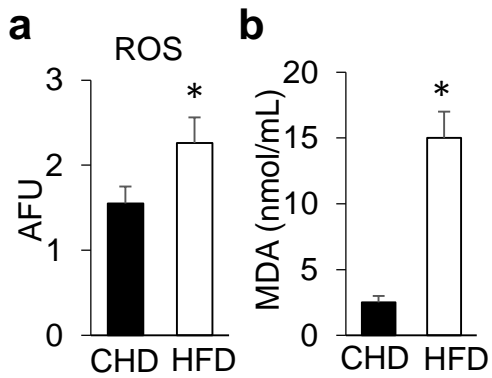


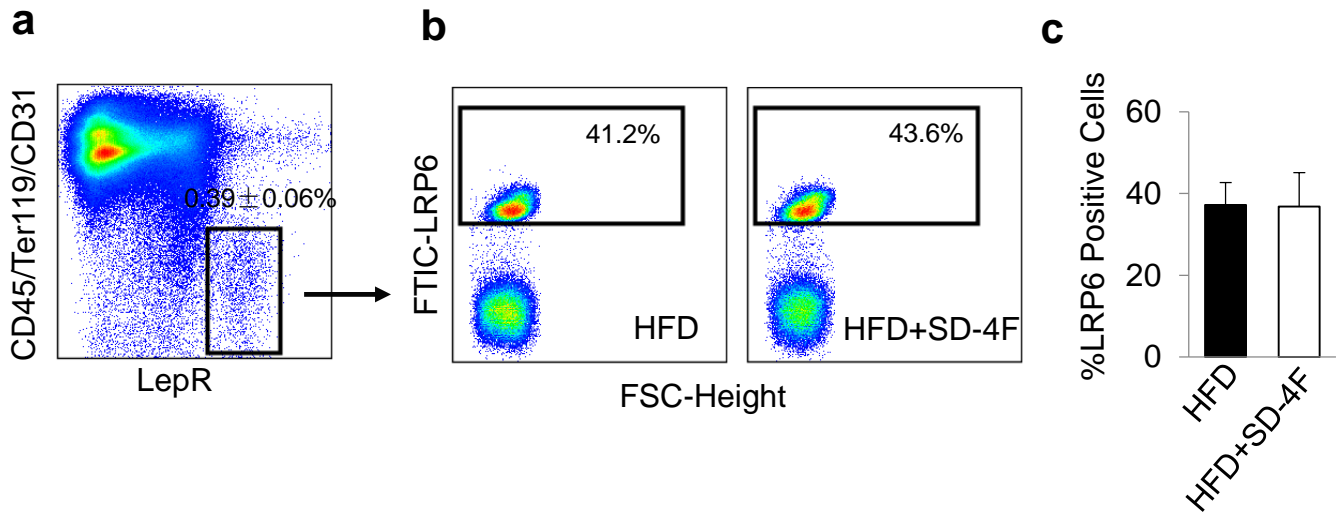
## Figure S1



### Figure S1. Lipid Oxidation is Increased in Mice Fed HFD.

Ten-week-old C57BL/6 mice fed Western high fat diets (HFD) or standard chow diets (CHD) for one month. Levels of ROS in MSCs (a) and MDA in serum (b) were detected. (n= 7, \* p<0.01, vs. CHD group.)

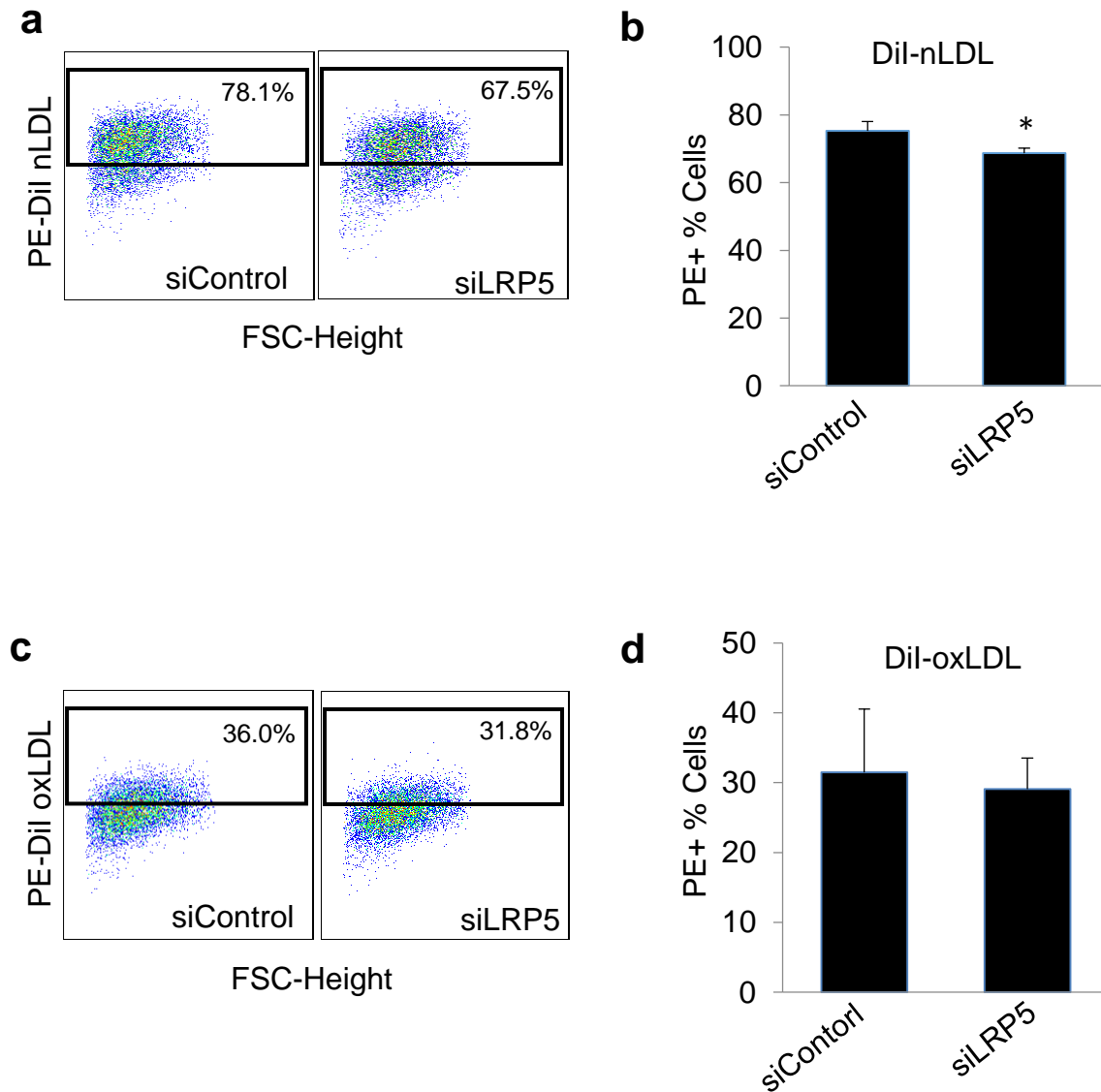
## Figure S2



### Figure S2. Control scrambled SD-4F peptide does not affect LRP6 cell surface expression in MSCs.

Ten-week-old C57BL/6 mice fed HFD alone or together with scrambled D-4F peptide (HFD+SD-4F) for two weeks. The peptides were administered orally in drinking water at 0.4 mg/ml, equivalent to 1.6 mg/d. Flow cytometry analysis of LRP6<sup>+</sup> cells in bone marrow LepR<sup>+</sup>CD45<sup>-</sup>CD31<sup>-</sup>Ter119<sup>-</sup> MSCs (a). Representative images of the flow cytometry analysis (b) and the percentage of LRP6<sup>+</sup> cells (c) in MSCs. n=4, data are represented as mean±s.e.m.

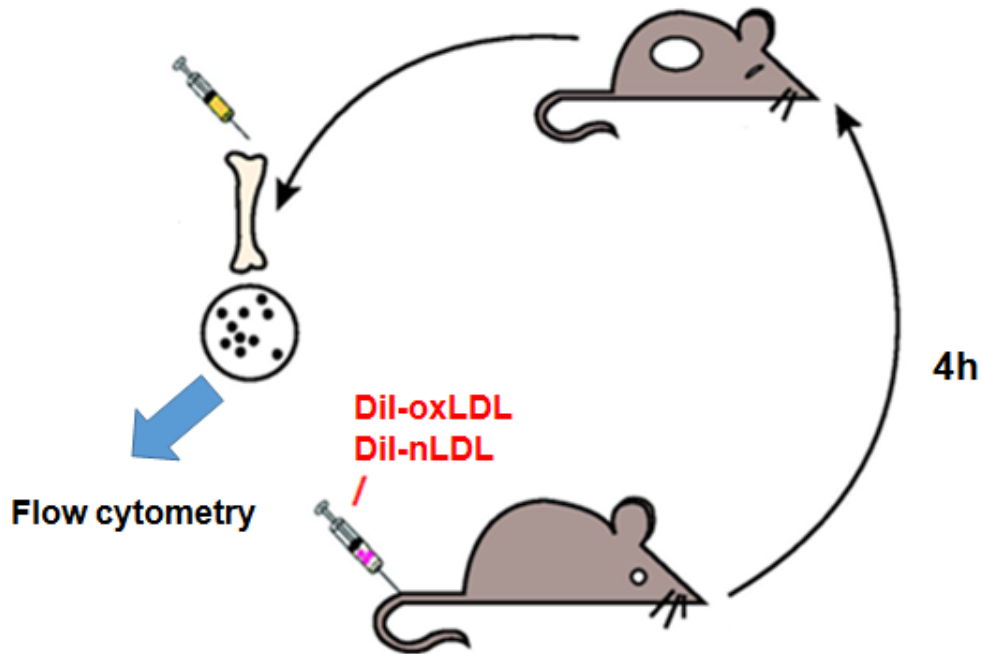
## Figure S3



### Figure S3. Uptake of Dil-nLDL by MSCs Were Reduced in MSCs with LRP5 Knockdown, But Were Not Affected the Uptake of Dil-oxLDL.

Representative images of the flow cytometry analysis (**a and c**) and the percentage of Dil-nLDL uptake (**b**) and Dil-oxLDL uptake (**d**) in human MSCs transfected with either irrelevant control siRNA or LRP5 siRNA. (n=6, data are represented as mean  $\pm$  s.e.m. \*p<0.05, vs. Control siRNA group, as determined by Student's *t*-tests)

**Figure S4**



**Figure S4. Schematic of Experimental Protocol Testing nLDL and oxLDL Uptake by Bone Marrow MSCs in Mice.**

Mice were injected intravenously with Dil-nLDL or Dil-oxLDL 20  $\mu$ g per mouse. After 4 hour, bone marrow MSCs were isolated and the uptake of Dil-nLDL and Dil-oxLDL by MSCs were analyzed by flow cytometry. Please also see details in the Methods section.