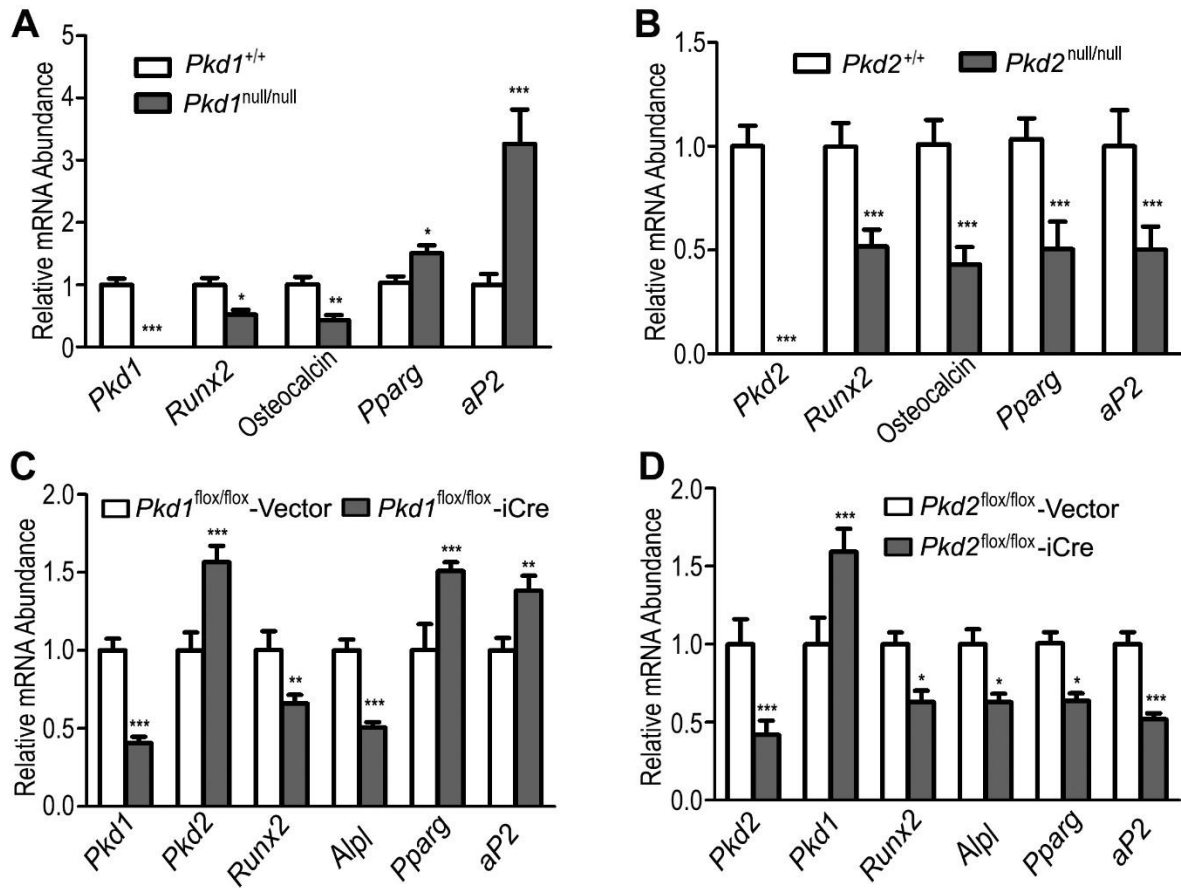
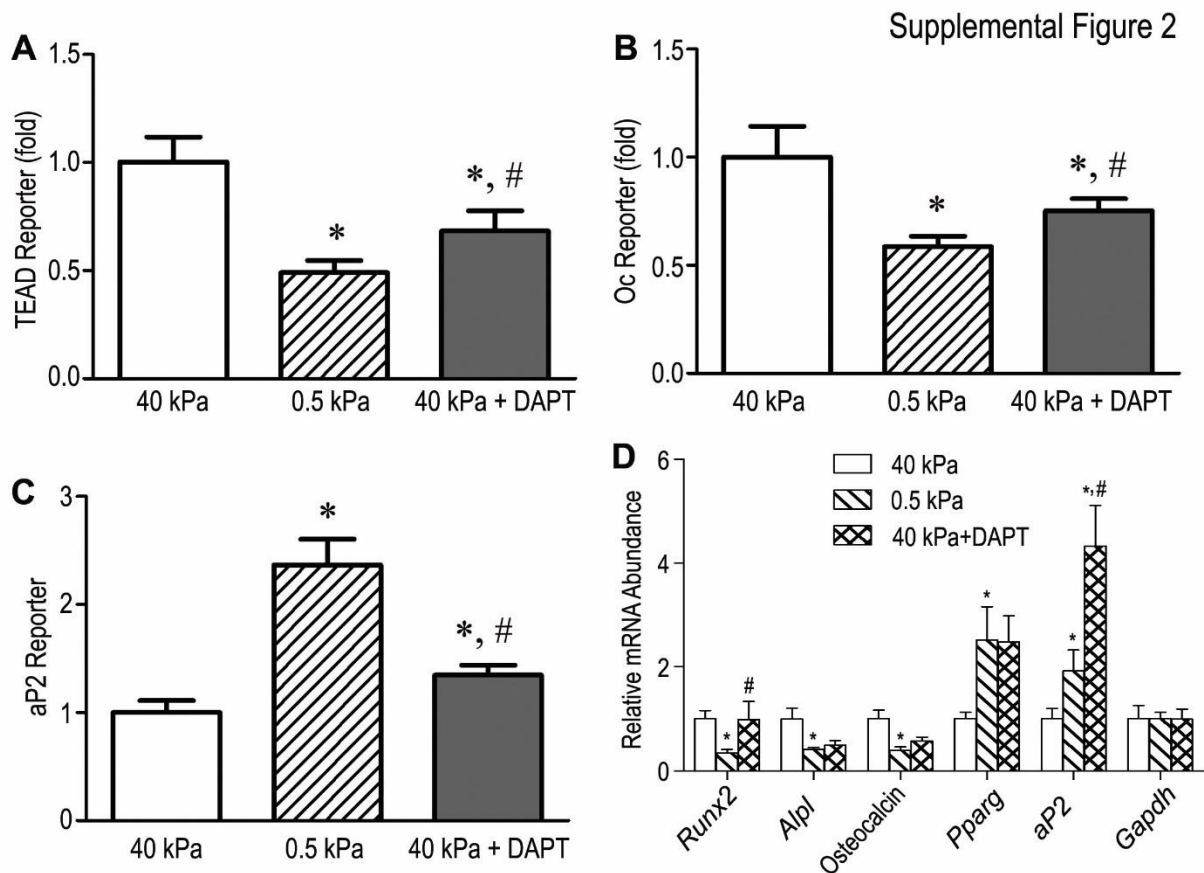


## Supplemental Figure 1

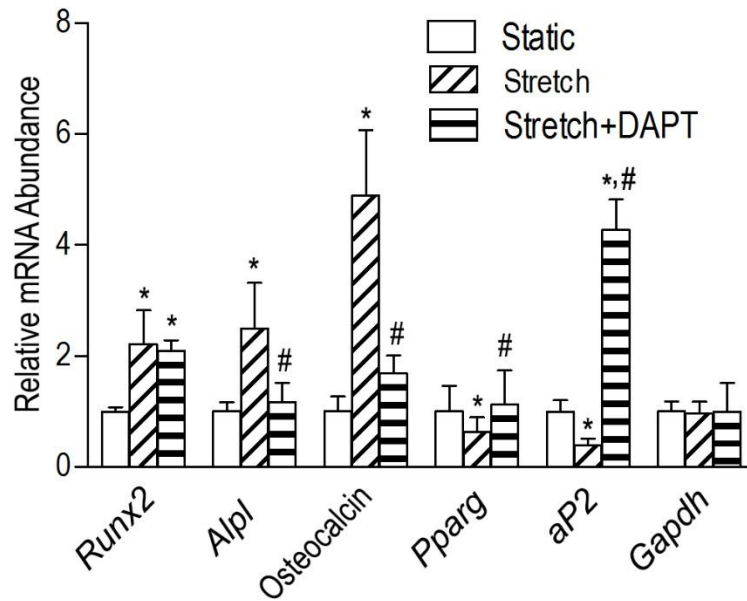


**Supplemental Figure 1. Effects of loss of *Pkd1* or *Pkd2* on osteogenic and adipogenic differentiation *in vitro*.** A, Effects of *Pkd1* deficiency on osteogenic and adipogenic markers in osteoblast cultures. B, Effects of *Pkd2* deficiency on osteogenic and adipogenic markers in osteoblast cultures. C, Effects of Ad-CMV-iCre mediated deletion of *Pkd1* on osteogenic and adipogenic markers in *Pkd1*<sup>flox/flox</sup> primary osteoblasts. D, Effects of Ad-CMV-iCre mediated deletion of *Pkd2* on osteogenic and adipogenic markers in *Pkd2*<sup>flox/flox</sup> primary osteoblasts. Data are presented as the mean ± S.D. from three independent experiments (n=3). *P* values were determined by one-way ANOVA with Newman-Keuls multiple comparison test. \**P* < 0.05, \*\**P* < 0.01, \*\*\**P* < 0.001 when compared with control group.



**Supplemental Figure 2. Effects of matrix stiffness on TAZ-mediated *TEAD* reporter, *Oc*, and *aP2* promoter-reporter activities and related gene expressions in C3H10T1/2 cells.** *A*, *TEAD* reporter activity. *B*, *Oc* promoter-reporter activity. *C*, *aP2* promoter-reporter activity. *D*, Osteogenic and adipogenic gene expressions. Data are presented as the mean  $\pm$  S.D. from three independent experiments ( $n=3$ ). *P* values were determined by one-way ANOVA with Newman-Keuls multiple comparison test. \* indicates significant difference from 40 kPa hard matrix group, # indicates significant difference from 0.5 kPa soft matrix group at  $P<0.05$ ,

Supplemental Figure 3



**Supplemental Figure 3. Effects of stretch on osteogenic and adipogenic gene expressions in C3H10T1/2 cells.** Data are presented as the mean  $\pm$  S.D. from three independent experiments (n=3). *P* values were determined by one-way ANOVA with Newman-Keuls multiple comparison test. \* indicates significant difference from static group, # indicates significant difference from stretch group at *P*<0.05, respectively.