Supplementary Figure S1

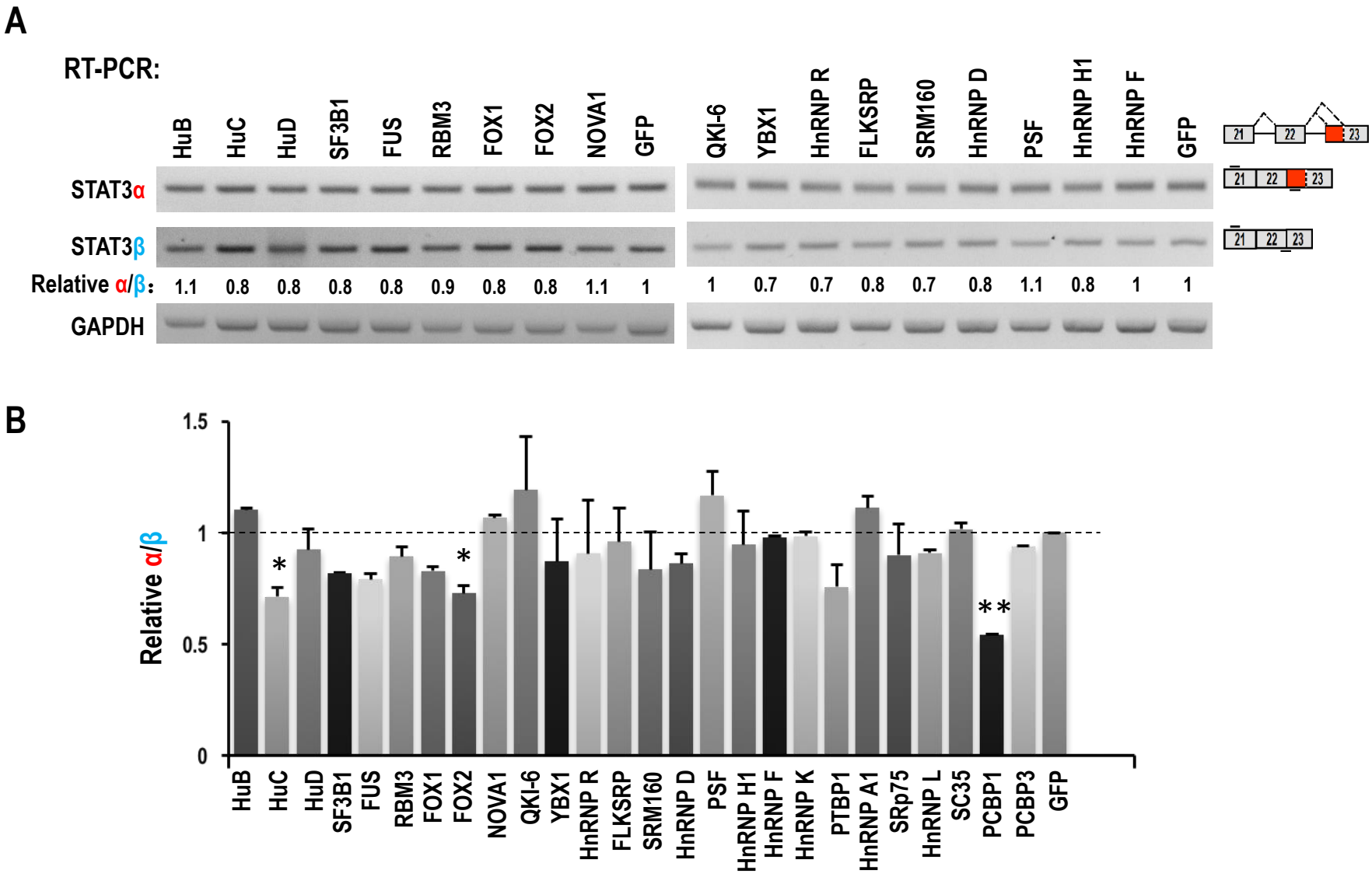

Figure S1. Effects of overexpression of splicing factors on the alternative splicing of STAT3 exon 23. (**A**) Alternative splicing of STAT3 exon 23 were analyzed by RT-PCR. Diagrams on the right show the structures of STAT3 pre-mRNA and spliced products. Short lines above or below exons stand for primer positions. (**B**) The histogram summarized the effects of overexpression of splicing factors (including those in Figure 1D) on the relative ratio of STAT3 α vs β isoform. *: P<0.05; **: P<0.01

Supplementary Figure S2

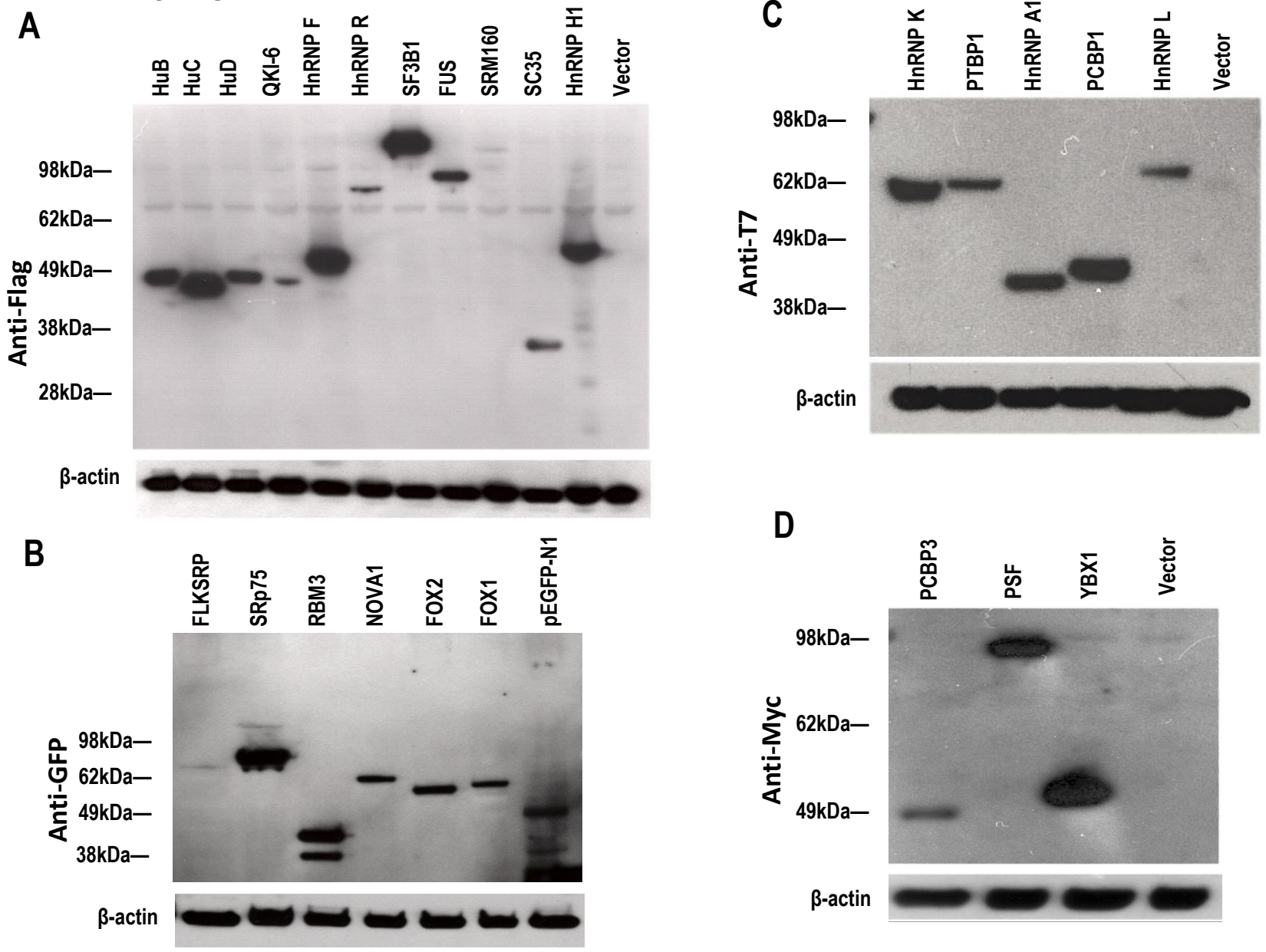

Figure S2. Overexpression of splicing factors was confirmed by western blot using anti-Flag (**A**), anti- GFP(**B**), anti-T7 (**C**), and anti-Myc antibody (**D**).

Supplementary Figure S3

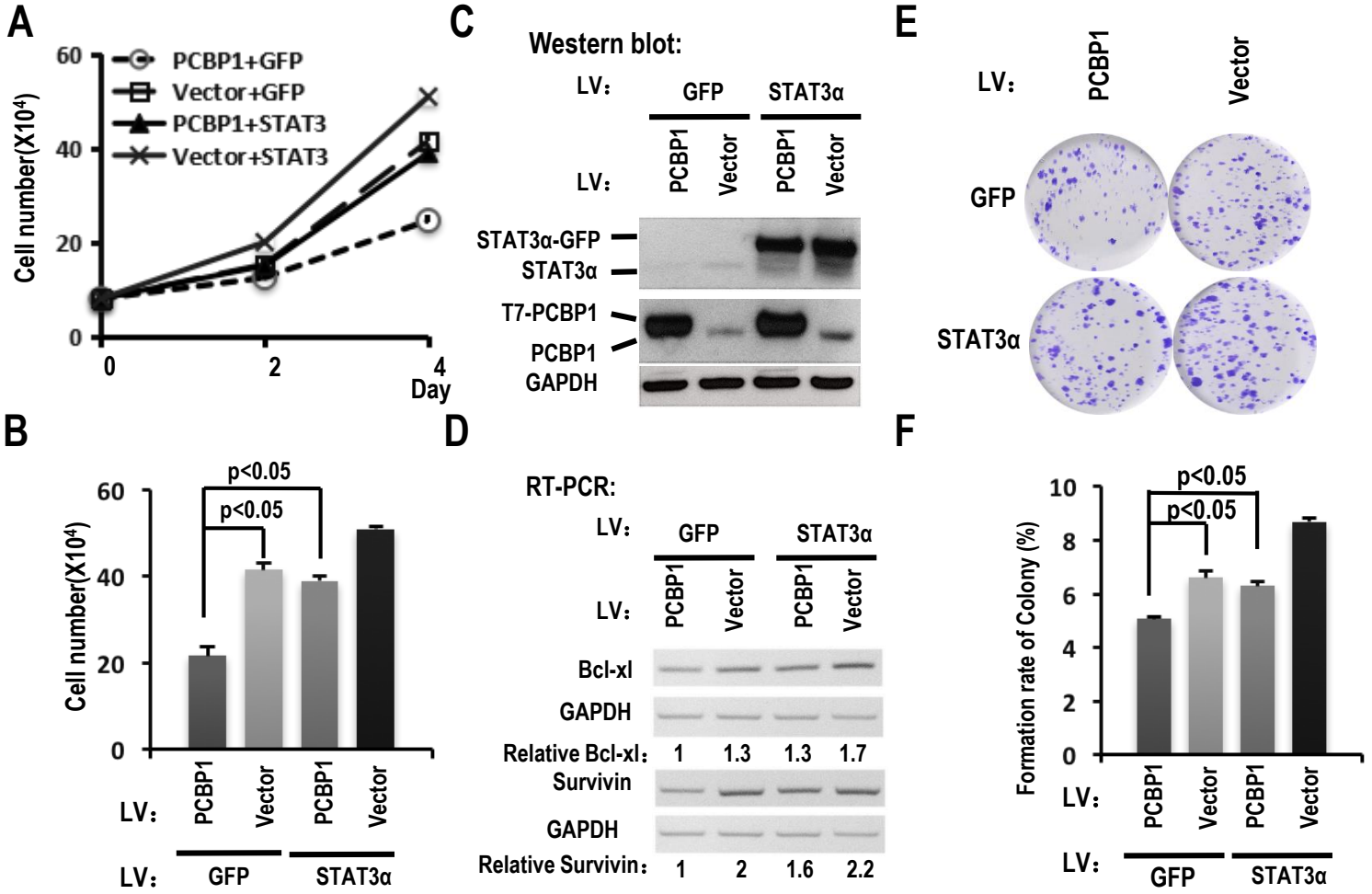

Figure S3. Overexpression of STAT3α rescued cell growth inhibition induced by PCBP1 overexpression in SCC-9 cells. SCC-9 cells were transfected with T7-PCBP1 expression lentivirus, STAT3α-GFP expression lentivirus, empty control lentivirus and/or GFP expression control lentivirus. Transfected cells were divided into four groups: T7-PCBP1 + GFP, Vector + GFP, T7-PCBP1 + STAT3, and Vector + STAT3. **(A)** Cells were seeded into 12 well plates (1×10^5 cells per well). Cell number was counted at Day 2 and Day 4. Values represent means ± SE. **(B)** The histograms summarized the number of cells counted on Day 4. Data are the means ± SE, n =3. LV: lentivirus. **(C)** Western blot displayed overexpression of exogenous T7 tagged PCBP1 and exogenous STAT3α-GFP fusion protein. GAPDH served as loading control. **(D)** Expression levels of the indicated STAT3 target genes (Bcl-xl and survivin) were analyzed by RT-PCR. GAPDH served as a loading control. (**E, F**) STAT3α overexpression rescues the inhibition of PCBP1 overexpression on the clonogenic ability of SCC-9 cells. One thousand cells were seeded into 6 cm plates and cultured for 10 days. Representative images are shown **(E). (F)** The histograms summarized the number of colonies. Data are the means ± SE, n =3.

Supplementary Figure S4

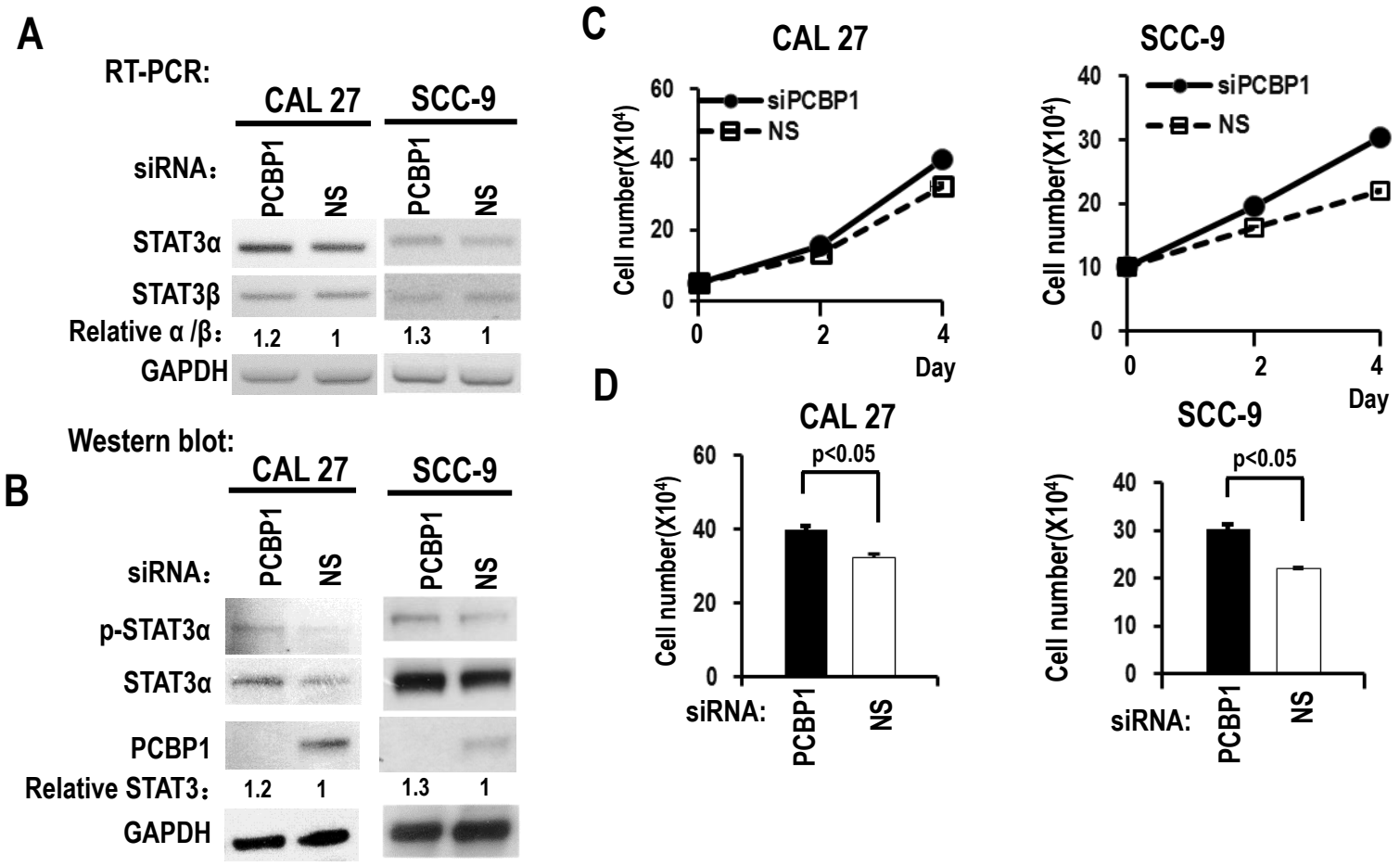

Figure S4. Knockdown of PCBP1 upregulates the ratio of STAT3 α/β and promotes the cell proliferation of OSCC cell. **(A)** PCBP1 was downregulated in CAL 27 or SCC-9 cells. The alternative splicing of exon 23 was detected by RT-PCR. **(B)** Knockdown efficiency of PCBP1, the expression of STAT3 and phosphorylated STAT3 were analyzed by western blot. GAPDH served as a loading control. **(C, D)** CAL 27 or SCC-9 cells were treated with anti-PCBP1 or non-specific (NS) siRNA on Day 0 and Day2. Cell numbers were counted on Day 2 and Day 4 **(C)**. **(D)** The histograms show significant difference between PCBP1 knockdown and NS control groups on Day 4. Data are the means ± SE, n=3.

Supplementary Figure S5

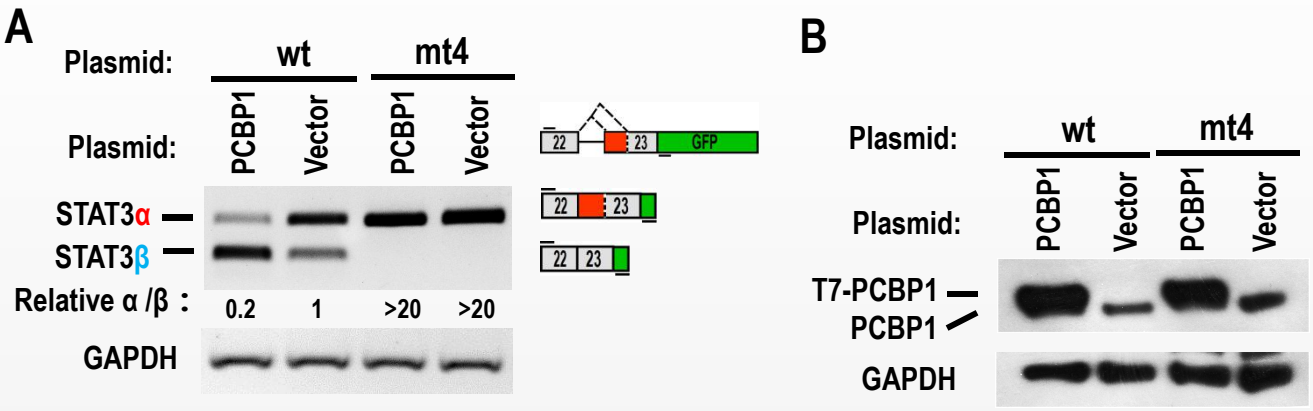

Figure S5. Mutant 4 abolished PCBP1's regulation of the alternative splicing of STAT3 exon 23. (A) RT-PCR analysis of alternative splicing of exon 23 in 293 cells transfected with minigene [wild-type (wt) or mutant (mt4)] in the presence or absence of T7-PCBP1 overexpression. Relative α/β represents the ratio of band intensities of isoform α vs β. GAPDH served as a loading control. Diagrams on the right show the structures of STAT3 minigene and spliced products. (**B**) Western blot confirmed the overexpression of T7 tagged PCBP1. GAPDH served as a loading control.