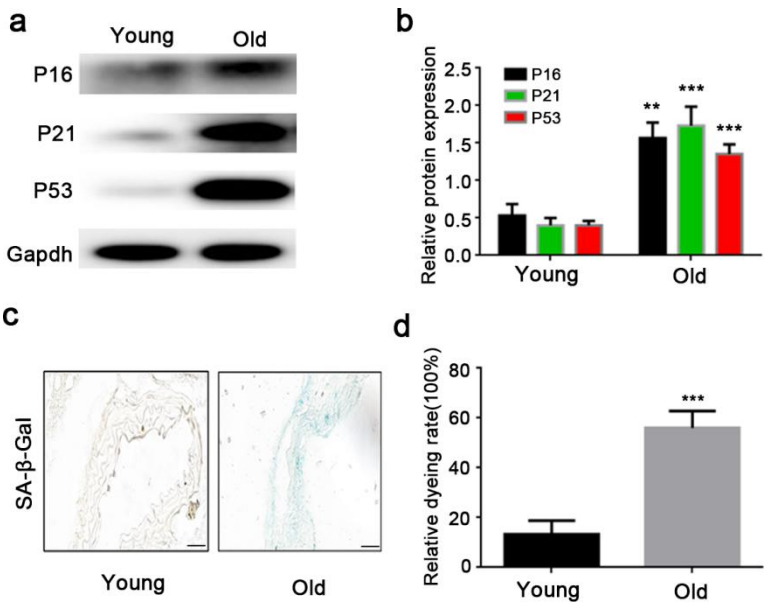
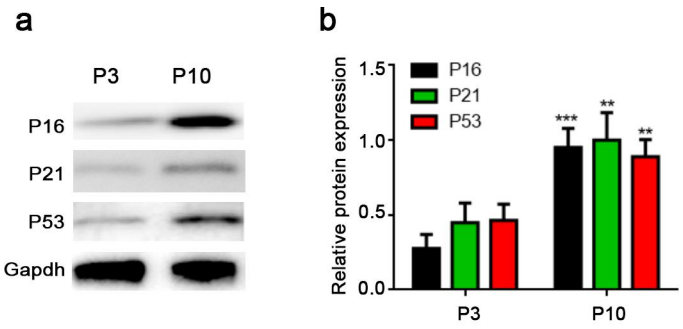
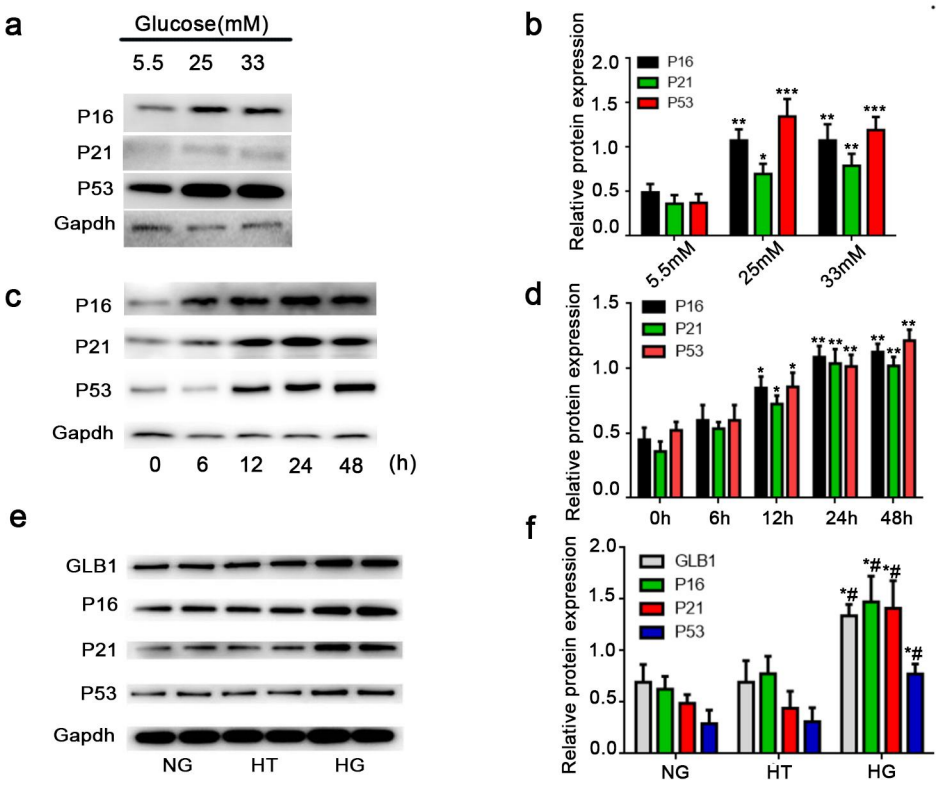


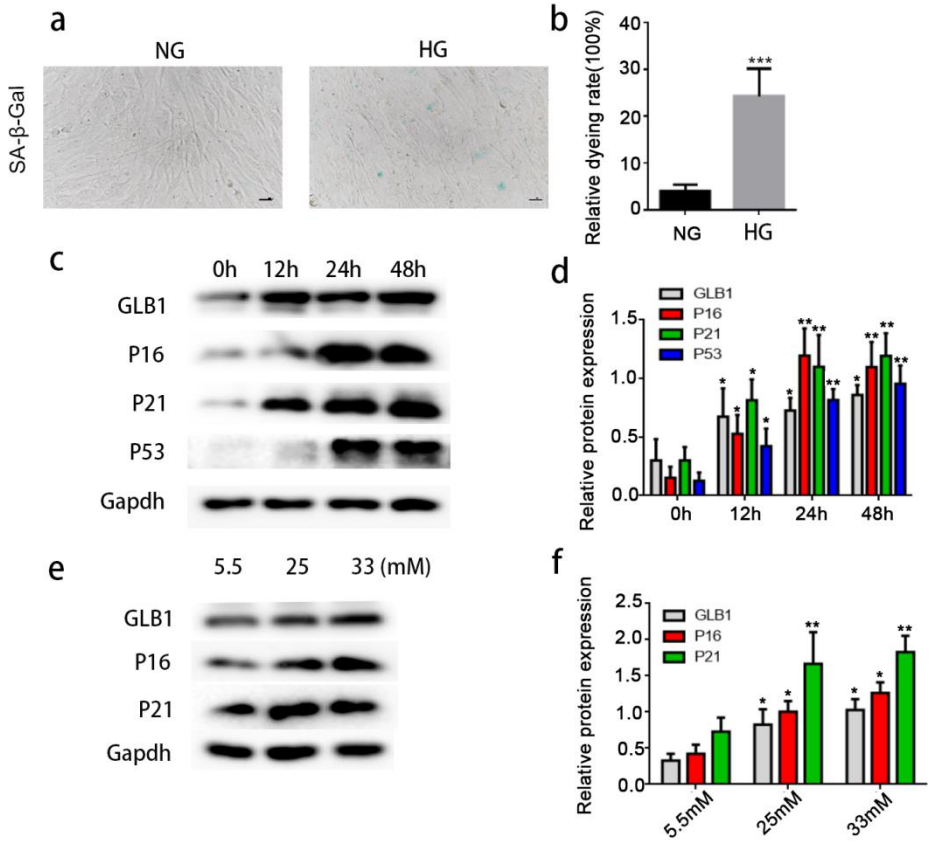

**Supplementary Figure.1 Establishment of natural aging mice model.** WT C57 mice were divided into young and old group. (a) Representative Western blot of P16, P21, and P53; (b) Western blot analysis of P16, P21, and P53; (c) Representative β-galactosidase staining with the aorta from the mice (scale bar: 20μm); (d) Analysis of the relative dyeing rate. **P*<0.05, ***P*<0.01 and ****P*<0.001 vs Young Group; n=5.




**Supplementary Figure.2 Establishment of VSMCs replicatively senescence models.** (a) Representative Western blot of P16, P21, and P53 in different groups; (b) Quantitative analysis of Figure a; **P*<0.05, ***P*<0.01 and ****P*<0.001 vs P3 Group.

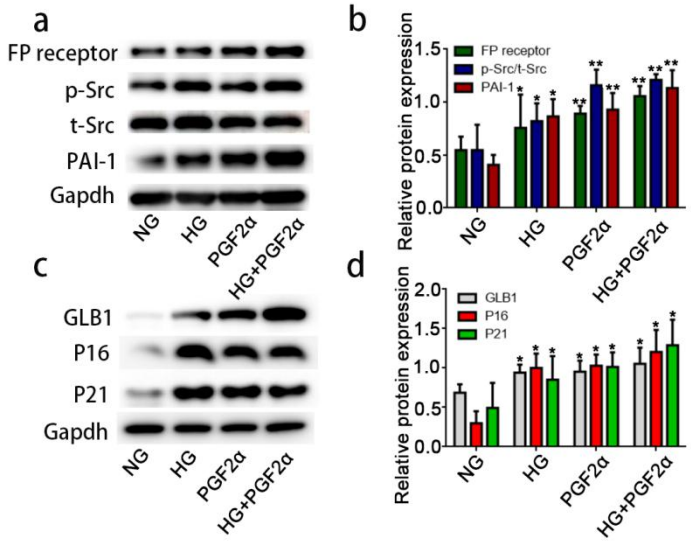



**Supplementary Figure.3 Establishment of induced senescence model.** The senescence model of VSMCs was established by selecting appropriate concentration and time of glucose stimulation. (a) Representative Western blot of P16, P21, and P53 in different glucose groups; (b) Quantitative analysis of Figure a; (c) Western blot of P16, P21, and P53 protein expressions in VSMCs under 33mM glucose for indicated time; (d) Quantitative analysis of Figure c; (e) The effect of high glucose on the expressions of GLB1, P16, P21 and P53 detected by Western bolt; (f) Quantitative analysis of Figure e. **P*<0.05, ***P*<0.01, ****P*<0.001 vs NG Group; $^{\#}P$<0.05 vs Hypertonic (HT) Group.

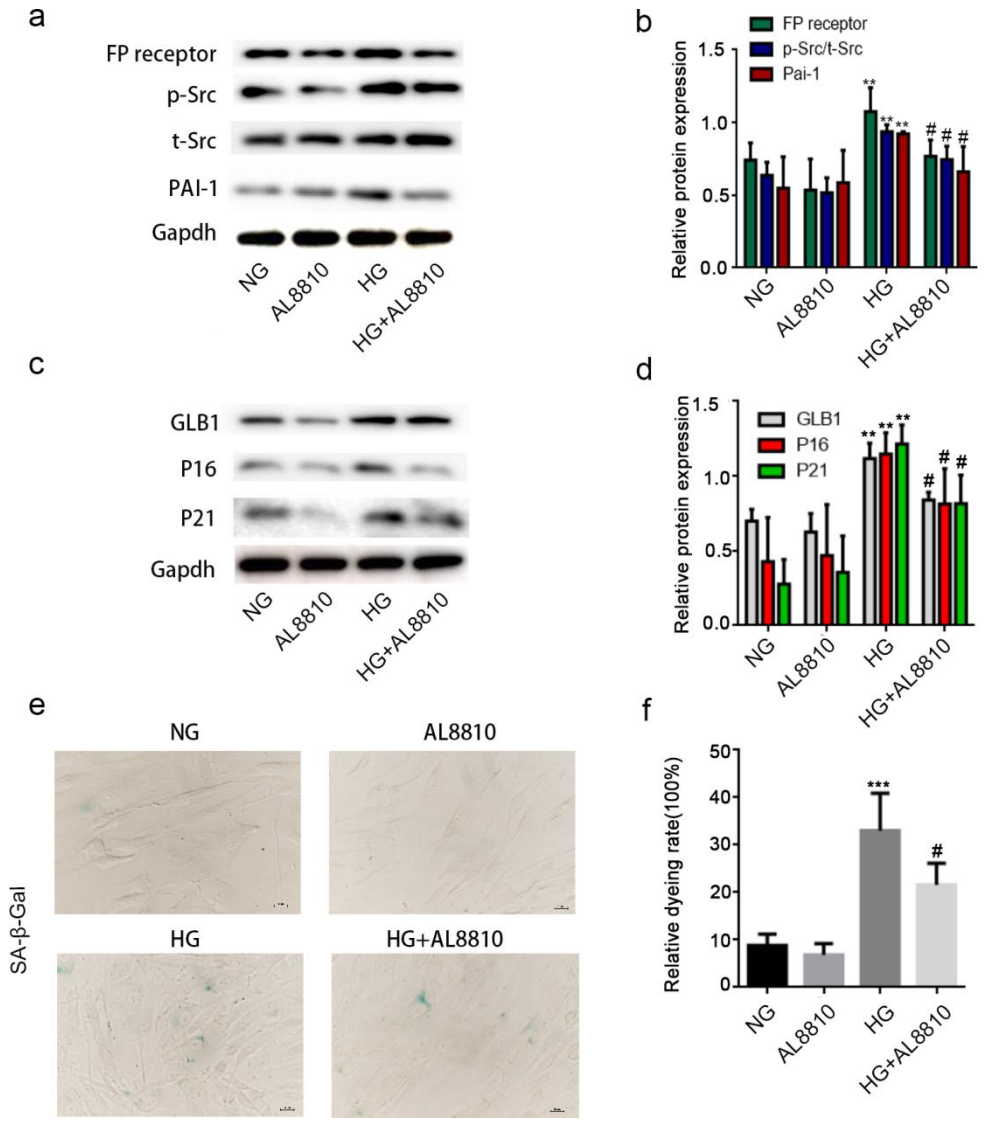



**Supplementary Figure.4 High glucose stimulated HASMCs to induce cell senescence. (a)** Representative β-galactosidase staining with the HASMCs (scale bar: 20μm); (b) Analysis of the relative dyeing rate; (c) Representative Western blot of GLB1, P16, P21, and P53 in different glucose groups; (d) Quantitative

different glucose groups; (f) Quantitative analysis of Figure e; **P*<0.05, ***P*<0.01 and ****P*<0.001 vs Control Group.




**Supplementary Figure.5 Effects of high glucose and PGF2α stimulation on the FP recpetor/Src/PAI-1 pathway and aging-related proteins of HASMCs.** (a) Representative Western blot of FP receptor, p-Src, t-Src, PAI-1 in different groups; (b) Quantitative analysis of Figure a; (c) Representative Western blot of GLB1, P16 and P21 in different groups; (d) Quantitative analysis of Figure e; **P*<0.05 and ***P*<0.01 vs NG Group.




**Supplementary Figure.6 Effects of inhibition of FP receptor expression in HASMCs on Src/PAI-1 pathways and cells senescence. (**a) Representative Western blot of FP receptor, p-Src, t-Src, PAI-1 in different groups; (b) Quantitative analysis of Figure a; (c) Representative Western blot of GLB1, P16 and P21 in different groups; Representative β-galactosidase staining with the HASMCs (scale bar: 20μm); (f) Analysis of the relative dyeing rate; **P*<0.05, ***P*<0.01 and ****P*<0.001 vs NG Group ; $^{\#}$*P*<0.05 vs HG Group.