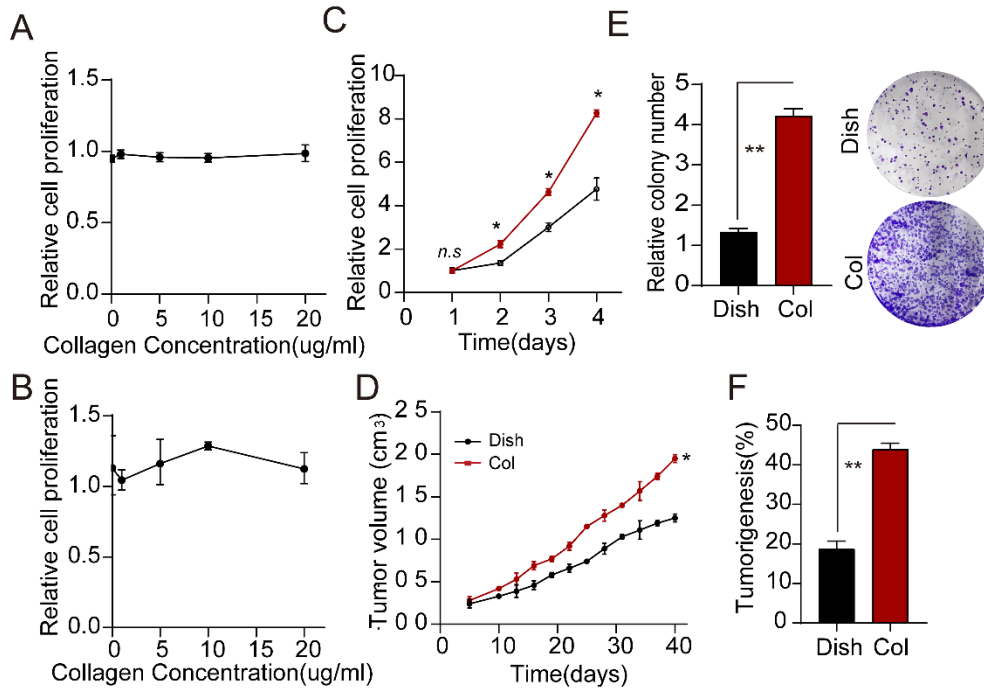


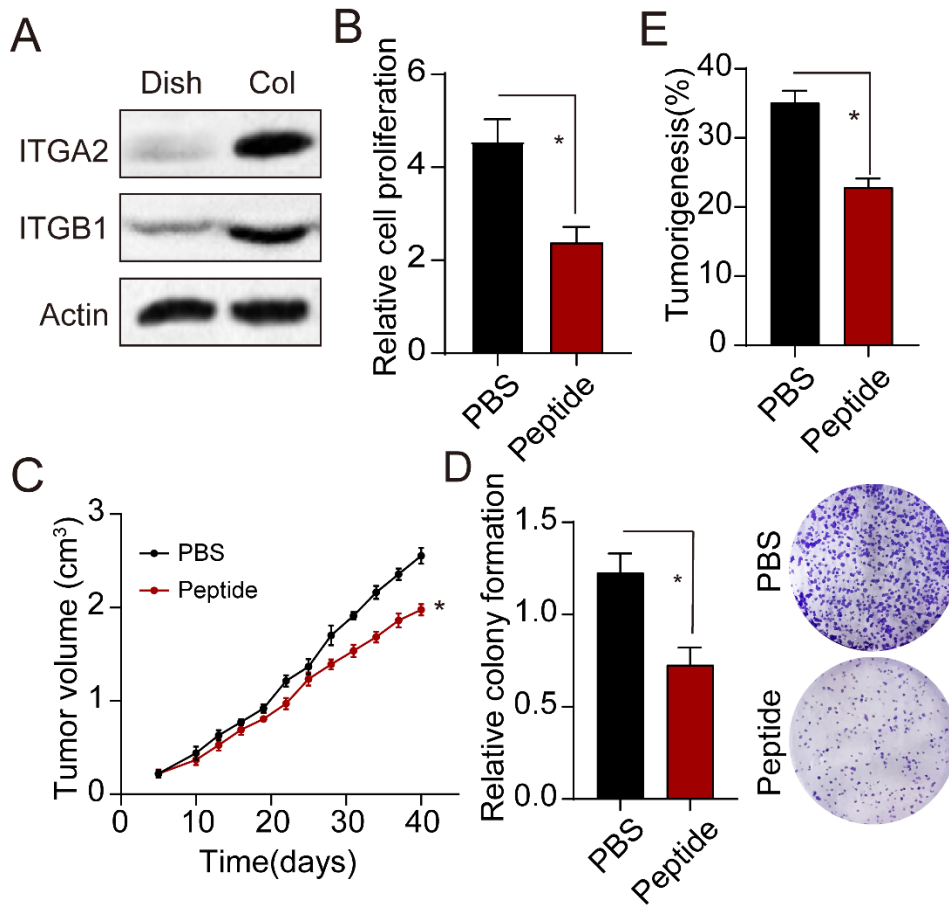
Supplementary figure 1



Supplementary figure 1 Type I collagen promotes cells proliferation and tumor growth in osteosarcoma. A, Relative cell proliferation of Saos-2 cells treated with PBS or soluble type I collagen. B, Relative cell proliferation of MG-63 cells treated with PBS or soluble type I collagen. C, Relative cell proliferation of MG-63 and collagen cultured MG-63 cells. D, Tumor volumes of MG-63 and collagen cultured MG-63 bearing NOD-SCID mice. E, Relative colony formation of MG-63 and collagen cultured MG-63 cells. F, Tumorigenesis of MG-63 and collagen cultured MG-63 in NOD-SCID mice.

* Indicates $P < 0.05$, ** indicates $P < 0.01$.

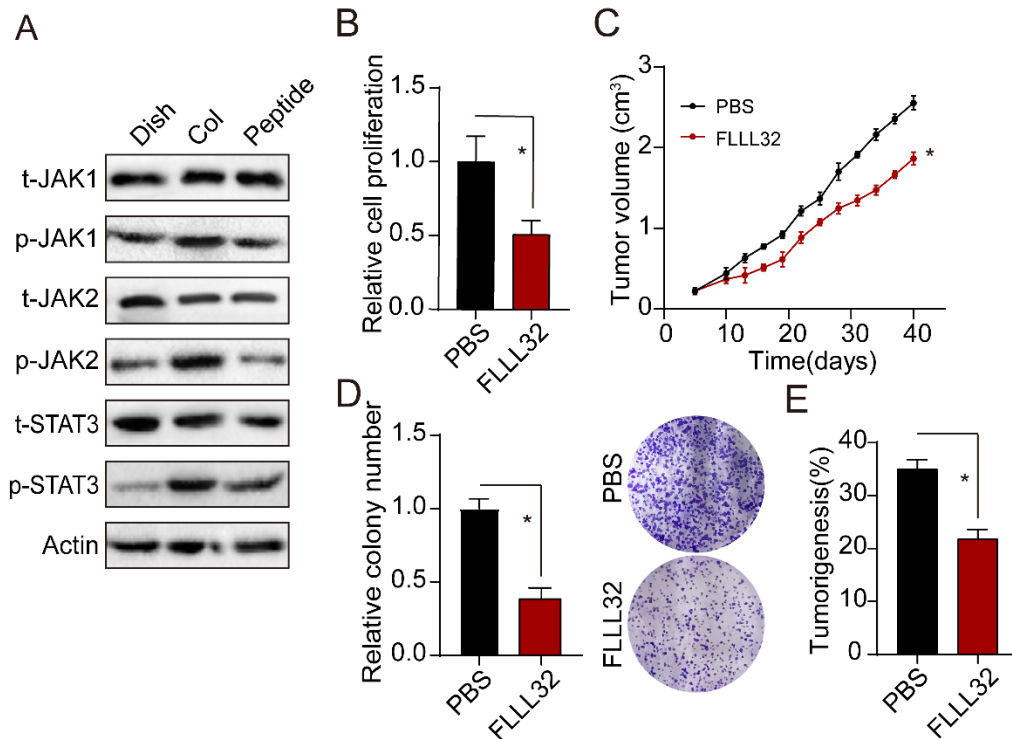
Supplementary figure 2



Supplementary figure 2 Type I collagen mediates tumor progression through integrin $\alpha 2\beta 1$. A, Western blotting of integrin $\alpha 2$ and integrin $\beta 1$ in MG-63 and collagen cultured MG-63 cells. B, Relative cell proliferation of collagen cultured MG-63 cells treated with PBS or $\alpha 2\beta 1$ integrin ligand peptide (0.5mM, 48 hours). C, Tumor volume of collagen cultured Saos-2 cells tumor-bearing mice. Tumor cells were pre-treated with PBS or $\alpha 2\beta 1$ integrin ligand peptide (0.5mM, 48 hours). D, Relative colony formation of collagen pre-cultured MG-63 cells treated with PBS or $\alpha 2\beta 1$ integrin ligand peptide (0.5mM, 48 hours). E, Tumorigenesis of collagen cultured MG-63 cells. Tumor cells were pre-treated with PBS or $\alpha 2\beta 1$ integrin ligand peptide (0.5mM, 48 hours) in NOS-

SCID mice. * Indicates P <0.05.

Supplementary figure 3



Supplementary figure 3 JAK/STAT3 acts as integrin downstream signal involved in osteosarcoma progression. A, the expression of phosphorylated and total JAK1, JAK2, STAT3 in MG-63, collagen cultured MG-63 cells and collagen cultured MG-63 cells treated with $\alpha 2\beta 1$ integrin ligand peptide (0.5mM, 48 hours). B, Relative cell proliferation collagen cultured MG-63 cells treated with PBS or FLLL32 (1 μ M, 48 hours). C, Tumor volume of collagen cultured MG-63 cell tumor-bearing mice treated with PBS or FLLL32 (1 mg/kg, treated on day 14 and 17). D, Relative colony formation of collagen cultured MG-63 cells treated with PBS or FLLL32 (1 μ M, 48 hours). E, tumorigenesis of collagen cultured MG-63 cells treated with PBS or FLLL32 (1 μ M, 48 hours) in NOD-SCID mice. * Indicates P <0.05.