Supplemental Figure Legend

Supplemental Fig. 1: Western blot of cytosolic extracts of Fig 4C. Histone was used to show that the cytosolic extracts did not contain nuclear protein.

Supplemental Fig. 2: Effect of SU5402 and PD98059 on impaired mineralization induced by HMW overexpression. On day 14, cultures were treated with SU5402 or PD98059. These effectors were refreshed with every subsequent media change. Fluorescent scanning of BMSC cultures was done on day 21.

Supplemental Fig. 3: Time course effect of overexpression of HMW on BMSC metabolic activity and proliferation. A). To test cell metabolic activity, BMSCs from both vector and HMW were cultured in basal media. After 24, 48, 72, and 96 h, an MTT assay was performed. Absorbance is directly proportional to the number of living cells. B). To test for proliferation, cell number was also counted after 24, 48, 72 and 96 h. Data are presented as means±SE, n=10. Different from Vector: $P < 0.05$. Two-way ANOVA followed by LSD was used.

Supplemental Fig. 4: Analysis of bone nodule formation in BMSCs from Vector and HMW mice cultured for a prolonged period. Starting on day 3 of culture, BMSC were fed with osteogenic differentiation media, and cells were cultured for up to 4 weeks. A. Alizarin red S stain and B. quantitative analysis shows decreased mineralized nodules formation in BMSCs from HMW mice at 4 weeks of culture. Values are Mean ± S.E for three determinations/group. T-test was used.

Supplemental Fig. 5: FACS analysis of cell surface FGFR1 on BMSCs. BMSCs from both Vector and HMW mice were cultured for 1 week. Cells were collected and the ratio of FGFR1+ cells, and/or GFPsaph+ cells per total living cells was determined by FACS.

Supplemental Fig. 6. phospho-ERK protein expression in nuclear fractions of BMSCs from Vector and HMW mice cultured in osteogenic media. **(**A) Western blots showed increased phospho-ERK protein expression in nuclear fractions from HMW BMSC cultures compared with Vector at 1, 2 and 3 weeks. (B) Statistical analysis of Western blots of pERK from three independent experiments showing the ratio of p-ERK/ERK. Values are Mean ± S.E for three independent experiments. Two-way ANOVA followed by LSD was used. *: Compared with Vector, $P < 0.05$.

Supplemental Fig. 7: Effect of a low concentration of β-glycerophosphate on mineralized nodule formation in BMSC cultures from Vector and HMW mice. Reduced mineralized nodule formation was also observed when BMSCs were cultured for 3 weeks in osteogenic media with lower concentration of β-glycerophosphate (4 mM) as compared to 8 mM.