**Supplemental figure legends**

**Supplemental Figure 1. The knock out or overexpression of STRAP does not change the level of collagen mRNAs.** A) Real-time qRT-PCR analysis of collagen α1(I) and α2(I) mRNAs in WT and STRAP-/- MEFs (1110 and 1108). Expression of collagen α1(I) and α2(I) mRNAs in WT and STRAP-/- MEFs was analyzed by real-time qRT-PCR and normalized to actin mRNA (gene expression, left panel). Mean value and SEM of three independent measurements is shown. Right panel: analysis of collagen mRNAs by RT-PCR and radiolabeling of the PCR products. Actin was used as a control of loading. B) Overexpression of Flag-tagged STRAP in HLFs does not change the level of collagen α1(I) and α2(I) mRNAs. RT-PCR analysis of collagen α1(I) and α2(I) mRNAs isolated from untransfected HLFs (WT) or HLF transduced with adenovirus expressing Flag-tagged STRAP (S) or control adenovirus (C).

**Supplemental Figure 2. Interaction of endogenous eiF4E with collagen mRNAs.** A) Pull down of collagen mRNAs with eiF4E. Top panel: IP was done with anti-eIF4E Ab (lane 1) or anti-fibronectin Ab (FIB, lane 2) and the IP material was analyzed by RT-PCR for collagen mRNAs. Bottom panel: expression of the mRNAs in the input (IN). Right panel: expression of eIF4E, LARP6 and fibronectin in the input analyzed by Western blot. B) Lack of interaction of LARP6 and eIF4E. IP from extracts of HLFs was done with anti-LARP6 Ab and control anti-fibronectin Ab (FIB), followed by Western blot with anti-eIF4E Ab. Bottom panel: input representing 10% of the cell lysate (IN).

**Supplemental Figure 3. Polysomal profile of WT and STRAP-/- MEFs.** A) $OD_{260}$ tracing of sucrose fractions (left panel) and agarose gel electrophoresis analysis of ribosomal RNAs in the sucrose fractions (right panel). Position of polysomes, free ribosomal subunits and postpolysomal supernatant is indicated. B) Overexpression of STRAP does not change the polysomal profile of MEFs. Experiment as in A), except Flag-tagged STRAP (S) was overexpressed in the MEFs by adenoviral transfer. Control virus (C, expressing only the adenoviral marker, GFP) was also added to WT MEFs (WT/C panel). EDTA: 50 mM EDTA was included in the lysis buffer prior to fractionation of polysomes of WT MEFs (EDTA panel). C) Polysomal distribution of collagen and GAPDH mRNAs in MEFs infected with control adenovirus (left panel). Distribution of collagen mRNAs in sucrose fractions after disruption of polysomes with EDTA (right panel).

**Supplemental Figure 4. Quantification of collagen mRNAs in polysomal fractions.** A) Quantification of collagen α1(I), α2(I) and GAPDH mRNA in polysomal fractions of WT MEFs and in two isolates of STRAP-/- MEFs (1110 and 1108). NIH Image J software was used to quantify the density of bands on autoradiography films that represented amount of RNA in the polysomal fractions of MEFs (from Fig. 8.B). Intensity of collagen signal was normalized to intensity of GAPDH signal and presented as integrated density. The mean and SEM of two independent experiments are represented. The nonparametric t-test was used to determine statistical significance for each polysomal fraction. * mark above bars represent statistically significant difference between STRAP -/- MEFs and WT MEFs for each polysomal fraction at $p<0.05$ B) Quantification of collagen α1(I), α2(I) and GAPDH mRNA in polysomal fractions of WT MEFs and in two isolates of STRAP-/- MEFs that were transduced with STRAP-Flag

adenovirus (from Fig. 8.C). C) Quantitative real-time analysis of collagen α1(I), α2(I) and GAPDH mRNAs in polysomal fractions of WT MEFs. Collagen signal was normalized to the intensity of GAPDH signal and plotted as relative expression. Error bars: 1SEM.

**Supplemental Figure 5. The level of endogenous STRAP and STRAP-Flag after adenoviral delivery.** Untransduced WT MEFs (lane 1) and STRAP -/- MEFs (1110 and 1108) transduced with adenoviruses expressing STRAP-Flag (S) or STRAPΔCII-Flag (ΔCII) were analyzed by Western blot with anti-STRAP Ab.