**Supplemental Data**

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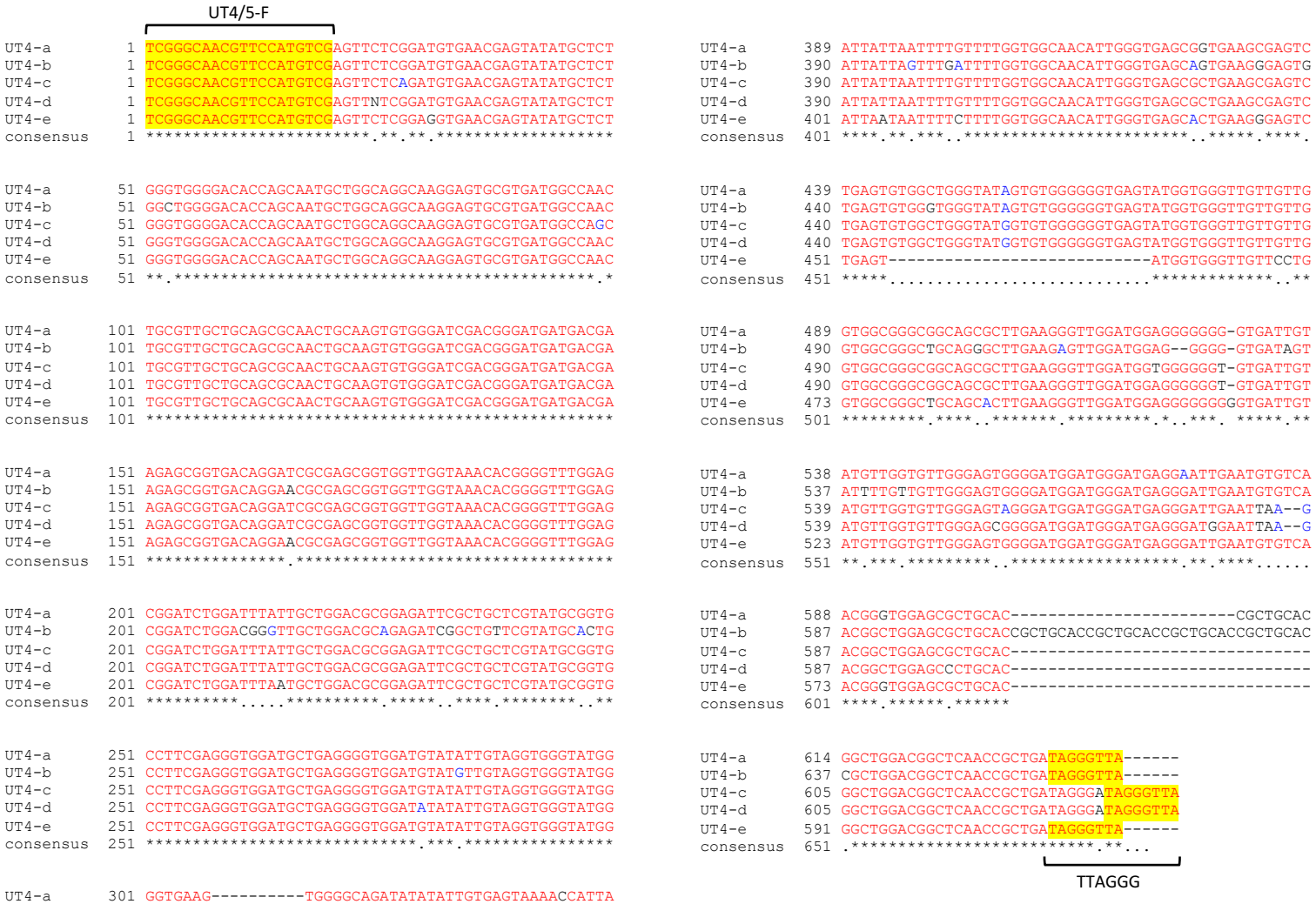
Supp. Table 1. *U. maydis* strains used in this study

| **Alias (Haploids)** | ***Relevant Genotype*** | **Reference** |
|---|---|---|
| UCM350[a] | wild type | Kojic et al., 2002 |
| UEY12[ab] | *trt1*Δ | Yu et al., 2018 |
| UCM693[ac] | *blm*Δ | Mao et al., 2009 |

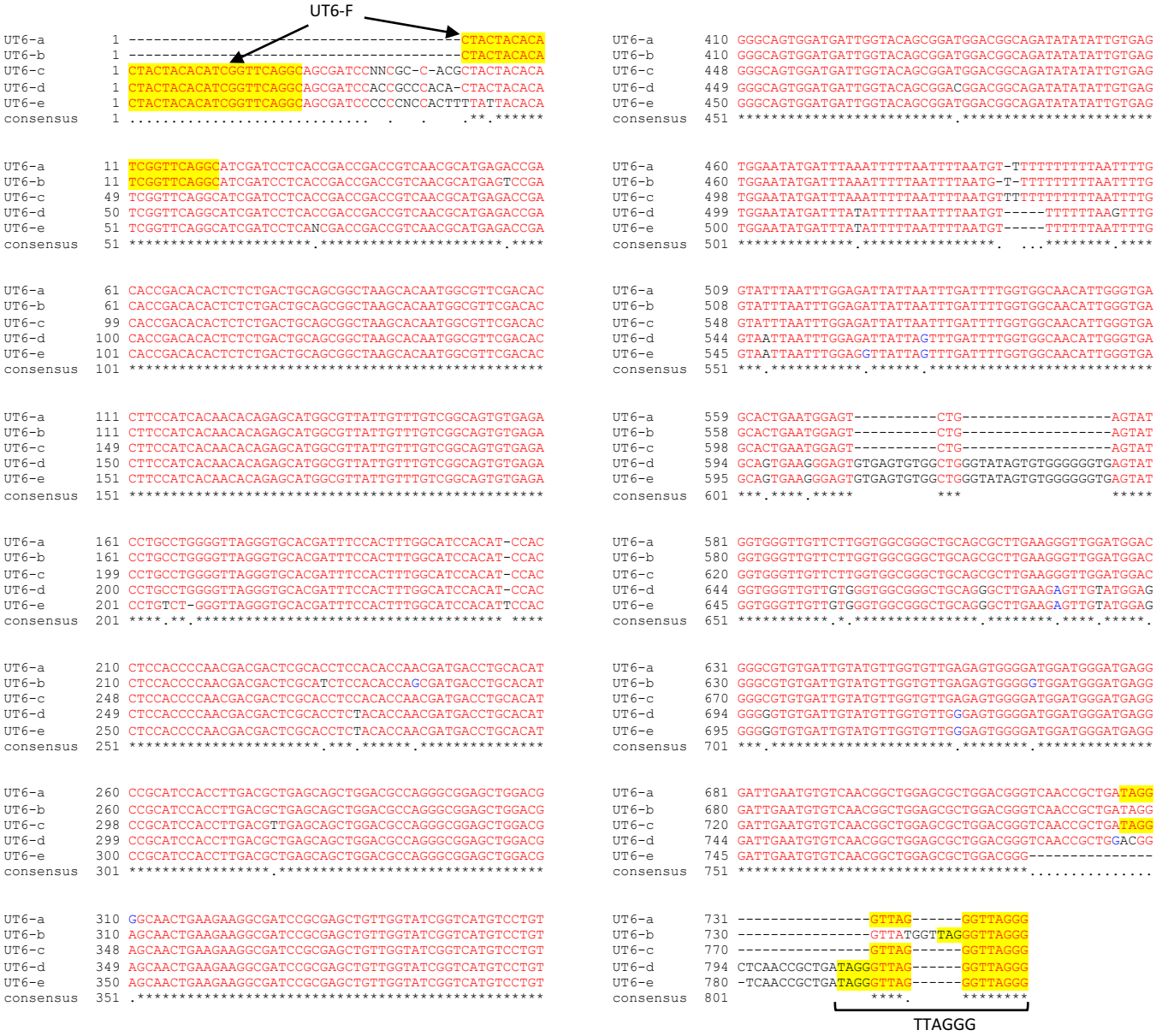
[a] The genotype of UCM350 *is nar1-6 pan1-1 alb1*. *nar*, *pan*, and *ab* indicate inability to reduce nitrate, auxotrophic requirement for pantothenate, and mating type loci, respectively.
[b] *trt1* was disrupted by the insertion of *hph* cassette expressing the hygromycin resistance gene ($Hyg^R$).
[c] *blm* was disrupted by the insertion of *hph* cassette expressing the hygromycin resistance gene ($Hyg^R$).

Supp. Table 2. Oligonucleotides used in this study

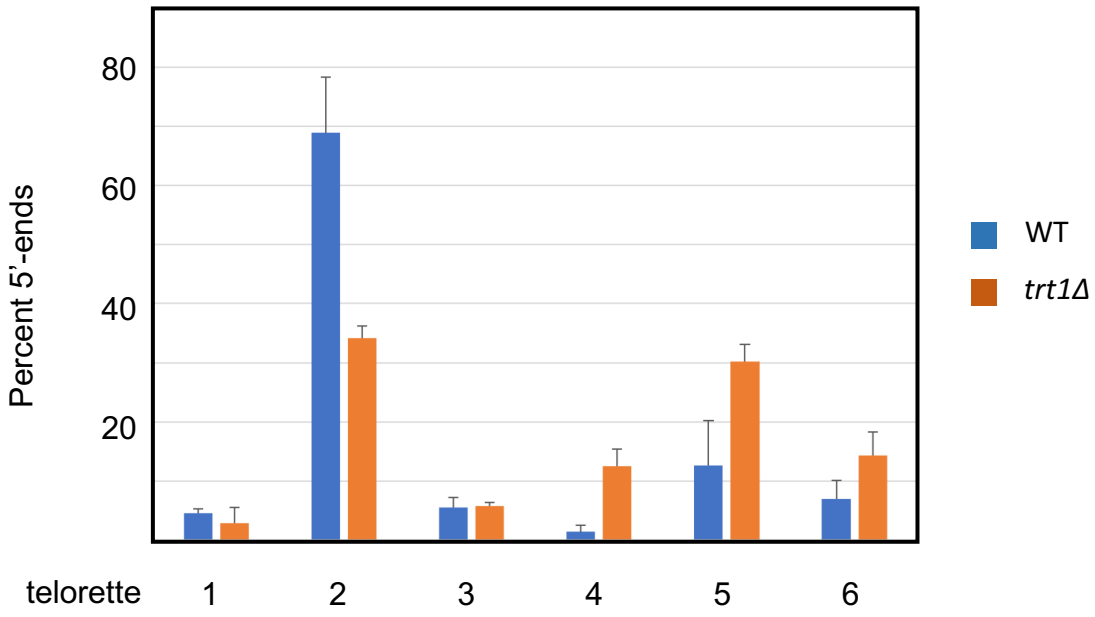
| Oligo | Sequence 5' to 3' |
|---|---|
| (For STELA) | |
| UT4/5-F | TCGGGCAACGTTCCATGTCG |
| UT4-subtel-R2375 | CCCTCGAAGGCAGTGCATAC |
| UT6-F | CTACTACACATCGGTTCAGGC |
| UT6-subtel-R2400 | ATGCCAAAGTGGAAATCGTGCAC |
| C Telorette 1 | GCTCCGTGCATCTGGCATCCCCTAAC |
| C Telorette 2 | GCTCCGTGCATCTGGCATCTAACCCT |
| C Telorette 3 | GCTCCGTGCATCTGGCATCCCTAACC |
| C Telorette 4 | GCTCCGTGCATCTGGCATCCTAACCC |
| C Telorette 5 | GCTCCGTGCATCTGGCATCAACCCTA |
| C Telorette 6 | GCTCCGTGCATCTGGCATCACCCTAA |
| Teltail | GCTCCGTGCATCTGGCATC |
| pMiniT 2.0 forward | ACCTGCCAACCAAAGCGAGAAC |
| pMiniT 2.0 reverse | TCAGGGTTATTGTCTCATGAGCG |




**Supp. Fig. 1.** *Sequences of UT4/5 STELA products*
The sequences of 5 clones derived from a UT4/5 STELA reaction are aligned. Highlighted in yellow are the UT4/5-F primer and the start of the TTAGGG repeats in each clone.




**Supp. Fig. 2.** *Sequences of UT6 STELA products*
The sequences of 5 clones derived from a UT6 STELA reaction are aligned. Highlighted in yellow are the UT6-F primer and the start of the TTAGGG repeats in each clone.




**Supp. Fig. 3.** *Telomere C-strand 5'-end distributions in wild type and trt1Δ strains*
The number of UT4/5 STELA products generate from wild type and *trt1Δ* DNA by each telorette oligo was determined, and plotted as the percentage of total STELA products. Data (average ± S.D.) are from three independent experiments.

## References

1. Kojic M, Kostrub CF, Buchman AR, Holloman WK (**2002**). BRCA2 homolog required for proficiency in DNA repair, recombination, and genome stability in Ustilago maydis. **Mol Cell** 10(3): 683-691. doi: S1097276502006329 [pii].

2. Yu EY, Hsu M, Holloman WK, Lue NF (**2018**). Contributions of recombination and repair proteins to telomere maintenance in telomerase-positive and negative Ustilago maydis. **Molecular microbiology** 107(1): 81-93. doi: 10.1111/mmi.13866.

3. Mao N, Kojic M, Holloman WK (**2009**). Role of Blm and collaborating factors in recombination and survival following replication stress in Ustilago maydis. **DNA Repair (Amst)** 8(6): 752-759. doi: 10.1016/j.dnarep.2009.02.006.