATGCACCACTGGAAGATC

 :chrV 34339-78

**chrV L 34,339-78\_34,339-78 (in inserted hisG sequence)**- PGSP4564 [bzg116] (*pol32*)

CCCACACACACACCACACCCACAC:C:TTTCTCATGCGTTCATGCACCACTGGAAGATC

 | ||||||||||||||||||||||||||||||||

 :C:TTTCTCATGCGTTCATGCACCACTGGAAGATC

 :chrV 34339-78

**chrV L 34,339-78\_34,339-78 (in inserted hisG sequence)**- PGSP4567 [bzg119] (*pol32*)

ACCACCCACACCCACACCCACACCCCC:C:TTTCTCATGCGTTCATGCACCACTGGAAGATCTGAATT

 | ||||||||||||||||||||||||||||||||||||||

 :C:TTTCTCATGCGTTCATGCACCACTGGAAGATCTGAATT

 :chrV 34339-78

**chrV L 34,339-78\_34,339-78 (in inserted hisG sequence)** – PGSP4943 (*pif1 yku80*)

CACCCACACACCACACCCACACACA:C:TTTCTCATGCGTTCATGCACCACTGGAAGATC

 | ||||||||||||||||||||||||||||||||

 :C:TTTCTCATGCGTTCATGCACCACTGGAAGATC

 :chrV 34339-78

**chrV L 34,339-59\_34,339-55 (in inserted hisG sequence)**- PGSP4707 (*sae2 pif1*)

CACACCCACACACCACACCCACAC:ACCAC:TGGAAGATCTGAATTCTTGAAGACGAAAGGGCCTCGTGA

 ||||| |||||||||||||||||||||||||||||||||||||||

 :ACCAC:TGGAAGATCTGAATTCTTGAAGACGAAAGGGCCTCGTGA

 :chrV 34,339-59

**chrV L 34,339-58\_34,339-55 (in inserted hisG sequence)**- PGSP4941 (*pif1 yku80*)

CAGACACCACACCCACACACCACACCCACACCCACACCACAC:CCAC:TGGAAGATCTGAATTCTTGAAG

 |||| ||||||||||||||||||||||

 :CCAC:TGGAAGATCTGAATTCTTGAAG

 :34,339-58

**chrV L 34,339-58\_34,339-55 (in inserted hisG sequence)** - PGSP4932 (*pif1 yku80*)

CACCCACACACCACACCCACACACCACACCCACAC:CCAC:TGGAAGATCTGAATTCTTGAAGACGAAAG

 |||| |||||||||||||||||||||||||||||

 :CCAC:TGGAAGATCTGAATTCTTGAAGACGAAAG

 :chrV 34,339-58

**chrV L 34,339-58\_34,339-55 (in inserted hisG sequence)** – PGSP4901 (*yen1*)

ACACACCACACCCACACACCACACCCACACCACAC:CCAC:TGGAAGATCTGAATTCTTGAAGACGAAAG

 |||| |||||||||||||||||||||||||||||

 :CCAC:TGGAAGATCTGAATTCTTGAAGACGAAAG

 :chrV 34,339-58

**chrV L 34,397\_34,398** - PGSP778 [bzg090] (*exo1*)

CCACACCCACACCCACACAC:CC:AACGGCAAATGCTAAGCTATTTCCAAGGGTTTGTGCCCATACAC

 || ||||||||||||||||||||||||||||||||||||||||||||

 :CC:AACGGCAAATGCTAAGCTATTTCCAAGGGTTTGTGCCCATACAC

 :chrV 34397

**chrV L 34,404\_34,405** – PGSP4675 (*sae2* *exo1*)

CACACCCACACACCCACACA:CA:AATGCTAAGCTATTTCCAAGGGTTTGTGCCCATACACACGATAT

 || ||||||||||||||||||||||||||||||||||||||||||||

 :CA:AATGCTAAGCTATTTCCAAGGGTTTGTGCCCATACACACAATAT

 :chrV 34404

**chrV L 34,438** – PGSP4362 (*exo1 sgs1*)

ACACACCCACACACAC::TACACACAATATTTTACTCCGTGTTCCATCCTA

 |||||||||||||||||||||||||||||||||

 ::TACACACAATATTTTACTCCGTGTTCCATCCTA

 :chrV 34438

**chrV L 34,441\_34,445** – PGSP4666 (*sae2* *exo1*)

CCACACACACCACACACACCCACACACCACACCCACACCCAC:ACACA:ATATTTTACTCCGTGTTCCATC

 ||||| ||||||||||||||||||||||

 :ACACA:ATATTTTACTCCGTGTTCCATC

 :chrV 34441

**chrV L 34,713\_34,715** – PGSP4840 (wild-type chrV:34470-gRNA)

CACCCACACCCCACACACCCACACA:CCC:TACGAACCAGCTATTACTAGGCTGGGCAAAAT

 ||| ||||||||||||||||||||||||||||||||

 :CCC:TACGAACCAGCTATTACTAGGCTGGGCAAAAT

 :chrV 34713

**chrV L 34,831\_34,832** – PGSP755 [bzg117] (*pol32*)

ACACACCACACCCACACACACCACACCC:AC:TCCACAACAACACCCTCCACTGCAGGTCCTTCATCCACGCC

 || |||||||||||||||||||||||||||||||||||||||||

 :AC:TCCACAACAACACCCTCCACTGCAGGTCCTTCATCCACGCC

 :chrV 34831

**chrV L 34,831\_34,832** – PGSP463 [bzg123] (*rad10*)

CACACCCACACCCACACACAC:AC:TCCACAACAACACCCTCCACTGCAGGTCCTTCATCCACGCCCACTCCTAGTAGT

 || ||||||||||||||||||||||||||||||||||||||||||||||||||||||

 :AC:TCCACAACAACACCCTCCACTGCAGGTCCTTCATCCACGCCAAATCCTAGTAGT

 :chrV 34831

**chrV L 34,831\_34,832** – PGSP941 (*sgs1*)

ACCACACCCACACCACACCCACAC:AC:TCCACAACAACACCCTCCACTGCAGGTCCTTCATCCACGCCAAA

 || ||||||||||||||||||||||||||||||||||||||||||||

 :AC:TCCACAACAACACCCTCCACTGCAGGTCCTTCATCCACGCCAAA

 :chrV 34831

**chrV L 34,831\_34,832** – PGSP4350 (*exo1 sgs1*)

CACCACACCCACACAC:AC:TCCACAACAACACCCTCCACTGCAGGTCCTTCATCCACG

 || |||||||||||||||||||||||||||||||||||||||

 :AC:TCCACAACAACACCCTCCACTGCAGGTCCTTCATCCACG

 :chrV 34831

**chrV L 34,831\_34,832** – PGSP4839 (wild-type chrV:34470-gRNA)

ACCCAACCACACCCACACCACACCC:AC:TCCACAACAACACCCTCCACTGCAGGTCCTTCA

 || |||||||||||||||||||||||||||||||||

 :AC:TCCACAACAACACCCTCCACTGCAGGTCCTTCA

 :chrV 34831

**chrV L 34,831\_34,832** - PGSP5068 (*exo1 yku80*)

CCACACACACACACCACACCCACAC:AC:TCCACAACAACACCCTCCACTGCAGGTCCTTCA

 || |||||||||||||||||||||||||||||||||

 :AC:TCCACAACAACACCCTCCACTGCAGGTCCTTCA

 :chrV 34831

**chrV L 34,833** – PGSP4357 (*exo1 sgs1*)

CCACACCCACACCCACACACCCCACACCCACA::TCCACAACAACACCCTCCACTGCAGGTCCTTCATC

 |||||||||||||||||||||||||||||||||||

 ::TCCACAACAACACCCTCCACTGCAGGTCCTTCATC

 ::chrV 34833

**chrV L 34,833** – PGSP4838 (wild-type chrV:34470-gRNA)

CACCACACCCACACCACACACCACA::TCCACAACAACACCCTCCACTGCAGGTCCTTCATC

 |||||||||||||||||||||||||||||||||||

 ::TCCACAACAACACCCTCCACTGCAGGTCCTTCATC

 :chrV 34833

**chrV L 34,834\_34,838** – PGSP755 [bzg112] (*pol32*)

CCACACCCACAC:CCACA:ACAACACCCTCCACTGCAGGTCCTTCATCCACGCCAAATCCTAGTAGT

 ||||| ||||||||||||||||||||||||||||||||||||||||||||||||

 :CCACA:ACAACACCCTCCACTGCAGGTCCTTCATCCACGCCAAATCCTAGTAGT

 :chrV 34834

**chrV L 34,834\_34,838** – PGSP461 [bzg121] (*rad10*)

CCCACACCCACACACCCACACCACAC:CCACA:ACAACACCCTCCACTGCAGGTCCTTCATCCACGCCA

 ||||| ||||||||||||||||||||||||||||||||||||

 :CCACA:ACAACACCCTCCACTGCAGGTCCTTCATCCACGCCA

 :chrV 34834

**chrV L 34,834\_34,838** – PGSP4359 (*exo1 sgs1*)

ACCACACCCACCCACACCCACACCCACAC:CCACA:ACAACACCCTCCACTGCAGGTCCTTCATCCACGCCAAA

 ||||| ||||||||||||||||||||||||||||||||||||||

 :CCACA:ACAACACCCTCCACTGCAGGTCCTTCATCCACGCCAAA

 :chrV 34834

**chrV L 34,834\_34,838** – PGSP4360 (*exo1 sgs1*)

CCCACACACACACCCACAC:CCACA:ACAACACCCTCCACTGCAGGTCCTTCATCCAC

 ||||| ||||||||||||||||||||||||||||||||

 :CCACA:ACAACACCCTCCACTGCAGGTCCTTCATCCAC

 :chrV 34834

**chrV L 34,834\_34,838** – PGSP4660 (*sae2 mus81*)

ACACACACACCACACCCACACACCACACCCACACACCACACCCACAC:CCACA:ACAACACCCTCCACTGCAGGTCC

 ||||| |||||||||||||||||||||||

 :CCACA:ACAACACCCTCCACTGCAGGTCC

 :chrV 34834

**chrV L 34834\_34847** – PGSP5071 (*exo1 yku80*)

ACACCCACACACCCACACACCACAC:CCACAACAACACCC:TCCACTGCAGGTCCTTCATCC

 |||||||||||||| |||||||||||||||||||||

 :CCACAACAACACCC:TCCACTGCAGGTCCTTCATCC

 :chrV 34834

**chrV L 34,834\_34,847** – PGSP329 (*rad52*)

CACCCACACCACACCCACACCACAC:CCACAACAACACCC:TCCACTGCAGGTCCTTCATCC

 |||||||||||||| |||||||||||||||||||||

 :CCACAACAACACCC:TCCACTGCAGGTCCTTCATCC

 :chrV 34834

**chrV L 34,834\_34,847** – PGSP4904 (*slx1*)

 CCCACAC:CCACAACAACACCC:TCCACTGCAGGTCCTTCATCC

 |||||||||||||| |||||||||||||||||||||

 :CCACAACAACACCC:TCCACTGCAGGTCCTTCATCC

 :chrV 34834

**chrV L 34,839\_34,847** – PGSP943 (*sgs1*)

ACCACACCCACACACCACACCCACAC:ACCACACCC:TCCACTGCAGGTCCTTCATCCACGCCAAATCCTAGTAGTAAC

 ||||||||| ||||||||||||||||||||||||||||||||||||||||||

 :ACAACACCC:TCCACTGCAGGTCCTTCATCCACGCCAAATCCTAGTAGTAAC

 :chrV 34839

**chrV L 34,839\_34,847** – PGSP4895 (*yen1*)

CACACCCACACCCACACCCACACCC:ACAACACCC:TCCACTGCAGGTCCTTCATCCACGCC

 ||||||||| ||||||||||||||||||||||||||

 :ACAACACCC:TCCACTGCAGGTCCTTCATCCACGCC

 :chrV 34839

**chrV L 34,842\_34,847** – PGSP758 [bzg115] (*pol32*)

ACACCCACACCCACACACCC:ACACCC:TCCACTGCAGGTCCTTCATCCACGCCAAATCCTAGTAGTA

 |||||| ||||||||||||||||||||||||||||||||||||||||

 :ACACCC:TCCACTGCAGGTCCTTCATCCACGCCAAATCCTAGTAGTA

 :chrV 34842

**chrV L 34,842\_34,847** – PGSP949 (*sgs1*)

CACACACCACACCACACCCACACCCACACCC:ACACCC:TCCACTGCAGGTCCTTCATCCACGCCA

 |||||| |||||||||||||||||||||||||||

 :ACACCC:TCCACTGCAGGTCCTTCATCCACGCCA

 :chrV 34842

**chrV L 34,842\_34,847** – PGSP4573 [bzg108] (*rrm3*)

ACACCCACACCCACACCCAC:ACACCC:TCCACTGCAGGTCCTTCATCCACGCCAAATCCTAGCAGTA

 |||||| ||||||||||||||||||||||||||||||||||||||||

 :ACACCC:TCCACTGCAGGTCCTTCATCCACGCCAAATCCTAGTAGTA

 :chrV 34842

**chrV L 34,842\_34,847** – PGSP4702 (*sgs1 yku80*)

ACACCCACACACACCCACACAC:ACACCC:TCCACTGCAGGTCCTTCATCCACGCCAAAT

 |||||| ||||||||||||||||||||||||||||||

 :ACACCC:TCCACTGCAGGTCCTTCATCCACGCCAAAT

 :chrV 34842

**chrV L 34,842\_34,847** – PGSP4649 (*mus81*)

ACACCCACACACCACACCCACACCCAC:ACACCC:TCCACTGCAGGTCCTTCATCCACGCCAAATCC

 |||||| ||||||||||||||||||||||||||||||||

 :ACACCC:TCCACTGCAGGTCCTTCATCCACGCCAAATCC

 :chrV 34842

**chrV L 34,842\_34,847** – PGSP4352 (*exo1 sgs1*)

CACACACCACACCCACACCCACCACACCCACACACC:ACACCC:TCCACTGCAGGTCCTTCATCCACG

 |||||| ||||||||||||||||||||||||

 :ACACCC:TCCACTGCAGGTCCTTCATCCACG

 :chrV 34842

**chrV L 34,842\_34,847** – PGSP4826 (sae2 chrV:34470-gRNA)

ACACCCACACACCACACCCACACCC:ACACCC:TCCACTGCAGGTCCTTCATCCACGCCAAA

 |||||| |||||||||||||||||||||||||||||

 :ACACCC:TCCACTGCAGGTCCTTCATCCACGCCAAA

 :chrV 34842

**chrV L 34,842\_34,847 –** PGSP335 (*rad52*)

ACACCCACACCCACACCCACACACC:ACACCC:TCCACTGCAGGTCCTTCATCCACGCCAAA

 |||||| |||||||||||||||||||||||||||||

 :ACACCC:TCCACTGCAGGTCCTTCATCCACGCCAAA

 :chrV 34842

**chrV L 34,842\_34,847** – PGSP4888 (*sae2 rad52*)

CCACACCCACACCCACACCACACCC:ACACCC:TCCACTGCAGGTCCTTCATCCACGCCAAA

 |||||| |||||||||||||||||||||||||||||

 :ACACCC:TCCACTGCAGGTCCTTCATCCACGCCAAA

 :chrV 34842

**chrV L 34,847\_34,847** – PGSP754 [bzg111] (*pol32*)

ACACCCACACCCACACCCACA:C:TCCACTGCAGGTCCTTCATCCACGCCAAATCCTAGTAGT

 | |||||||||||||||||||||||||||||||||||||||

 :C:TCCACTGCAGGTCCTTCATCCACGCCAAATCCTAGTAGT

 :chrV 37847

**chrV L 34,847\_34,847** – PGSP937 (*sgs1*)

ACACCCACACACACCCACA:C:TCCACTGCAGGTCCTTCATCCACGCCAAATCCTAGAAGTAACAC

 | ||||||||||||||||||||||||||||||||||||||||||||

 :C:TCCACTGCAGGTCCTTCATCCACGCCAAATCCTAGTAGTAACAC

 :chrV 34847

**chrV L 34,849\_34,852** – PGSP4356 (*exo1 sgs1*)

ACCCACACCCACACACCACAC:CCAC:TGCAGGTCCTTCATCCACGCCAAATCCTAGTA

 |||| ||||||||||||||||||||||||||||

 :CCAC:TGCAGGTCCTTCATCCACGCCAAATCCTAGTA

 :chrV 34849

**chrV L 34,849\_34,852** – PGSP4693 (*sgs1 yku80*)

CACACCACACCCACACCCACACACCCACAC:CCAC:TGCAGGTCCTTCATCCACGCCAAAT

 |||| |||||||||||||||||||||||||

 :CCAC:TGCAGGTCCTTCATCCACGCCAAAT

 :chrV 34849

**chrV L 34,850\_34,852** – PGSP948 (*sgs1*)

CCACACCCACACCCACGCCACACCCACACCCA:CAC:TGCAGGTCCTTCATCCACGCCAAATCCTAGAAG

 ||| |||||||||||||||||||||||||||||||||

 :CAC:TGCAGGTCCTTCATCCACGCCAAATCCTAGTAG

 :chrV 34850

**chrV L 34,849\_34,852** – PGSP4822 (*sae2* chrV:34470-gRNA)

CCACACCCACACCCACACACCACAC:CCAC:TGCAGGTCCTTCATCCACGCCAAATCCTAGT

 |||| |||||||||||||||||||||||||||||||

 :CCAC:TGCAGGTCCTTCATCCACGCCAAATCCTAGT

 :chrV 34849

chrV **L 34,849\_34,852** – PGSP5061 (*exo1 yku80*)

ACACACCACACCACACCCACACCCA:CCAC:TGCAGGTCCTTCATCCACGCCAAATCCTAGT

 |||| |||||||||||||||||||||||||||||||

 :CCAC:TGCAGGTCCTTCATCCACGCCAAATCCTAGT

 :chrV 34849

**chrV L 34,860\_34,861** - PGSP774 [bzg086] (*exo1*)

CACACCCACACACCACACCCACACAC:CC:TTCATCCACGCCAAATCCTAGTAGTAACACCACACCAACT

 || ||||||||||||||||||||||||||||||||||||||||

 :CC:TTCATCCACGCCAAATCCTAGTAGTAACACCACACCAACT

 :chrV 34860

**chrV L 34,860\_34,861** – PGSP4836 (wild-type chrV:34470-gRNA)

ACCCACACCCACACCCACACCCACA:CC:TTCATCCACGCCAAATCCTAGTAGTAACACCAC

 || |||||||||||||||||||||||||||||||||

 :CC:TTCATCCACGCCAAATCCTAGTAGTAACACCAC

 :chrV 34860

**chrV L 34,864\_34,865** – PGSP331 (*rad52*)

ACAACACCCTCCACTGCAGGTCCTA:CA:TCCACGCCAAATCCTAGTAGTAACACCACACCA

 || |||||||||||||||||||||||||||||||||

 :CA:TCCACGCCAAATCCTAGTAGTAACACCACACCA

 :chrV 34864

**chrV L 34,867\_34,870** – PGSP4358 (*sgs1 exo1*)

ACACCACACCCACACCACACCACAC:CCAC:GCCAAATCCTAGTAGTAACACCACACCAACTCAT

 |||| ||||||||||||||||||||||||||||||||||

 :CCAC:GCCAAATCCTAGTAGTAACACCACACCAACTCAT

 :chrV 34867

**chrV L 34,867\_34,870** – PGSP422 [bzg098] (*rrm3*), PGSP423 [bzg099] (*rrm3*)

ACACCCACACCACACCCACACCACAC:CCAC:GCCAAATCCTAGTAGTAACACCACACCAACTCATCCTAC

 |||| |||||||||||||||||||||||||||||||||||||||

 :CCAC:GCCAAATCCTAGTAGTAACACCACACCAACTCATCCTAC

 :chrV 34867

**chrV L 34,868\_34,870** - PGSP780 [bzg092] (*exo1*)

CCACACCCACACACACCACACCCACA:CAC:GCCAAATCCTAGTAGTAACACCACACCAACTCATCCTAC

 ||| |||||||||||||||||||||||||||||||||||||||

 :CAC:GCCAAATCCTAGTAGTAACACCACACCAACTCATCCTAC

 :chrV 34868

**chrV L 34,868\_34,870** – PGSP4896 (*yen1*)

ACCACACCCACACACCACACCCACA:CAC:GCCAAATCCTAGTAGTAACACCACACCAACTC

 ||| ||||||||||||||||||||||||||||||||

 :CAC:GCCAAATCCTAGTAGTAACACCACACCAACTC

 :chrV 34868

**chrV L 34,872\_34,874** – PGSP427 [bzg103] (*rrm3*)

CACCACACCCACACCCACACCACAC:CCA:AATCCTAGTAGTAACACCACACCAACTCATCCTACATCCGA

 :|||:|||||||||||||||||||||||||||||||||||||||||

 :CCA:AATCCTAGTAGTAACACCACACCAACTCATCCTACATCCGA

 :chrV 34872

**chrV L 34,878\_34,879** – PGSP465 [bzg125] (*rad10*)

CACACCCACACCCACACCCACA:CC:TAGTAGTAACACCACACCAACTCATCCTACATCCGAAAAGGATACAA

 || |||||||||||||||||||||||||||||||||||||||||||||||

 :CC:TAGTAGTAACACCACACCAACTCATCCTACATCCGAAAAGGATACAA

 :chrV 34878

**chrV L 34,878\_34,879** – PGSP467 [bzg127] (*rad10*)

CCCACACCACACCCACACCCACACCCACA:CC:TAGTAGTAACACCACACCAACTCATCCTACATCCGAAAAGG

 || |||||||||||||||||||||||||||||||||||||||||

 :CC:TAGTAGTAACACCACACCAACTCATCCTACATCCGAAAAGG

 :chrV 34878

**chrV L 34,888\_34,898** – PGSP4576 [bzg128] (*rad10*)

ACCCACACACCCACACAC:ACACCACACCA:ACTCATCCTACATCCGAAAAGGATACAAAGG

 ||||||||||| |||||||||||||||||||||||||||||||

 :ACACCACACCA:ACTCATCCTACATCCGAAAAGGATACAAAGG

 :chrV 34888

**chrV L 34,888\_34,898** – PGSP4721 (*sae2 yku80 pif1*)

CACCCACACCCACACACCACACCCAC:ACACCACACCA:ACTCATCCTACATCCGAAAAGGATACAAAG

 ||||||||||| ||||||||||||||||||||||||||||||

 :ACACCACACCA:ACTCATCCTACATCCGAAAAGGATACAAAG

 :chrV 34888

**chrV L 34,888\_34,898** – PGSP4623 (*sae2 pol32*)

CACCACACCCACACCCACACCC:ACACCACACCA:ACTCATCCTACATCCGAAAAGGATACAAAGG

 ||||||||||| |||||||||||||||||||||||||||||||

 :ACACCACACCA:ACTCATCCTACATCCGAAAAGGATACAAAGG

 :chrV 34888

**chrV L 34,891\_34,900** – PGSP4824 (*sae2* chrV:34470-gRNA)

CACACACCACACCCACACACCACAC:CCACACCAAC:TCATCCTACATCCGAAAAGGATACA

 |||||||||| |||||||||||||||||||||||||

 :CCACACCAAC:TCATCCTACATCCGAAAAGGATACA

 :chrV 34891

**chrV L 34,892\_34,898** – PGSP4723 (*sae2 yku80 pif1*)

CACCCACACACCACACCCA:CACACCA:ACTCATCCTACATCCGAAAAGGATACAA

 ||||||| ||||||||||||||||||||||||||||

 :CACACCA:ACTCATCCTACATCCGAAAAGGATACAA

 :chrV 34892

**chrV L 35,140\_35,142** – PGSP340 (*rad52*)

ACCCACACCCACACCCACACCCACA:CCC:TGTCGTCTGTAAATTTGAAGAAGATTATTGAT

 ||| ||||||||||||||||||||||||||||||||

 :CCC:TGTCGTCTGTAAATTTGAAGAAGATTATTGAT

 :chrV 35140

**chrV L 35,187\_35,193** – PGSP225 (*mus81*)

CCACACACACCACACCCACACACCACACCCACAC:CCAACCA:TGATGAGTATAGTCCCTTACATTGAT

 ||||||| ||||||||||||||||||||||||||

 :CCAACCA:TGATGAGTATAGTCCCTTACATTGAT

 :chrV 35187

**chrV L 35,388\_35,391** – PGSP4841 (wild-type chrV:34470-gRNA)

CACACACACCACACCCACACCACAC:CCAC:TAATGGCTAGTGACTGTCAATCTTATGTTAC

 |||| |||||||||||||||||||||||||||||||

 :CCAC:TAATGGCTAGTGACTGTCAATCTTATGTTAC

 :chrV 35388

**chrV L 35,542\_35,545** – PGSP223 (*mus81*)

CCACACCCACACCCACACACACCACACCCAC:ACCC:GGATTCTAGAACTACATCTTTTAGTTCTACCAGT

 |||| ||||||||||||||||||||||||||||||||||

 :ACCC:GGATTCTAGAACTACATCTTTTAGTTCTACCAGT

 :chrV 35542

**chrV L 35,913\_35,919** – PGSP4942 (*pif1 yku80*)

CACCACACCCACACACACCACACCC:ACACCAA:TAATAACAAAAGATTTAGTGAATAATGA

 ||||||| ||||||||||||||||||||||||||||

 :ACACCAA:TAATAACAAAAGATTTAGTGAATAATGA

 :chrV 35913

**chrV L 35,916\_35,919** – PGSP4939 (*pif1 yku80*)

CCACACCCACACCACACCCACACAC:CCAA:TAATAACAAAAGATTTAGTGAATAATGATAA

 |||| |||||||||||||||||||||||||||||||

 :CCAA:TAATAACAAAAGATTTAGTGAATAATGATAA

 :chrV 35916

**chrV L 36,214\_36,216** – PGSP228 (*mus81*)

ACACCCACACCACACCCACAACCACACCCAC:ACC:TAAACGAATTAGGAGAATTTAAGGTAATTAATAG

 ||| ||||||||||||||||||||||||||||||||||

 :ACC:TAAACGAATTAGGAGAATTTAAGGTAATTAATAG

 :chrV 36214

**chrV L 36,424\_36,430** – PGSP4655 (*sae2 mus81*)

ACACCACACCCACACCACACCCACACACCA:CACACCC:TTCTCTTCTGTCTTGCCTTCTAATGAATAAC

 ||||||| |||||||||||||||||||||||||||||||

 :CACACCC:TTCTCTTCTGTCTTGCCTTCTAATGAATAAC

 :chrV 36424

**chrV L 37,086\_37,089** –PGSP2219 (*pif1*)

ACACCCACACCACACCCACA:CCCA:TTTAACGCGCTTGGGTTCAAACAGATCCATTTCTTGATC

 |||| |||||||||||||||||||||||||||||||||||||||

 :CCCA:TTTAACGCGCTTGGGTTCAAACAGATCCATTTCTTGATC

 :chrV 37086

**chrV L 38,004\_38,005** – PGSP466 [bzg126] (*rad10*)

CCCACACCCACACCCACACACCACACCCAC:AC:TTTGTAGAGAGTAAATCGGATTTAATCTTTGCTAATT

 || |||||||||||||||||||||||||||||||||||||

 :AC:TTTGTAGAGAGTAAATCGGATTTAATCTTTGCTAATT

 :chrV 38004

**chrV L 38,086\_38,091** – PGSP2225 (*pif1*)

CCACACCACACCCACACCAC:ACCCA:GTTGCGGCTTGTTCTTAATGTTTTTAGCCTTCGAAGCCTACTC

 ||||| |||||||||||||||||||||||||||||||||||||||||||

 :ACCCA:GTTGCGGCTTGTTCTTAATGTTTTTAGCCTTCGAAGCATACTC

 :chrV 38086

**chrV L 38,086\_38,090** – PGSP4836 (wild-type chrV:34470-gRNA)

ACCACACCCACACACCCACACCCAC:ACCCA:GTTGCGGCTTGTTCTTAATGTTTTTAGCCT

 ||||| ||||||||||||||||||||||||||||||

 :ACCCA:GTTGCGGCTTGTTCTTAATGTTTTTAGCCT

 :chrV 38086

**chrV L 38,291\_38,294** – PGSP4722 (*sae2 yku80 pif1*)

ACACCACACCCACACACCAC:ACCC:TGCCCAGCGTCAATAGACTTTGGTTGATTGAA

 |||| ||||||||||||||||||||||||||||||||

 :ACCC:TGCCCAGCGTCAATAGACTTTGGTTGATTGAA

 :chrV 38291

**chrV L 38,297\_38,300** – PGSP2217 (*pif1*)

ACACCACCACACCCACACACCACA:CCCA:GCGTCAATAGACTTTGGTTGATTGAACCAGCTTCTTTGGCA

 |||| |||||||||||||||||||||||||||||||||||||||||

 :CCCA:GCGTCAATAGACTTTGGTTGATTGAACCAGCTTCTTTGGCA

 :chrV 38297

**chrV L 38,391\_38,396** – PGSP337 (*rad52*)

CCCACACCACACCCACACACCACAC:CCACAA:GATTCATTTTGGAAATTCTAAATAGTTCA

 |||||| |||||||||||||||||||||||||||||

 :CCACAA:GATTCATTTTGGAAATTCTAAATAGTTCA

 :chrV 38391

**chrV L 38,543\_38,545** - PGSP776 [bzg088] (*exo1*)

ACCACACCCACACACCCACACCCACA:CCC:TCCATAGCATTTGTTATGTGAAATTCTTGCAAATTCTGG

 ||| |||||||||||||||||||||||||||||||||||||||

 :CCC:TCCATAGCATTTGTTATGTGAAATTCTTGCAAATTCTGG

 :chrV 38543

**chrV L 38,543\_38,545** – PGSP4706 (*sae2* *pif1*)

CCACACCCACACACCACACCCACACA:CCC:TCCATAGCATTTGTTATGTGAAATTCTTGCAAATTCTGG

 ||| |||||||||||||||||||||||||||||||||||||||

 :CCC:TCCATAGCATTTGTTATGTGAAATTCTTGCAAATTCTGG

 :chrV 38543

**chrV L 38,575\_38,578** – PGSP4937 (*pif1 yku80*)

 ACACACCACACCCACACA:CAAA:TTCTGGATGTATATACCATTAGTTTGGTCAT

 |||| |||||||||||||||||||||||||||||||

 :CAAA:TTCTGGATGTATATACCATTAGTTTGGTCAT

 :chrV 38575

**chrV L 38,715\_38,716** – PGSP339 (*rad52*)

ACCACACCCACACACCACACCACAC:CC:TGTTGTTGTTGATACTGTTGCTTGATGGTATTC

 || |||||||||||||||||||||||||||||||||

 :CC:TGTTGTTGTTGATACTGTTGCTTGATGGTATTC

 :chrV 38715

**chrV L 39,155\_39,157** – PGSP223 (*mus81*)

CCCACACCCACACCACACCCACACCCACACAC:CCA:TATACCAGTACGGTGCAATTGTAACCTTTAAT

 ||| ||||||||||||||||||||||||||||||||

 :CCA:TATACCAGTACGGTGCAATTGTAACCTTTAAT

 :chrV 39155

**chrV L 39,251\_39,252** – PGSP2216 (*pif1*)

CCACACCCACACACCACACCCACAC:CC:GAAGACTTTGTCCACTGTGTATCTCTTGGCATTCATCTGAG

 || |||||||||||||||||||||||||||||||||||||||||

 :CC:GAAGACTTTGTCCACTGTGTATCTCTTGGCATTCATTTGAG

 :chrV 39251

**chrV L 39,363\_39,369** – PGSP2222 (*pif1*)

ACACACCACACCCACACAC:CCACAAC:GGAGCTTTTCATACTAATTTCCCTTTCATTCCTTCGT

 :CCACAAC:GGAGCTTTTCATACTAATTTCCCTTTCATTCCTTC

 :chrV 39363

**chrV L 39,659\_39,264** – PGSP2224 (*pif1*)

ACCCACACCCACACACCACACCACACCCAC:ACACCC:GCTGTTGAGAAGCGGGTCACAAAGGAAGTCTTT

 |||||| |||||||||||||||||||||||||||||||||

 :ACACCC:GCTGTTGAGAAGCGGGTCACAAAGGAAGTCTTT

 :chrV 39659

**chrV L 39,682\_39,685** – PGSP4568 [bzg120] (*pol32*)

ACACCCACACCCACACCCACACACCACACCCACA:CACA:AAGGAAGTCTTTAGATGATGTTATTGTTGCGG

 |||| ||||||||||||||||||||||||||||||||

 :CACA:AAGGAAGTCTTTAGATGATGTTATTGTTGCGG

 :chrV 39,682

**chrV L 39,718\_39,719** – PGSP3614 (*yku80*)

CCACACCCACACACCCACACCCACACA:CC:TTGTTTGTTTGTTTTGTTTATTTCGCGTACCTAATACAT

 || |||||||||||||||||||||||||||||||||||||||

 :CC:TTGTTTGTTTGTTTTGTTTATTTCGCGTACCTAATACAT

 :chrV 39718

**chrV L 39,749\_39,750** – PGSP229 (*mus81*)

ACCCACACCCACACACACACCACACCCACACCCACACCACAC:CC:TAATACATCGTCACCACACACGAAAACGAAA

 || |||||||||||||||||||||||||||||||

 :CC:TAATACATCGTCACCACACACGAAAACGAAA

 :chrV 39749

**chrV L 39,762\_39,771** – PGSP2223 (*pif1*)

ACCCACACCCACACACCA:CACCACACAC:GAAAACGAAAACATTTGATCAGATAAGTGAT

 |||||||||| |||||||||||||||||||||||||||||||

 :CACCACACAC:GAAAACGAAAACATTTGATCAGATAAGTGAT

 :chrV 39762

**chrV L 39,764\_39,771** – PGSP4713 (*sae2 pif1*)

CCACACCCACACCCACACCACACCCACAC:CCACACAC:GAAAACGAAAACATTTGATCAGATAAGTGAACTGCAAA

 |||||||| ||||||||||||||||||||||||||||||||||||||

 :CCACACAC:GAAAACGAAAACATTTGATCAGATAAGTGATCTGCAAA

 :chrV 39764

**chrV L 39,764\_39,771** – PGSP2214 (*pif1*)

CACACCCACACACCACACCCACACCACAC:CCACACAC:GAAAACGAAAACATTTGATCAGATAAGTGATCTGCAAA

 |||||||| ||||||||||||||||||||||||||||||||||||||

 :CCACACAC:GAAAACGAAAACATTTGATCAGATAAGTGATCTGCAAA

 :chrV 39764

**chrV L 39,765\_39,771** – PGSP2221 (*pif1*)

CACACACCACACCCA:CACACAC:GAAAACGAAAACATTTGATCAGATAAGTGAT

 ||||||| |||||||||||||||||||||||||||||||

 :CACACAC:GAAAACGAAAACATTTGATCAGATAAGTGAT

 :chrV 39765

**chrV L 39,968\_39,969** – PGSP4697 (*sgs1 yku80*)

ACACCCACACACACAC:AC:TCCGACTTGTAACCTCGAGACGCCTAAGGAA

 || |||||||||||||||||||||||||||||||

 :AC:TCCGACTTGTAACCTCGAGACGCCTAAGGAA

 :chrV 39968

**chrV L 39,982\_39,983** - PGSP782 [bzg094] (*exo1*)

CACCCACACCCACACCACACCCACAC:CC:TCGAGACGCCTAAGGAAAGAAAAAAGAAAAAAAAAGCAG

 || |||||||||||||||||||||||||||||||||||||||

 :CC:TCGAGACGCCTAAGGAAAGAAAAAGAAAAAAAAAAGCAG

 :chrV 39982

**chrV L 40,186\_40,190** – PGSP5062 (*exo1 yku80*)

 CCACACCCACACCCACACACCCAC:ACAAA:TCTTGACCACCACCGTTGTAGATTAAAACA

 ||||| ||||||||||||||||||||||||||||||

 :ACAAA:TCTTGACCACCACCGTTGTAGATTAAAACA

 :chrV 40186

**chrV L 40,197\_40,204** – PGSP4714 (*sae2 pif1*)

ACCCACACACCACACCCACACCACACCCACAC:CCACCACC:GTTGTAGATTAAAACATTTGGAGTGTCT

 |||||||| ||||||||||||||||||||||||||||

 :CCACCACC:GTTGTAGATTAAAACATTTGGAGTGTCT

 :chrV 40197

**chrV L 40,314\_40,317** – PGSP942 (*sgs1*)

ACACCACACCCACACACACCACACCCACA:CCCA:ATTCGAAAAATTCACTATCAGAACCTGGTTGCA

 |||| |||||||||||||||||||||||||||||||||

 :CCCA:ATTCGAAAAATTCACTATCAGAACCTGGTTGCA

 :chrV 40314

**chrV L 40,403\_40,406** – PGSP4653 (*sae2 mus81*)

CACCACACCCACACACCCACACACCACACCACACCCAC:ACCC:GATAAAGTGGCGGTGGCGTCATCAC

 :ACCC:GATAAAGTGGCGGTGGCGTCATCAC

 :chrV 40403

**chrV L 40,460\_40,462** – PGSP4354 (*exo1 sgs1*)

CACCACACCACACACCACACACCACACCCACAC:ACC:TGGGGCGAAAACGTCGACACACTTACCCCAG

 ||| |||||||||||||||||||||||||||||||

 :ACC:TGGGGCGAAAACGTCGACACACTTACCCCAG

 :chrV 40460

**chrV L 40,596\_40,598** – PGSP4351 (*exo1 sgs1*)

CACCCACACCCACACACACACCACAC:CCA:GCAGCCACGGCAAAGTGAATACCGACTTCAACGGC

 ||| |||||||||||||||||||||||||||||||||||

 :CCA:GCAGCCACGGCAAAGTGAATACCGACTTCAACGGC

 :chrV 40596

**chrV L 40,707\_40,709** – PGSP334 (*rad52*)

CACACACCACACCCACACACCCACA:CCC:TTTTTCTTTTCTTGGGCTTCTTTTTGGTGCGC

 ||| ||||||||||||||||||||||||||||||||

 :CCC:TTTTTCTTTTCTTGGGCTTCTTTTTGGTGCGC

 :chrV 40707

**chrV L 40,726\_40,726** – PGSP2215 (*pif1*)

ACCCACACACCCACACACACACCACACCCACACA:C:TTCTTTTTGGTGCGCCTTTGCGGCATATTCGAC

 | |||||||||||||||||||||||||||||||||

 :C:TTCTTTTTGGTGCGCCTTTGCGGCATATTCGAC

 :chrV 40726

**chrV L 40,758\_40,762** – PGSP2220 (*pif1*)

CCACACCCACACCCACACACCACACCCAC:ACACC:TTTGACGACATCAGACATGGTACCAGACCCGTTT

 ||||| ||||||||||||||||||||||||||||||||||

 :ACACC:TTTGACGACATCAGACATGGTACCAGACCCGTTT

 :chrV 40758

**chrV L 40,758\_40,762** – PGSP4936 (*pif1 yku80*)

CACACCACACCCACACACCACACCC:ACACC:TTTGACGACATCAGACATGGTACCAGACCC

 ||||| ||||||||||||||||||||||||||||||

 :ACACC:TTTGACGACATCAGACATGGTACCAGACCC

 :chrV 40758

**chrV L 40,971\_40,976** – PGSP4725 (*sae2 yku80* *pif1*)

CCCACACACCACACCCACACACC:ACACCC:GTGTCAATAACATAGGACGTGACACCGCGACCGGC

 |||||| |||||||||||||||||||||||||||||||||||

 :ACACCC:GTGTCAATAACATAGGACGTGACACCGCGACCGGC

 :chrV 40971

**chrV L 41,041\_41,046** – PGSP4935 (*pif1 yku80*)

 ACACACCAC:ACCCCA:GGTTGAGGCGCTCTCTGTGGGAAATACGG

 |||||| |||||||||||||||||||||||||||||

 :ACCCCA:GGTTGAGGCGCTCTCTGTGGGAAATACGG

 :chrV 41041

**chrV L 41,078\_41,086** – PGSP336 (*rad52*)

CCACACCCACACCCACACCCACACA:CAACCCCCA:TGGGGCGCTATTTTGAGTGTCAAATT

 ||||||||| ||||||||||||||||||||||||||

 :CAACCCCCA:TGGGGCGCTATTTTGAGTGTCAAATT

 :chrV 41078

**chrV L 41,207\_41,209** – PGSP224 (*mus81*)

CACCCACACCACACCCACACACCACACACCAC:ACC:GGAGAAAAGATTATCGATGTTGAATGAGTCCTGG

 ||| ||||||||||||||||||||||||||||||||||

 :ACC:GGAGAAAAGATTATCGATGTTGAATGAGTCCTGG

 :chrV 41207

**chrV L 41,538\_41,539** – PGSP2218 (*pif1*)

CCACACCCACACACCCACACAC:CC:TTTCATCTTCTTCTCCTCCACCTTATTTTCGTGGCA

 || ||||||||||||||||||||||||||||||||||||

 :CC:TTTCATCTTCTTCTCCTCCACCTTATTTTCGTGGCA

 :chrV 41538

**chrV L 41,578\_41,582** – PGSP230 (*mus81*)

ACCCACACCCACACACCACACCCACACCACACCCA:CACCC:TTATGGTGAGGCTTCTTCTTCTTATCA

 ||||| |||||||||||||||||||||||||||

 :CACCC:TTATGGTGAGGCTTCTTCTTCTTATCA

 :chrV 41578

**chrV L 41,578\_41,582** – PGSP4913 (*slx1*)

CCACACCACACCCACACCACACCCA:CACCC:TTATGGTGAGGCTTCTTCTTCTTATCATCA

 ||||| ||||||||||||||||||||||||||||||

 :CACCC:TTATGGTGAGGCTTCTTCTTCTTATCATCA

 :chrV 41578

**chrV L 41,652\_41,654** – PGSP4361 (*exo1 sgs1*)

ACCCACACACCACACCCACACCCACACACACA:CCC:TTTCCTCCCTCGTGGGCGCTCCCATGAGAGC

 ||| |||||||||||||||||||||||||||||||

 :CCC:TTTCCTCCCTCGTGGGCGCTCCCATGAGAGC

 :chrV 41652

**chrV L 41,812\_41,815** – PGSP330 (*rad52*)

ACCACACCCACACCCACACCCACAC:CCAC:TTTTCTGGGTCTCTCGTGGTGATCTTCCTTG

 |||| |||||||||||||||||||||||||||||||

 :CCAC:TTTTCTGGGTCTCTCGTGGTGATCTTCCTTG

 :chrV 41812

**chrV L 42138\_42141** – PGSP4938 (*pif1 yku80*)

CACACACCACACCCACACACCACAC:CCAC:TGCAGTGGCATTACTGAGCCCAAATTTTGCT

 |||| |||||||||||||||||||||||||||||||

 :CCAC:TGCAGTGGCATTACTGAGCCCAAATTTTGCT

 :chrV 42138

**chrV L 42,064\_42,066** – PGSP4893 (*yen1*)

ACCCCACACCCACACCACACCCACA:CCC:TTTTATATTCATCGCGCTCTTTATCGCGGGTG

 ||| ||||||||||||||||||||||||||||||||

 :CCC:TTTTATATTCATCGCGCTCTTTATCGCGGGTG

 :chrV 42064

**chrV L 42160\_42165** – PGSP5064 (*exo1 yku80*)

ACCCACACACCACACCCACACCACA:CCCAAA:TTTTGCTTTTTCAACAAGTCACCTAAATT

 |||||| |||||||||||||||||||||||||||||

 :CCCAAA:TTTTGCTTTTTCAACAAGTCACCTAAATT

 :chrV 42160

**chrV L 42,185\_42,188** – PGSP420 [bzg096] (*rrm3*)

CCCACACCCACACACCACACCCACA:CACC:TAAATTTCCAAAGCCGAAAGCCCTGCTACTCTGCTAAC

 :CACC:TAAATTTCCAAAGCCGAAAGCCCTGCTACTCTGCTAAC

 :chrV 42185

**chrV L 42,677\_42,680** – PGSP425 [bzg101] (*rrm3*)

CACACCCACACACCACACCCACACA:CCCC:TTTTCTCCCCCCCTGTTTCTCGTCCATCTCTATCTGTC

 |||| ||||||||||||||||||||||||||||||||||||||

 :CCCC:TTTTCTCCCCCCCTGTTTCTCGTCCATCTCTATCTGTC

 :chrV 42677

**chrV L 42,807\_42,810** – PGSP1993 (*sae2*)

ACCACACCCACACCCACACCACACCCACACCCAC:ACAC:TCTTCTGCAGAGGATTTTCGTACACAACGG

 |||| ||||||||||||||||||||||||||||||

 :ACAC:TCTTCTGCAGAGGATTTTCGTACACAACGG

 :chrV 42807

**chrV L 43,023\_43,026** –PGSP946 (*sgs1*)

CACCACACCCACACACCACACCCACACCCAC:ACCC:TTACTTGCACGATTAGCAGATTGTTCAGAGAGC

 |||| |||||||||||||||||||||||||||||||||

 :ACCC:TTACTTGCACGATTAGCAGATTGTTCAGAGAGC

 :chrV 43023

**chrV L 43,023\_43,026** – PGSP5060 (*exo1 yku80*)

CACACACACCACACCCACACACCAC:ACCC:TTACTTGCACGATTAGCAGATTGTTCAGAGA

 |||| |||||||||||||||||||||||||||||||

 :ACCC:TTACTTGCACGATTAGCAGATTGTTCAGAGA

 :chrV 43023

**chrV L 68,851\_68,854** – PGSP4889 (*sae2 rad52*)

GAGTAAAAGTGAGTGTAAGCCTAGGAAAGGA:GGTG:TGGGTGTGGTGTGGGTGTGGTGTGG

||||||||||||||||||||||||||||||| ||||

GAGTAAAAGTGAGTGTAAGCCTAGGAAAGGA:GGTG:

 chrV 68854:

**chrV L 68,851\_68,856** – PGSP4882 (*sae2 rad52*)

GTAAAAGTGAGTGTAAGCCTAGGAAAGGA:GGTGGT:GTGTGGGTGTGGGTGTGGTGTGGG

||||||||||||||||||||||||||||| ||||||

GTAAAAGTGAGTGTAAGCCTAGGAAAGGA:GGTGGT:

 chrV 68856:

**chrV L 75,107\_75,110** – PGSP5070 (*exo1 yku80*)

AAAGGCGAAGAAACTTGGAATAGTGTCTTCA:GTGG:GTGTGGTGTGGGTGTGGTGTGTGGG

||||||||||||||||||||||||||||||| ||||

AAAGGCGAAGAAACTTGGAATAGTGTCTTCA:GTGG:

 chrV 75110:

**chrV L 83,962\_83,965** –PGSP4720 (*sae2 pif1 yku80*)

GGTTTCGACATCCACGTCTCTCCAGTAAACCCAGGA:GTGG:GTGTGGTGTGGGTGTGGTGTGTGTG

|||||||||||||||||||||||||||||||||||| ||||

GGTTTCGACATCCACGTCTCTCCAGTAAACCCAGGA:GTGG:

 chrV 83965:

**chrV L 86,027\_86,030** –PGSP4720 (*sae2 pif1 yku80*)

CGGTGACACTAAGGATGATGTCAAGGCTCCAGAA:GGTG:TGTGGGTGTGGTGTGTGGTGTGGTGTGTGTG

|||||||||||||||||||||||||||||||||| ||||

CGGTGACACTAAGGATGATGTCAAGGCTCCAGAA:GGTG:
 chrV 86030:

**chrV L 107,567\_107,571** –PGSP4704 (*sae2 pif1*)

GTTGAAGTTAATTTAGCGGCTATCCCAT:TGGGT:GTGGTGTGTGGGTGTGTGGGTGTGGGTGTGGTGTG

|||||||||||||||||||||||||||| |||||

GTTGAAGTTAATTTAGCGGCTATCCCAT:TGGGT:

 chrV 107571:

**chrV L 116,832\_116,837** –PGSP4718 (*sae2 pif1 yku80*)

ACGCATTGGGTCAACAGTATAGAACCGTGGATGA:TGTGGT:GTGGGTGTGGGTGTGGTG

|||||||||||||||||||||||||||||||||| ||||||

ACGCATTGGGTCAACAGTATAGAACCGTGGATGA:TGTGGT:

 chrV 116837:

**chrV L 140,749\_140,750** –PGSP4622 (*sae2 pol32*)

GTATGGGGTATGGGGGCATCATCGATTGTTCTCCGGTAAC:GG:GTGTGGGTGTGGTGTGTGGGT

|||||||||||||||||||||||||||||||||||||||| ||

GTATGGGGTATGGGGGCATCATCGATTGTTCTCCGGTAAC:GG:

 chrV 140749:

\*Junctions are sorted based on the coordinates of the telomere-like sequences that the adjacent to the telomere (sequence between the colons).