

Table S3. Heterozygous diploid YKO strains excluded from the pool

| ORF name | plate | His⁺^a | Mates as <i>MATa</i>^b | Papillates as <i>MATa</i>^b | Mates as <i>MATa</i>^b | Papillates as <i>MATa</i>^b |
|-----------------|--------------|------------------------------------|---|--|---|--|
| YAL051W | 201 | 1 | 0 | 0 | 0 | 0 |
| YAL035W | 201 | 1 | 0 | 0 | 0 | 0 |
| YAL017W | 201 | 1 | 0 | 0 | 0 | 0 |
| YAL005C | 201 | 0 | 1 | 0 | 0 | 0 |
| YAR002W | 201 | 0 | 0 | 0 | 1 | 0 |
| YAR018C | 201 | 0 | 1 | 0 | 0 | 0 |
| YML089C | 203 | 1 | 0 | 0 | 0 | 0 |
| YML088W | 203 | 1 | 0 | 0 | 0 | 0 |
| YML087C | 203 | 1 | 0 | 0 | 0 | 0 |
| YML086C | 203 | 1 | 0 | 0 | 0 | 0 |
| YML084W | 203 | 1 | 0 | 0 | 0 | 0 |
| YML083C | 203 | 1 | 0 | 0 | 0 | 0 |
| YML082W | 203 | 1 | 0 | 0 | 0 | 0 |
| YML081W | 203 | 1 | 0 | 0 | 0 | 0 |
| YML080W | 203 | 1 | 0 | 0 | 0 | 0 |
| YML079W | 203 | 1 | 0 | 0 | 0 | 0 |
| YML078W | 203 | 1 | 0 | 0 | 0 | 0 |
| YMR223W | 205 | 1 | 0 | 0 | 0 | 0 |
| YPL273W | 209 | 0 | 1 | 0 | 0 | 0 |
| YPL202C | 210 | 0 | 0 | 0 | 1 | 0 |
| YER068W | 215 | 0 | 0 | 1 | 0 | 0 |
| YHR080C | 217 | 0 | 0 | 0 | 0 | 1 |
| YHR094C | 217 | 0 | 0 | 0 | 0 | 1 |
| YCL014W | 218 | 0 | 0 | 0 | 0 | 1 |
| YCL044C | 219 | 0 | 0 | 1 | 0 | 0 |
| YLR151C | 219 | 0 | 0 | 0 | 0 | 1 |
| YGR051C | 221 | 0 | 0 | 0 | 0 | 1 |
| YGR065C | 221 | 0 | 0 | 0 | 0 | 1 |
| YOR138C | 223 | 0 | 0 | 1 | 0 | 0 |
| YOR143C | 223 | 0 | 0 | 0 | 0 | 1 |
| YGL215W | 228 | 0 | 0 | 0 | 1 | 0 |
| YIL046W | 237 | 0 | 0 | 1 | 0 | 0 |
| YFL030W | 237 | 0 | 0 | 0 | 0 | 1 |
| YJL111W | 242 | 0 | 1 | 0 | 0 | 1 |
| YJR148W | 246 | 0 | 0 | 0 | 0 | 1 |
| YLR343W | 246 | 0 | 0 | 0 | 0 | 1 |
| YML031W | 246 | 0 | 0 | 0 | 0 | 1 |
| YML046W | 246 | 0 | 0 | 0 | 0 | 1 |
| YML067C | 246 | 0 | 0 | 0 | 0 | 1 |
| YDL217C | 246 | 0 | 0 | 1 | 0 | 0 |

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|---------|-----|---|---|---|---|---|
| YDR004W | 246 | 0 | 0 | 1 | 0 | 0 |
| YDR006C | 246 | 0 | 0 | 0 | 0 | 1 |
| YNR017W | 252 | 0 | 0 | 0 | 0 | 1 |
| YBR159W | 258 | 0 | 0 | 1 | 0 | 0 |
| YBR161W | 258 | 0 | 0 | 0 | 0 | 1 |
| YIL102C | 262 | 0 | 0 | 0 | 1 | 0 |
| YIL051C | 262 | 0 | 1 | 0 | 0 | 0 |
| YJL166W | 280 | 0 | 1 | 0 | 0 | 0 |
| YLR069C | 280 | 0 | 0 | 0 | 0 | 1 |
| YML060W | 280 | 0 | 0 | 0 | 0 | 1 |
| YML052W | 280 | 0 | 0 | 0 | 0 | 1 |
| YMR266W | 280 | 0 | 1 | 0 | 0 | 0 |
| YNL331C | 280 | 0 | 1 | 0 | 0 | 0 |
| YNL262W | 280 | 0 | 0 | 0 | 1 | 0 |
| YNL251C | 280 | 0 | 0 | 0 | 0 | 0 |
| YOR014W | 280 | 0 | 0 | 0 | 0 | 1 |
| YOR078W | 280 | 0 | 0 | 0 | 0 | 1 |
| YOR089C | 280 | 0 | 0 | 1 | 0 | 0 |
| YOR093C | 280 | 0 | 0 | 1 | 0 | 0 |
| YOR095C | 280 | 0 | 0 | 1 | 0 | 1 |
| YOR097C | 280 | 0 | 0 | 1 | 0 | 1 |
| YOR106W | 280 | 0 | 0 | 1 | 0 | 1 |
| YOR132W | 280 | 0 | 0 | 1 | 0 | 0 |
| YOR149C | 280 | 0 | 0 | 1 | 0 | 0 |
| YOR202W | 280 | 0 | 0 | 1 | 0 | 0 |
| YOR204W | 280 | 0 | 0 | 1 | 0 | 1 |
| YOR278W | 280 | 0 | 1 | 0 | 0 | 1 |
| YOR279C | 280 | 0 | 0 | 1 | 0 | 1 |
| YOR281C | 280 | 0 | 0 | 1 | 0 | 1 |
| YDR077W | 280 | 0 | 1 | 0 | 0 | 0 |
| YEL065W | 280 | 0 | 0 | 1 | 0 | 1 |
| YER007W | 280 | 0 | 0 | 0 | 0 | 0 |
| YER058W | 280 | 0 | 0 | 0 | 0 | 0 |
| YER086W | 280 | 0 | 0 | 0 | 0 | 0 |
| YGR096W | 280 | 0 | 0 | 0 | 0 | 0 |
| YGR111W | 280 | 0 | 0 | 0 | 0 | 0 |
| YGR186W | 280 | 0 | 0 | 0 | 0 | 0 |
| YGR198W | 280 | 0 | 0 | 0 | 0 | 0 |
| YGR199W | 280 | 0 | 0 | 0 | 0 | 0 |
| YGR206W | 280 | 0 | 0 | 0 | 0 | 0 |
| YHR148W | 280 | 0 | 0 | 0 | 0 | 0 |
| YHR160C | 280 | 0 | 0 | 0 | 0 | 0 |
| YHR195W | 280 | 0 | 0 | 0 | 0 | 0 |
| YHR207C | 280 | 0 | 0 | 1 | 0 | 1 |

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|---------|-----|---|---|---|---|---|
| YBL023C | 281 | 0 | 1 | 0 | 0 | 1 |
| YBL091C | 281 | 0 | 1 | 0 | 0 | 0 |
| YBR023C | 281 | 0 | 0 | 1 | 0 | 1 |
| YFL008W | 281 | 0 | 1 | 0 | 0 | 0 |
| YER157W | 281 | 0 | 1 | 0 | 0 | 0 |
| YMR075W | 281 | 0 | 1 | 0 | 0 | 1 |
| YNL004W | 281 | 0 | 0 | 0 | 1 | 0 |
| YNL169C | 281 | 0 | 0 | 0 | 1 | 0 |
| YIL102C | 281 | 0 | 0 | 1 | 0 | 1 |
| YOR162C | 281 | 0 | 0 | 1 | 0 | 1 |
| YBL021C | 281 | 0 | 0 | 0 | 1 | 0 |
| YDR501W | 281 | 0 | 0 | 0 | 1 | 0 |
| YKR078W | 281 | 0 | 0 | 1 | 1 | 0 |
| YBR272C | 281 | 0 | 0 | 1 | 0 | 1 |
| YFL039C | 281 | 0 | 1 | 0 | 1 | 0 |
| YCL026C | 281 | 0 | 0 | 1 | 0 | 1 |

Notes: “1” means “yes”, whereas “0” means “no” as results of strain quality control. “a” His⁺ was defined by the growth of the strain in synthetic medium lacking L-Histidine. “b” mating phenotypes were tested with wild-type strains BY4741a, BY4742 α , and BY4743a/ α as control. His⁺ strains and mutants behaved like haploid in mating type tests were excluded from the pool used in this study. All strains on plates 280 and 281 were excluded because most strains on these two plates failed in the quality tests. In total, 100 of the 5,996 strains were not included in the heterozygous diploid mutant pool used in this study. The identity of all other 5,896 strains used in this study can be obtained from Research genetics.