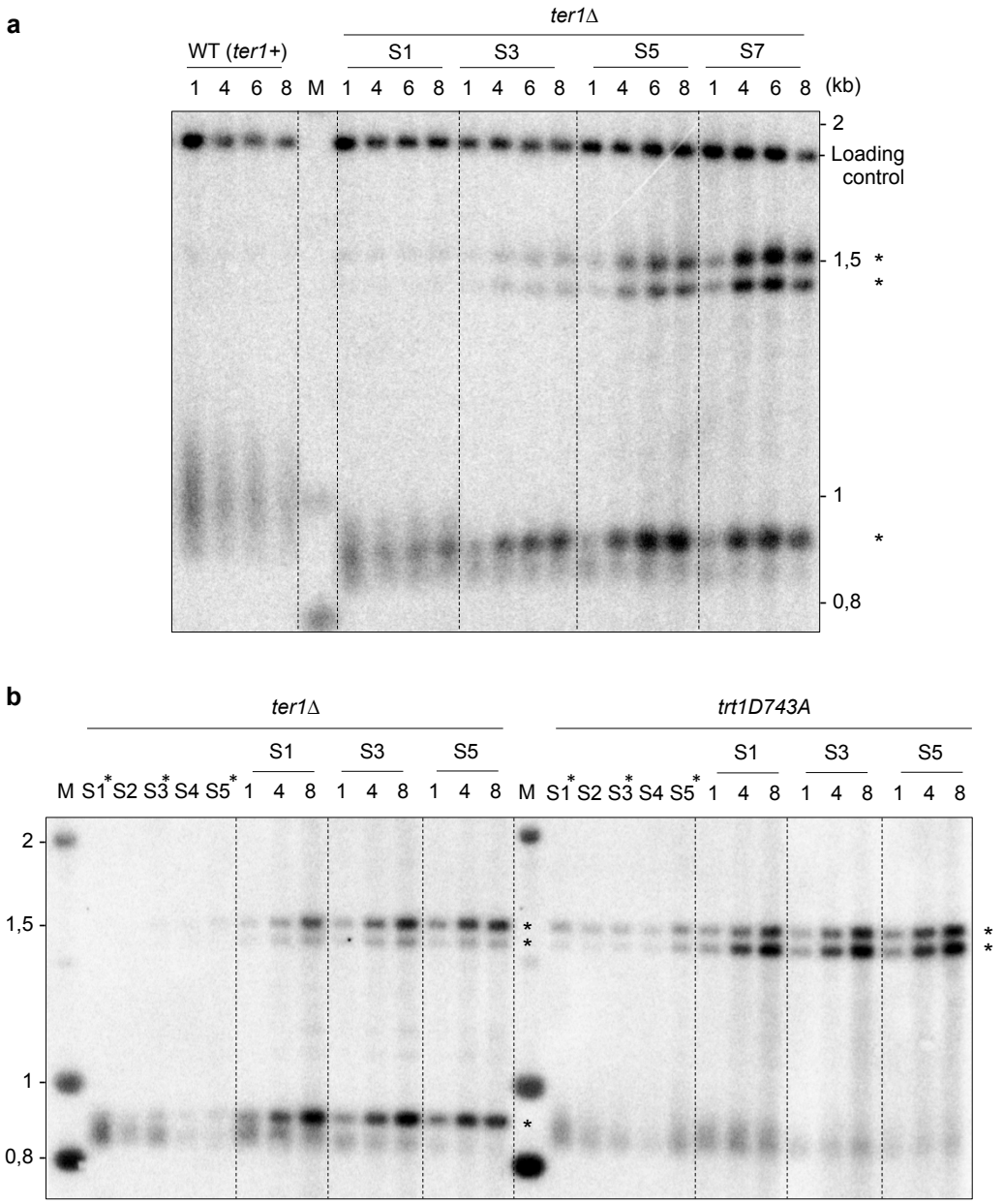


Supplementary Figure 1. **Eroded telomeres are rearranged in quiescence.**
a) Genomic DNA from quiescent *ter1+* and *ter1*D cells was digested by *EcoR*I and analyzed by Southern blot with Telo/STE1 and chromosomal probes. 1, 4, 6, and 8 correspond to the number of days in G0 before harvesting. For *ter1*Δ cells, S1, S3, S5 and S7 indicate the number of days in senescence before cells were starved from nitrogen. STEEx are shown by asterisks

b) A senescence kinetics was performed from a strain expressing a catalytically dead version of the telomerase (*trt1*^{D743A}) after the loss of a plasmid bearing *trt1+*. At days 1, 3 and 5 of senescence, *trt1*^{D743A} cells were starved from nitrogen and kept for 8 days in quiescence. Cells were collected at different time points of the senescence kinetics (S1-S5) and for S1, S3, and S5 cells were starved from nitrogen and collected after 1, 4, and 8 days in quiescence. A *ter1*D strain was used as control. Genomic DNA was extracted, digested with *EcoR*I and analyzed by Southern blot with the STE1/Telo probe. STEEx was detected in the *trt1*^{D743A} strain according to its *Nsi*I pattern (Supplementary Figure 3) and are shown by asterisks

>pNSU64

TCAGATGCATAAAAAATTTGAAGTTGGTATGTATTGAGTGTGTTGGAGTACGGTAAGTATAATAGGGGTAAATAA

NsiI

AATGGGTAAAAAAAATTTTGAAATGTGTGGAAGTTGAGTATGTTGGAGTACATTAAGTAGATTACAGTTGTGGAG

pNsiI Fw

CGTACTATGGTAATGAAAATGAATGAAGAAAATGAAGTTGGGTTGAATTGAGCGTGGTAGGATTCATTATGTATG

ATTAGGAGATATAATGAGATATGGTGAATAAAAAGTTGAAATGTGTGGGCTTGAGTGCGTTAGGGTGCAGTAAGT

pNsiI Rev

AGAATAAAGGGGCGCAGTGTATTATGATAATTAAAATGGATGAAAAATTTGAAGTTCACTCAGTCATAATTAATT

pApaI Fw

GGGTAACGGAGTAACAATATAGAATAAAGGGAATTTAGGAAGTGCGGTAAGTTGAATAAAGAAATAGAAATGAAA

HRS

TACGGTATTCATAAAAAAATAAATTTACTTAAGTTTTTTTTCACAAATACAATGCCCCCACTATTGGGCCCCACC

ApaI

CGTCAGCCGAGCCGTACGGCGAGTATTCGTTAAACGATTTTGGAGAGAGAGAATGGATAATGGATGGAGGTAAGA

pApaI Rev

GAGGTATGAAAGAGTAGAAGATATAGAAGAGAAGAGAGAAGAAATGAGGAAGAAGTAAGATGAATAGAATAGAAG

AAACAGAGTAAGGAGAGTAAATAAATAAAGTAAGAGAGTAAAAGAAATAAGTAAAGTAAGAGGAAAGAAGATAAA

AGCAGAGGACTATATTGGAGTAGATTAAGTAGATTACAGTTGTGCAGCGTAGTATGATAATGAAGATAAAGAAAG

pSwaI Fw

ATAATTAAGCTGCGTTATTTATAAAAATTTAAATTTACTTAAGTTTTTTTCACATATACAATGCCCCCACTATTG

SwaI

GGCCCCACCCGTCAGCCGAGCCGTAAGGCGAGTATTCGTTAAACGTTTTTAGAGAGAGAGAAGGAAATGAAGGAG

pSwaI Rev

AGAAGGAAATGAAGGAGGAGAATAGGTAGAGTAGGTAGGGTATGGAAGAAAGAAGAGGAAGAAAGTAATGGAATA

GAATAAATAGAATAAATAGAATAAATAAAATAAATAAAATAAAAGAGTAAAAGAAAAGAAGATGAATGGATTAAA

AGGTGTTGGAGTAGATTAAGTAGAATACGAGGATGTAGGGTAGTGCAATAGTGAAGATGGACAAAAAGTTGAAGT

TCATGGAATTAGACTATGTTGGAATTCACTAATTGTAATACGGTGGTGTAGTGTGCATGGGTGAATAAAACGGAT

EcoRI

GAAAAATTTGAAGTTGATTTGAACTGAGTGTGTTAAAGTTCATTAAGTATAATACGGTGATGTAATGTACTATAG

TATTTAGGATAGATAAAAAATTTGAAGTTGTATGAATTGAGTGTGCTGGAATACGTTAAGTATAATACAGTGATG

TAGTGTACTATAATAATTAGGATGGGTAAAAAATTTGAAGTTGTATGAATTGAGTGTGTTATAGTTCATTAAGTA

TAATACGGTGATGTAGTGTACTATAGTATTTAGGATGGGTAAAAAATTGAAATGTGTGGAATTGAGTATGTTGAA

ATTCACTAAGTGTAATACTGTAGTGCAGCGTAATATGGTAATGGTAATGGATGAAAAATTTGAAGTTCACTCAGT

CATAATTAATTGGGTTACAAAGTAACAATGTAGAATAAGGAGCAATTAGAACGTACGGTAATATAGATAAAGAAA

GATAATTAAGTTGCGTTATTTATAAAAATTTAAATTTACTTAAGTTTTTTTTCACATATATAAAATGCCCCCACTA

SwaI

TTGGCCCCCACCCGTCAGCCGAGCCGTAAGGCGAGTATTCGTTAAACGTTTTTAGAGAGAGAGAAGGAAATGAAG

GAGAGAAGGAAATGAAGGAGGAGAATAGGTAGAGTAGGTAGGGTATGGAAGAAAGAAGAGGAAGAAAGTAATGGA

ATAGAATAAATAGAATAAATAGAATAAATAAAATAAATAAAATAAAAGAGTAAAAGAAAAGAAGATGAATGGATT

AAAAGGTGTTGGAGTAGATTAAGTAGAATACGAGGATGTAGGGTAGTGCAATAGTGAAGATGGACAAAAAGTTGA

AGTTCATGGAATTAGACTATGTTGGAATTCACTAATTGTAATAAGGTGGTGTAGTGTGTATGGGTGAATAAAACG

EcoRI

GATGAAAAATTTGAAGTTGATTTGAACTGAGTGTGTTAAAGTTCATTAAGTATAATACGGTGATGTAGTGTACTA

TAGTATTTAGGATGGGTAAAAAATTGAAATGTGTGGAATTGAGTGTGCTGGAGTACGTTAAGTATAATACGGTGA

GGTAGTGTACTATAATAATTAGGATGGTTAAAAAATTTGAAGTTGTATGAATTGAGTGTGTTAGAGTTCATTAAG

TATAATACGGTGATGTAGTGTACTATAGTATTTAGGATAGGTAAAAAATTTGAAGTTGTATGAATTGAGTGTGTT

AGAGTTCATTAAGTATAATACGGTGAGGTAGTGTACTATAGTATTTAGGATGGGAAAAAATTTGAAGTTGTATGA

ATTGAGTGTGTTAGAGTTCATTAAGTATAATACGGTGAGGTAGTGTACTATAGTATTTAGGATGGGAAAAAATTG

AAATGTGTGGAATTGAGTATGGTGAAATTCACTAAGTGTAATACAGTAGTGCAGTGTATTATGATAATTAAAATG

pApaI Fw

GATGAAAAATTTGAAGTTCACTCAGTCATAATTAATTGGGTAACGGAGTAACAATATAGAATAAAGGGAATTTAG

TERRA TSS

HRS

GAAGTGCGGTAAGTTGAATAAAGAAATAGAAATGAAATACGGTATTCATAAAAAAATAAATTTACTTAAGTTTTT

TTTCACAAATACAATGCCCCCACTATTGGGCCCCACCCGTCAGCCGAGCCGTAAGGCGAGGCTGCGGGTTACAAG

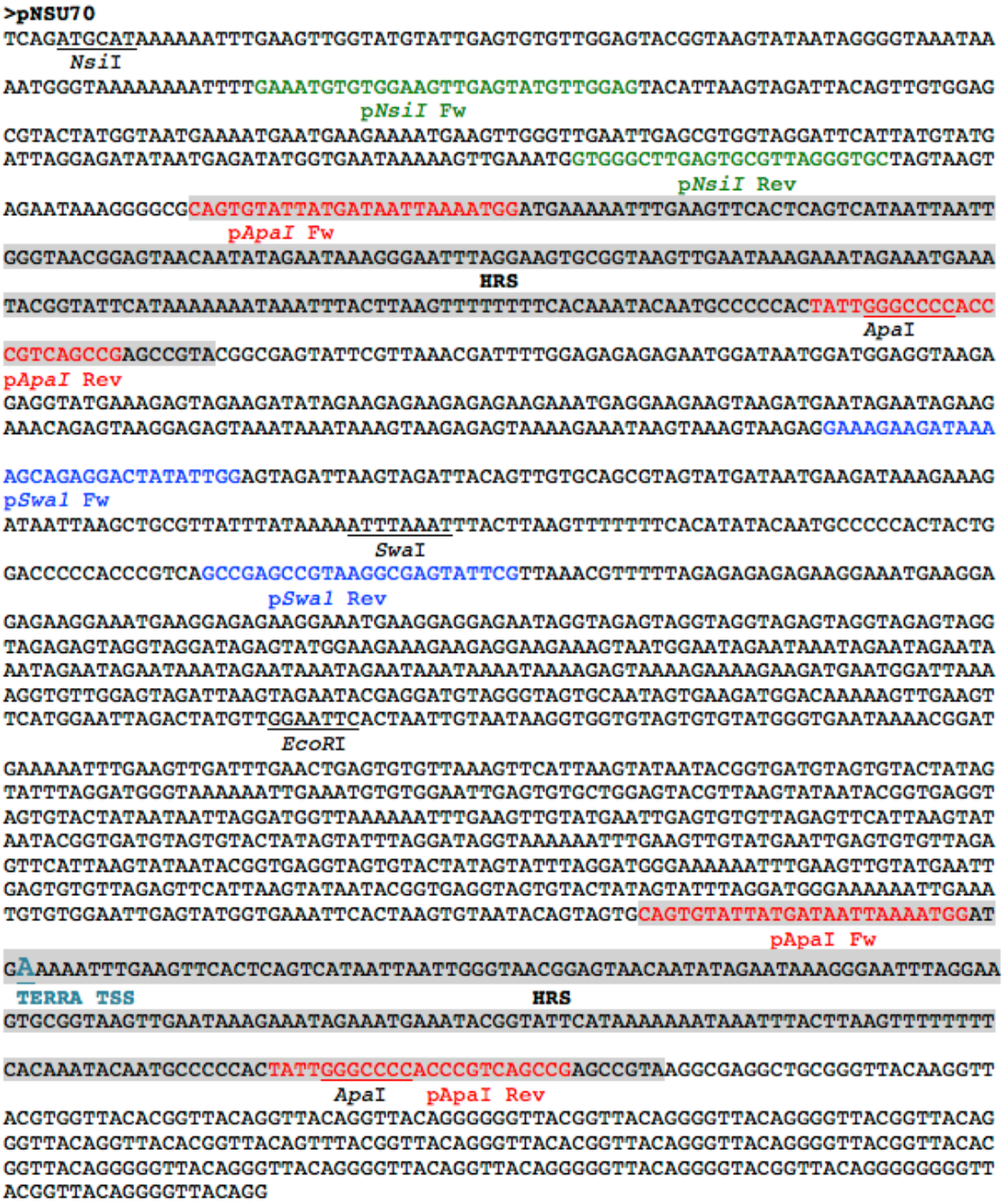
ApaI pApaI Rev

GTTACGTGGTTACACGGTTACAGGTTACAGGTTACAGGGGGGTTACGGTTACAGGGGTTACAGGGGTTACGGTTA

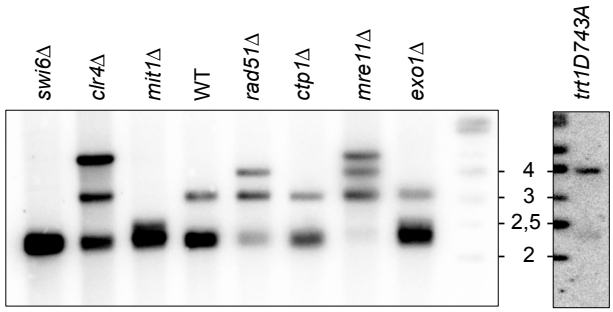
CAGGGTTACAGGTTACACGGTTACAGTTTACGGTTACAGGGTTACACGGTTACAGTTACAGGTTACAGGGTTACA

GGGGTTACGGTTACAGGTTACAGGGTTACAGGGGGGTTACAGGGGTTACAGGTTACAGGGGTTACAGGGGGTTAC

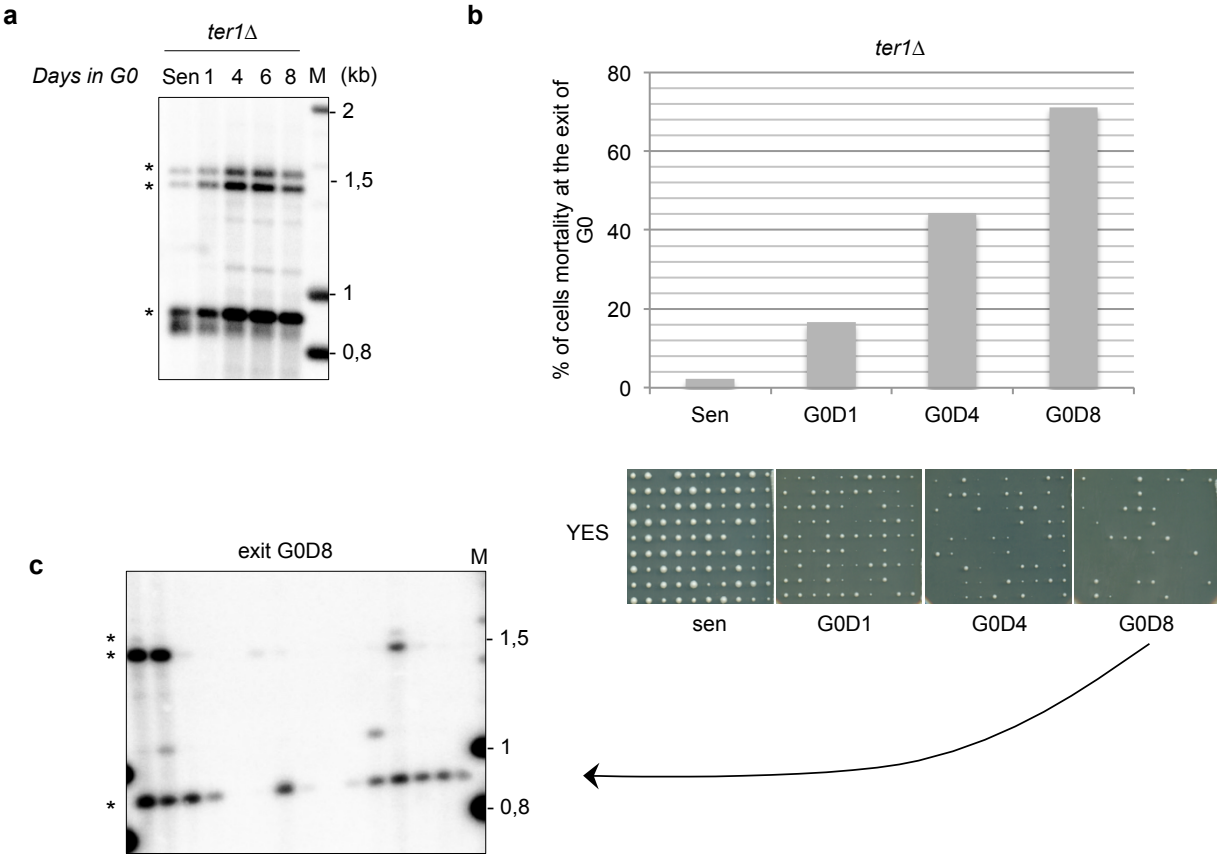
AGGGTTACACGGTTACAGGGTTAC



Supplementary Figure 2. **Subtelomeric region sequences of pNSU70 and pNSU64.**
The homologous repeated sequence (HRS, grey box), colored oliogonucleotides used for RT-qPCR, and restriction sites are annotated in subtelomeric sequences of pNSU64 and pNSU70.



Supplementary Figure 3. **Subtelomeric patterns of strains used in this study.**
Genomic DNA of the indicated strains was digested by *Nsi*I and analyzed by Southern blot with a STE1 probe.



Supplementary Figure 4. Cell viability at G0 exit.
a) *EcoR*I-digested genomic DNAs from senescent and nitrogen-starved *ter1*D cells were analyzed by Southern blot.
b) Senescent (Sen) and quiescent *ter1*D cells after 1, 4, or 8 days in G0 were micromanipulated and plated onto YES plate. The percentage of cells that were not able to form a colony was plotted. Pictures of agar plates are shown
c) Fifteen clones that were able to exit G0 after 8 days of quiescence were grown for approximately 32 pds. Their genomic DNA was then extracted, digested by *EcoR*I and analyzed by Southern blot with a Telo/STE1 probe. STEEx are shown by asterisks.