Targeting telomeres could be an effective therapeutic strategy against lung cancer, according to study

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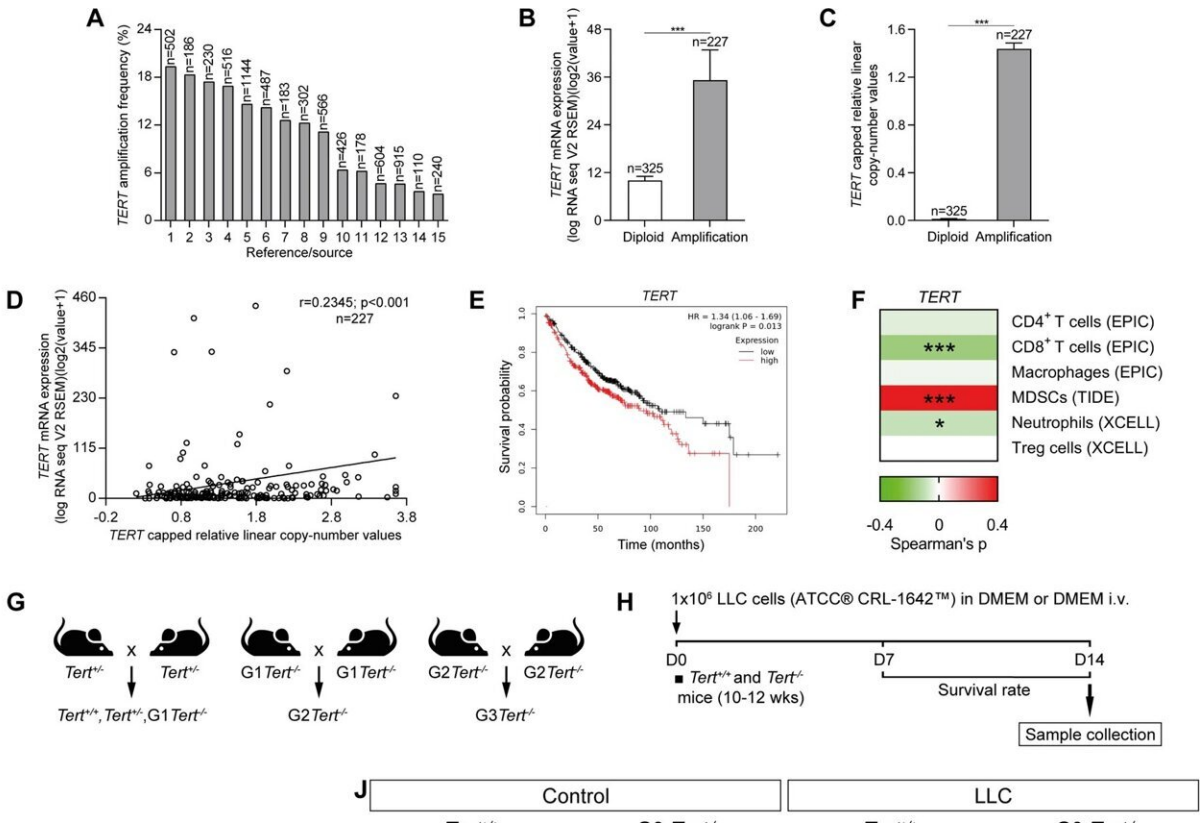

Increased amplification frequency, copy number values and mRNA expression of TERT in NSCLC patients, and reduced tumor implantation in TERT-deficient mice upon lung tumor induction. Amplification frequency (**A**), copy number values (**B**) mRNA expression levels of *TERT* (**C**) and Pearson correlation of mRNA expression with copy number values of *TERT* (**D**) in lung tissues from NSCLC patients, and survival probability in NSCLC patients with high and low

TERT expression (**E**) obtained from the Kaplan–Meier Plotter database. **F** Correlation between the expression of *TERT* and immune infiltrates in NSCLC patients from the TCGA using the TIMER 2.0 database. **G**, **H** Generation of $Tert^{+/+}$ and G3 $Tert^{-/-}$ mice and protocol for the induction of Lewis Lung Carcinoma (LLC). **G** Heterozygous $Tert^{+/-}$ mice were crossed to obtain $Tert^{+/+}$ and G1 $Tert^{-/-}$ mice, and successive crosses between G1 $Tert^{-/-}$ and then G2 $Tert^{-/-}$ were set to generate G3 $Tert^{-/-}$ mice. **H** 1×10^6 Lewis cells suspended in 100 µl of DMEM or equal volume of DMEM (controls) were injected via the tail vein of 10–12 weeks old $Tert^{+/+}$ and G3 $Tert^{-/-}$ male mice on day 0 (D0). An in vivo follow follow-up of survival was carried out until sample collection on day 14 (D14). Kaplan–Meier survival curves (**I**), representative images of LLC-challenged $Tert^{+/+}$ and G3 $Tert^{-/-}$ lungs and controls (H&E) (**J**), and quantification of lung tumor area (**K**, **L**) and foci (**M**) in $Tert^{+/+}$ and G3 $Tert^{-/-}$ mice. **N** Representative Telomeric repeat amplification protocol (TRAP) using S-100 lung extracts from LLC-challenged $Tert^{+/+}$ and G3 $Tert^{-/-}$ mice and controls, where protein concentration is indicated. Extracts were treated (+) or not (−) with RNase as a negative control (exposition time: 48 h). An internal control (IC) for PCR efficiency was also included and arrows indicate the lane used for quantification. **O** Quantification of Telomerase activity in lung extracts from LLC-challenged $Tert^{+/+}$ and G3 $Tert^{-/-}$ mice and controls expressed in arbitrary units (a.u). **P** Lung tissue mRNA expression levels of *Tert* normalized to 18S expression in $Tert^{+/+}$ and G3 $Tert^{-/-}$ mice. Data are expressed as mean ± SEM (the number of mice is indicated in each case). ***p