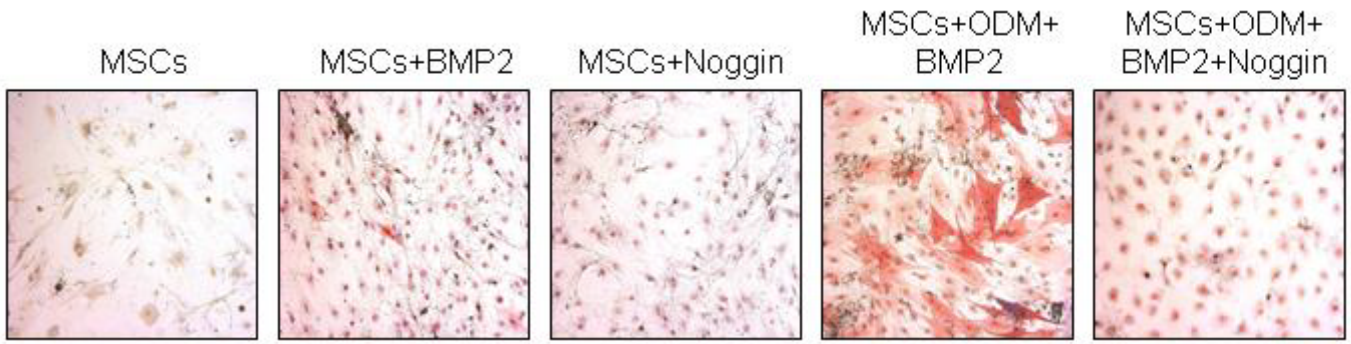
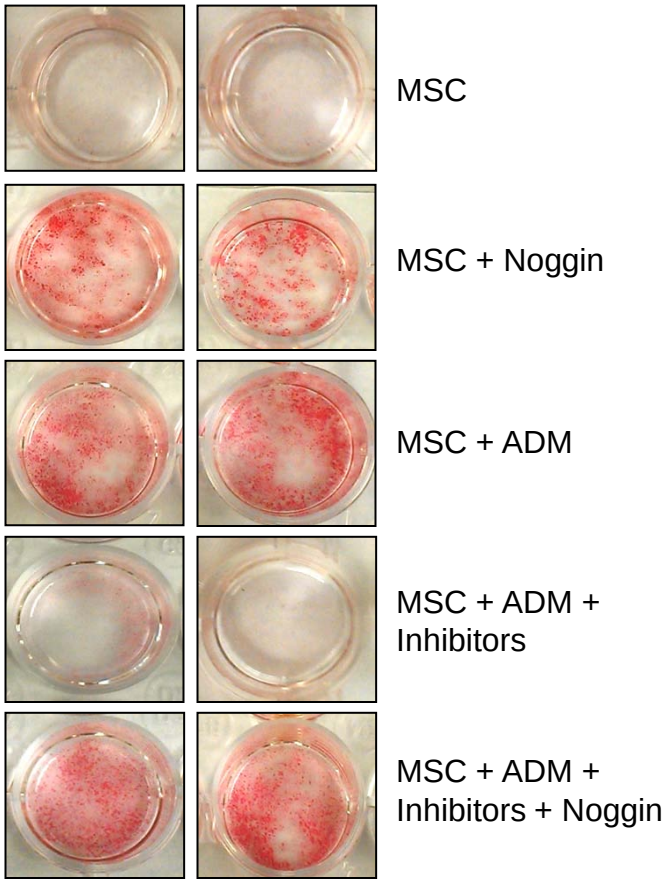
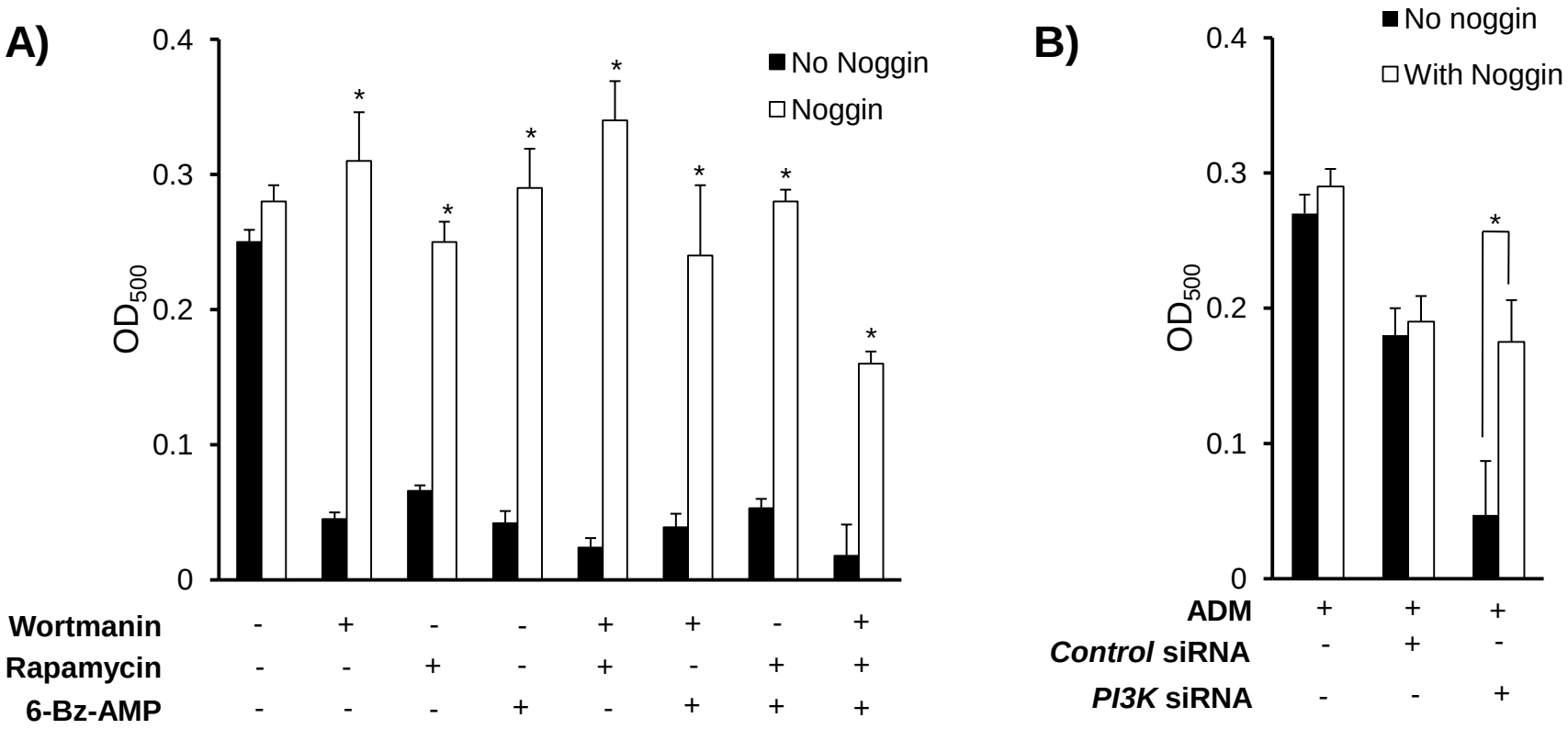


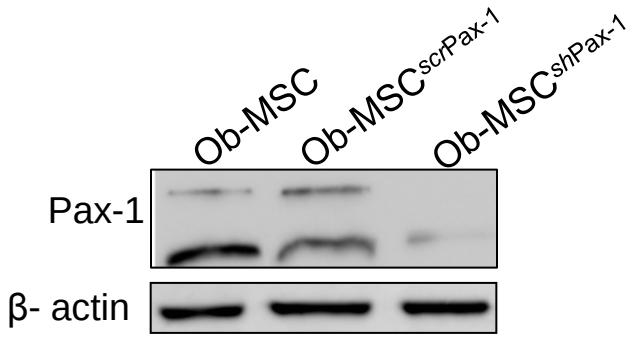
Supplemental Figure - S1: Noggin inhibits BMP-2 mediated osteoblast differentiation of MSC. 10^4 MSC were cultured in osteoblast differentiation medium (ODM) and BMP-2 in the presence or absence of noggin. After 10 days, presence of osteoblasts were detected by staining for alkaline phosphatase.



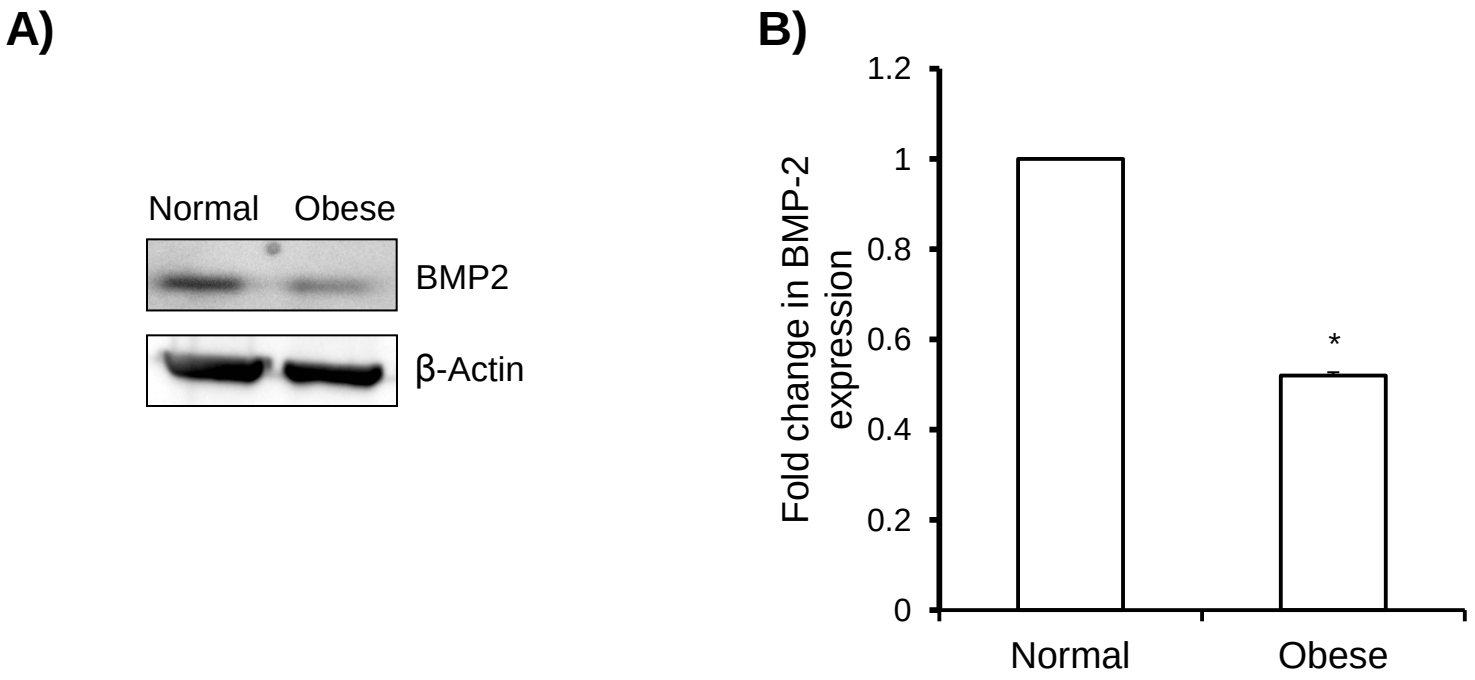
Supplemental Figure – S2: Noggin induces adipocyte differentiation of MSC. 10^4 MSC were cultured in adipocyte differentiation media (ODM) in the presence or absence of noggin and inhibitors of adipogenesis (LY294002+Rapamycin). After 14 days, presence of adipocytes was detected by oil red o staining as described in Materials and Methods. The experiment was repeated 3 times independently. Representative images for different culture conditions used are shown.



Supplemental Figure – S3: Noggin induces adipogenesis of MSC in the presence of inhibitors.
(A) MSC were cultured in the ADM along with various inhibitors, in the presence of absence of noggin, as described in Materials and Methods. To determine the role of Pax-1 in noggin-induced adipogenesis, MSC from obese mice were transfected with *sh*RNA construct for Pax-1. Presence of adipocytes was quantified by Oil Red O staining. The experiment was repeated three times independently. * $p < 0.05$. (B) PI3 kinase expression was knocked-down in MSC using a gene specific siRNA. As a control, MSC were transfected with a control siRNA. Transfected MSC were differentiated into adipocytes in the presence or absence of noggin. Presence of adipocytes was quantified by Oil Red O staining. The experiment was repeated three times independently. * $p < 0.05$.



Supplemental Figure – S4: Knock-down of Pax-1 in MSC from obese mice. To determine the role of Pax-1 in noggin induced adipogenesis, MSC from obese mice were transfected with *sh*RNA construct for Pax-1 as mentioned in Materials and Methods. As a control, obese MSC were transfected with a *scr*RNA control. Transfected cells were selected with 2 µg/ml puromycin. Knock-down of Pax-1 was confirmed by western blot analysis using cell lysates.



Supplemental Figure – S5: BMP-2 expression is significantly lowered in obese MSC compared to normal MSC. (A) BMP-2 expression in the whole cell lysates of normal and obese MSC was determined by western blot analysis using murine anti- BMP2 antibody (R&D Biosystems). A representative blot is shown here. Data clearly shows that BMP-2 levels are considerably reduced in the obese MSC compared to the normal MSC. (B) Densitometry analysis of the western blot is shown to indicate change in BMP-2 expression in obese MSC compared to the normal MSC[N=3, * $p < 0.0001$].