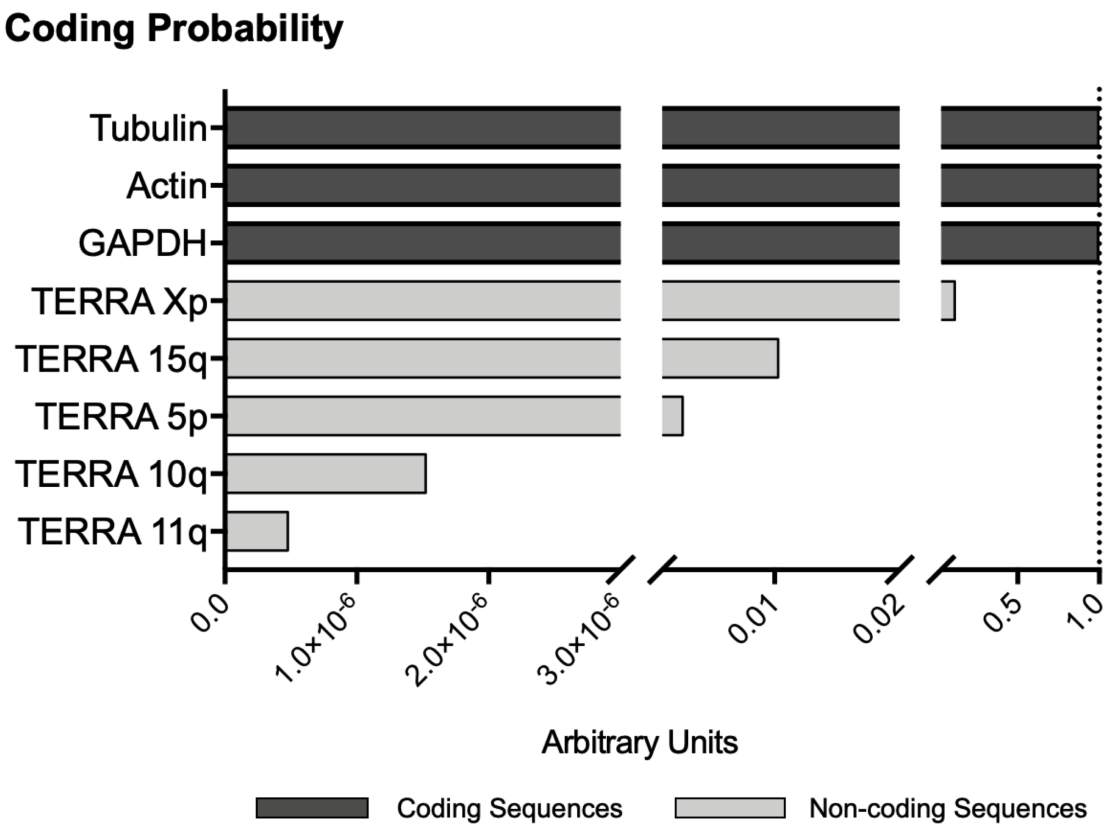

Figure S1. The analyzed TERRA loci do not have any coding potential. The coding probability of the analyzed sequences was verified using the coding potential calculator of the Center for Bioinformatics, Peking University, Beijing (http://cpc2.gao-lab.org/index.php). The *in silico* analysis confirmed that none of the sequences amplified using the listed TERRA primers (Supplementary Table 1) had neither ORF integrity nor any coding probability.

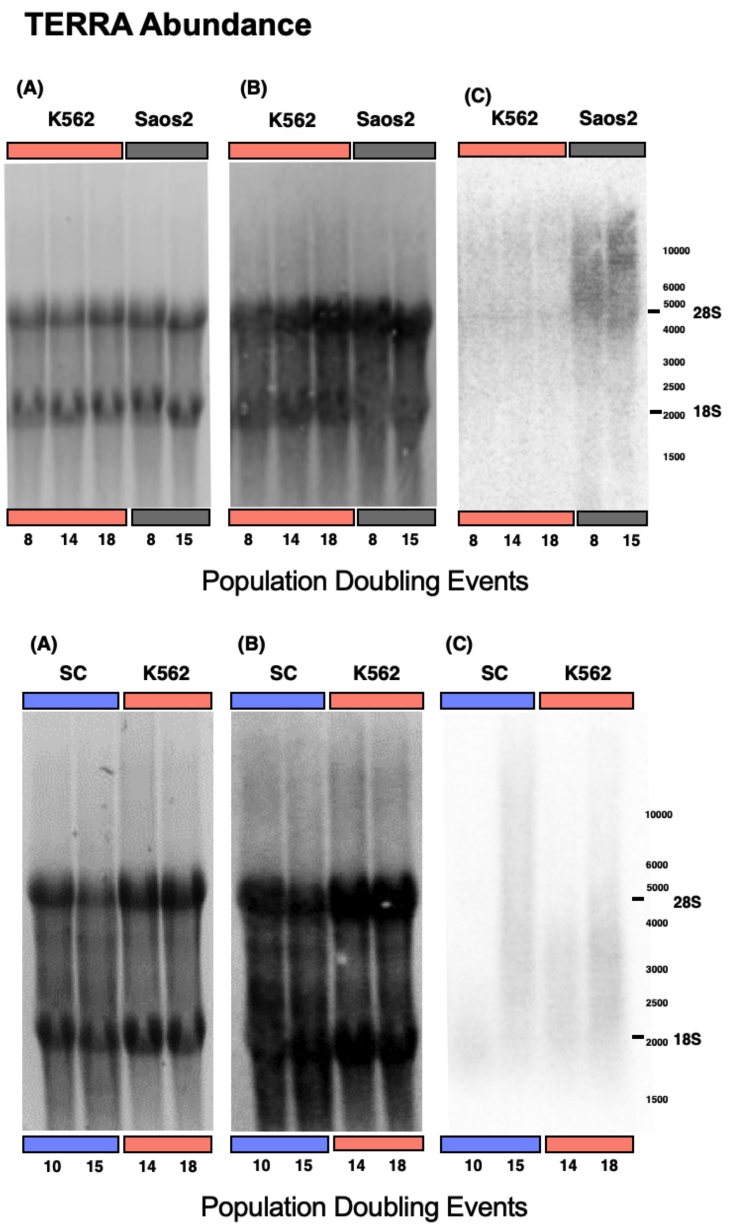

Figure S2. Northern blot for analysis of TERRA abundance. (Upper panel) TERRA abundance in different passages of K562 and Saos2 cells. (Lower panel) TERRA abundance in different passages of SC and K562 cells. In both panels: (A) Agarose gel after RNA electrophoresis. (B) Nylon membrane after RNA blotting. (C) Autoradiography after dCTP[P32]-labeled probe hybridization.

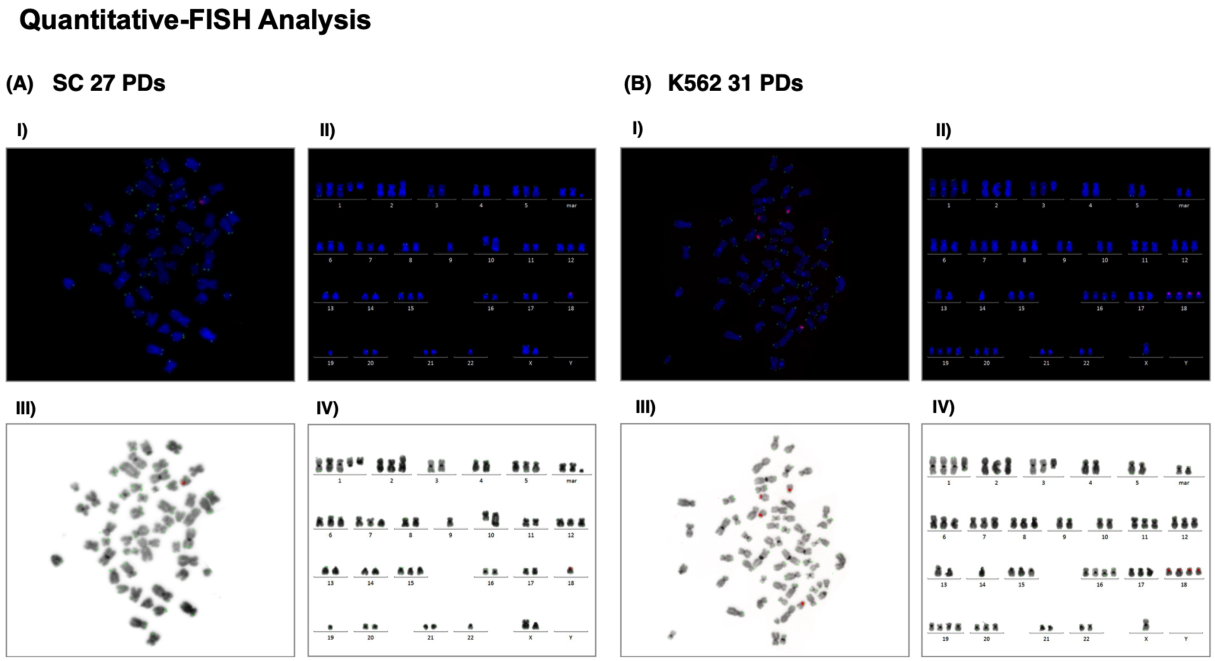

Figure S3. Metaphases and Karyograms for Q-FISH analysis. (A) SC cells after 27 population doubling events. (Upper panel) I) Metaphase hybridized with a pant-telomeric FitC probe, a centromeric Cy5 probe for chromosome 18, and counterstained with DAPI. II) Karyogram of I). (Lower panel) III) Grayscale-converted DAPI counterstain of the metaphase shown in I). IV) Negative/False color of the karyogram shown in II). (B) K562 cells after 31 population doubling events. (Upper panel) I) Metaphase hybridized with a pant-telomeric FitC probe, a centromeric Cy5 probe for chromosome 18, and counterstained with DAPI. II) Karyogram of I). (Lower panel) III) Grayscale-converted DAPI counterstain of the metaphase shown in I). IV) Negative/False color of the karyogram shown in II).

Probes for Northern Blot				
Target	**Probe**	**Sequence (5' -3')**		
U6	Rv	CGCTTCACGAATTTGCGTGTCATCCTTGCGCAGGGGCCATGC		
TERRA	Rv	CCCTAACCCTAACCCTAACCCTAACCCTAACCCTAACCCTAACCCTAACC		
Primers for qPCR analysis				
Transcript	**Primer**	**Sequence (5' -3')**	**Known Loci**	**Reference**
5p-TERRA	Fw	CGGTGTACAGGATTCACAGGG	1 (5p)	-
	Rv	GCTTTGGGACAACTCGAGGC		
10q-TERRA	Fw	GCCTTGCCTTGGGAGAATCT	7 (1q, 2q, 4q, 10q, 13q, 21q, 22q)	[59]
	Rv	AAAGCGGGAAACGAAAAGC		
11q-TERRA	Fw	CAGACCTTGGAGGCACGGCCTTCG	1 (11q)	-
	Rv	CCCTGATTATTCAGGGCTGCAAAG		
15q-TERRA	Fw	TGCAACCGGGAAAGATTTTATT	5 (1q, 8p, 15q, 16p, 21q, 22q)	[59]
	Rv	GCGTGGCTTTGGGACAACT		
Xp-TERRA	Fw	GAGTGAAAGAACGAAGCTTCC	4 (Xp (2), Yp (2))	-
	Rv	CCCTCTGAAAGTGGACCTAT		
U6	Fw	CTCGCTTCGGCAGCACA	na	[60]
	Rv	AACGCTTCACGAATTTGCG		
hTERT	Fw	AGGGGCAAGTCCTACGTCCAGT	na	[10]
	Rv	CACCAACAAGAAATCATCCACC		
GAPDH	Fw	ACCCACTCCTCCACCTTTG	na	-
	Rv	CTCTTGTGCTCTTGCTGGG		
Primers for ChIP analysis				
Transcript	**Primer**	**Sequence (5' -3')**	**Histone Mark Enrichment**	
p53 Promoter	Fw	TGCTGGGAGTTGTAGTCTG	CTCF	
	Rv	GATGCAGAAGAGGTGCAAG		
GAPDH Exons 5-6	Fw	GGAGTCCACTGGCGTCTTC	H3K4me3	
	Rv	GGTTCACACCCATGACGAAC		
GAPDH 5'UTR-Exon 1	Fw	GTTTCTATAAATTGAGCCCGCAG	Ser5-P RNA Pol 2	
	Rv	AAAAGAAGATGCGGCTGACTG		
MYT1 5'UTR	Fw	CACCCCCAATTCAGCAGAT	H3K9me3	
	Rv	TACGCTACCCATGAACCCT		
OCT4/POU5F1 Exon 1	Fw	AGCTGCCCACCTAACTTCTA	H4K20me3	
	Rv	AGGGTCTCTCTTTCTGTCCT		
SOX2-OT Intron	Fw	CTTTCAGTTTCGTTGCTCCAACCCTGAC	H3K27me3	
	Rv	CCCTTCTTCCCTTTTTGCTGGCTCTCC		

Table S1. List of the used primers and probes and their sequences. The primers for TERRA expression analysis include other loci that have been previously reported.