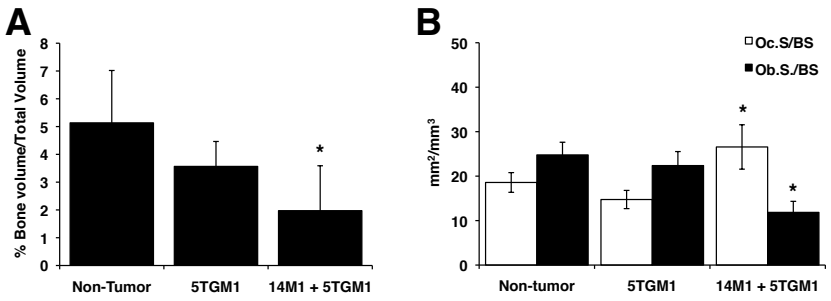
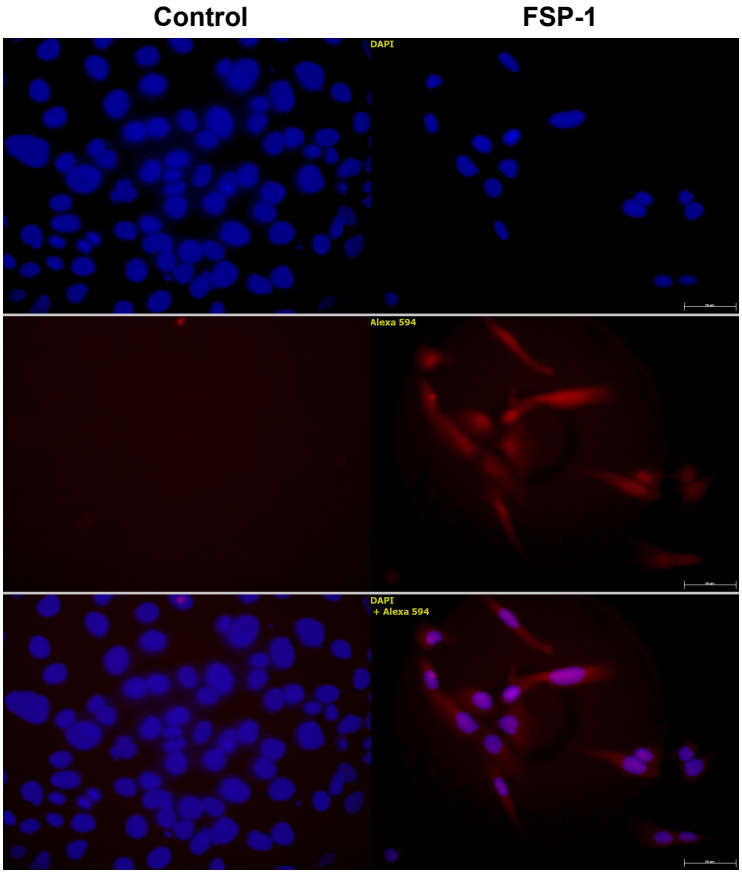


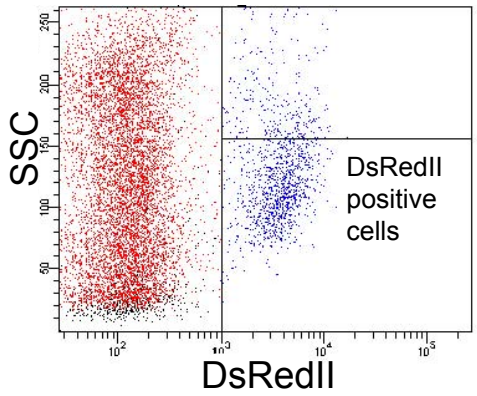
Supplementary Figure 1. 14M1 BMSCs promote myeloma bone disease in non-permissive C57Bl6 mice. C57Bl6 mice were inoculated with either 10^6 5TGM1-GFP cells alone, $5x10^5$ 5TGM1-GFP + $5x10^5$ 14M1 BMSCs or vehicle control (PBS). Co-inoculation of 5TGM1 myeloma cells plus 14M1 BMSCs significantly decreased trabecular bone volume (A) and osteoblast number (B), and increased osteoclast number (B). *$p<0.05$, as compared to 5TGM1.



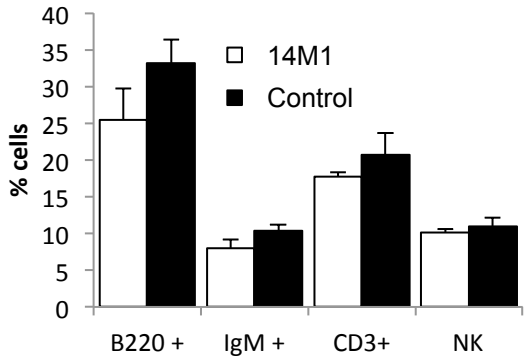
Supplementary Figure 2. 14M1 BMSCs express FSP-1. 14M1 BMSCs were stained with anti-FSP-1 (red) and counter-stained with DAPI (blue) to identify fibroblasts.

Supplemental Data

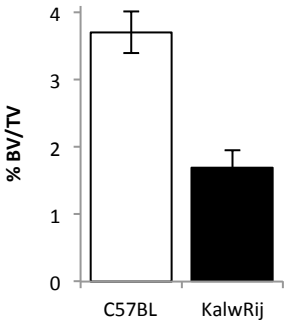
Figure 2



Supplementary Figure 3. 14M1 DSRedII BMSCs engraft in C57Bl6 mice. 14M1 BMSCs were stably transfected with DSRedII. 4 weeks following inoculation into C57Bl6 mice, 12.45% ± 1.05% DSRedII positive cells could be detected in bone marrow by flow cytometry.

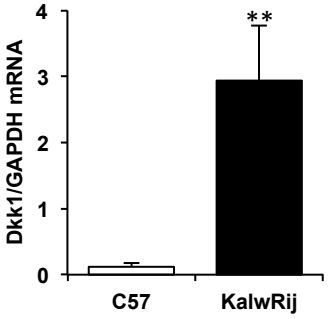


Supplementary Figure 4. Inoculation of 14M1 BMSCs has no significant effect on the proportion of B, T and NK cells in the bone marrow. C57Bl6 mice were inoculated with 14M1 BMSCs, and the proportion of B (B220+ or IgM+), T (CD3) and NK cells quantitated by flow cytometry (n=5).



Supplementary Figure 5. KaLwRij mice have decreased trabecular bone volume.

Trabecular bone volume was quantitated by microCT analysis in age- and sex-matched C57Bl6 and KaLwRij mice (n=5). **p<0.01 as compared to control.



Supplementary Figure 6. BMSCs from KaLwRij mice have increased Dkk1. Primary BMSCs were cultured from age- and sex-matched C57Bl6 and KaLwRij mice. Dkk1 expression was measured by real-time PCR. **p<0.01 as compared to C57.

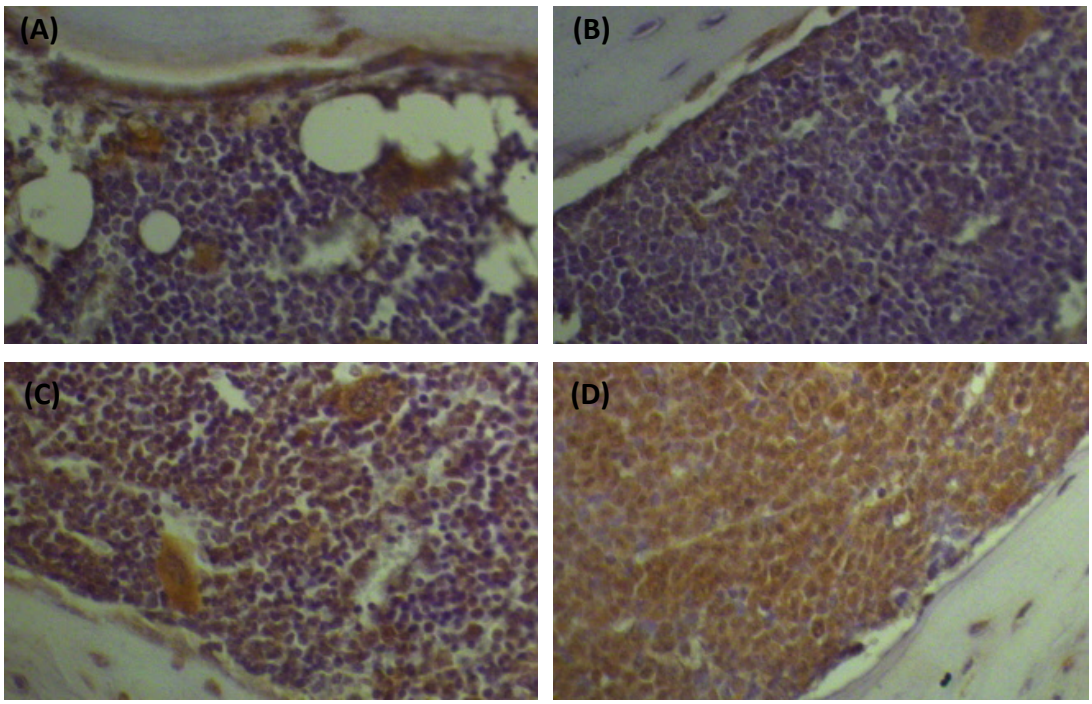
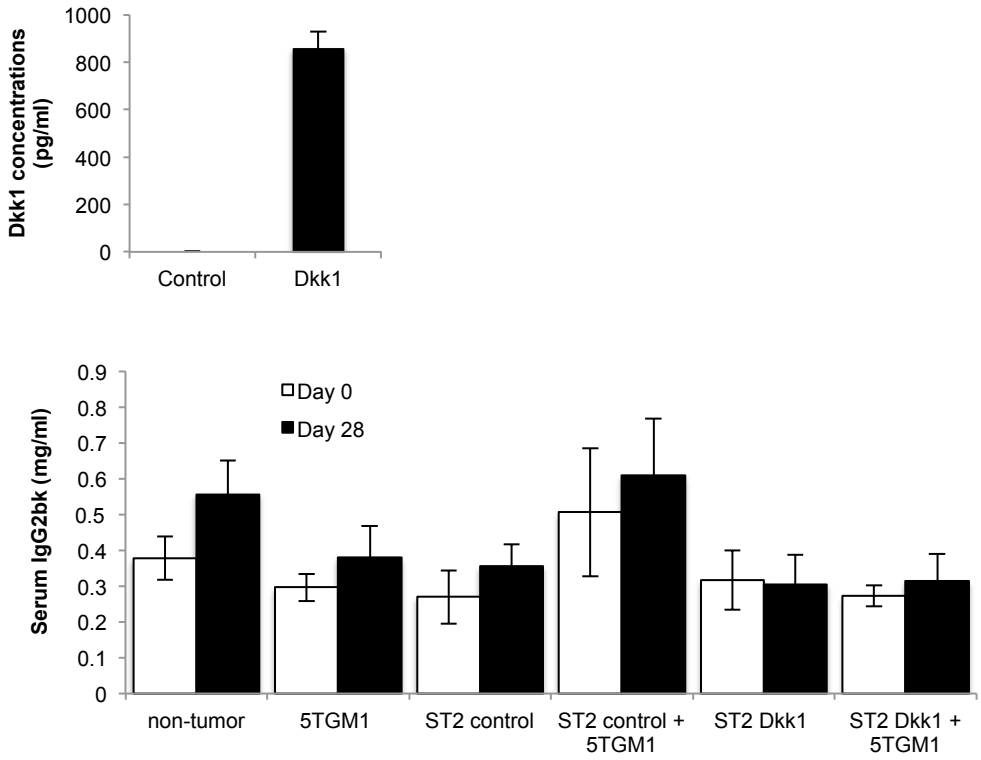


Table 1. Bone marrow expression of Dkk1 by immunohistochemistry[a]	
Non-tumor	+[b]
14M1	++[b]
5TGM1	+[b]
5TGM1 + 14M1	+++[c]

[a]Expression was quantitated by an independent investigator in 10 random areas per section. [b]Expression in bone marrow stroma. [c]Expression detected in myeloma cells

Supplementary Figure 7. Dkk1 expression in bone marrow. Dkk1 expression was increased in the bone marrow of mice inoculated with 14M1 BMSCs (C), as compared with non-tumor bearing mice (A) or mice inoculated with 5TGM1 myeloma cells alone. Dkk1 expression was detected in 5TGM1 myeloma cells following co-inoculation of 14M1 BMSCs and 5TGM1 myeloma cells (D). Dkk1 expression in osteoblasts, areas of stromal cells and myeloma cells (apparent by “clock-face nuclei”) is observed. Histological sections were analyzed semi-quantitatively and data is presented in Table 1.



Supplementary Figure 8. Over-expression of Dkk1 in ST2 BMSCs does not induce myeloma development in C57Bl6 mice. ST2 BMSCs were stably transfected with Dkk1 or and empty vector control, with a detectable increase in secreted Dkk1 (A). C57Bl6 mice were inoculated with either 10^6 5TGM1-GFP cells alone, $5x10^5$ 5TGM1-GFP + $5x10^5$ ST2 control BMSCs, $5x10^5$ 5TGM1-GFP + $5x10^5$ ST2 Dkk1 BMSCs, $5x10^5$ ST2 control BMSCs, $5x10^5$ ST2 Dkk1 BMSCs or vehicle control (PBS). Co-inoculation of 5TGM1 myeloma cells plus ST2 cells over-expressing Dkk1 had no effect on serum IgG2bk (B).