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Supplemental Information

hucMSC Exosome-Derived GPX1 Is Required for the Recovery of Hepatic Oxidant Injury

Yongmin Yan, Wenqian Jiang, Youwen Tan, Shengqiang Zou, Hongguang Zhang, Fei Mao, Aihua Gong, Hui Qian, and Wenrong Xu

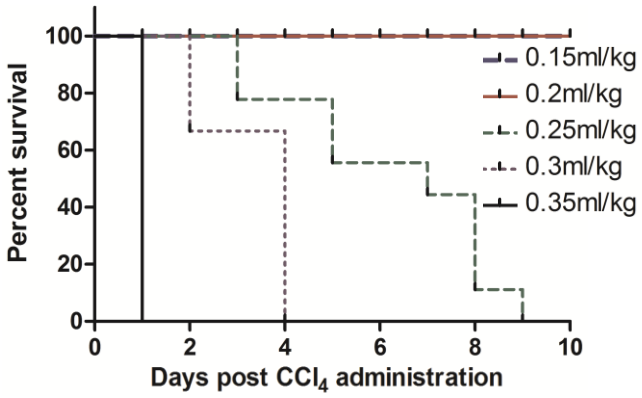

Fig.S1. Survival curves of CCl_4 injured mice received dosages between 0.15 and 0.35 mL/kg body wt by intraperitoneal injection.

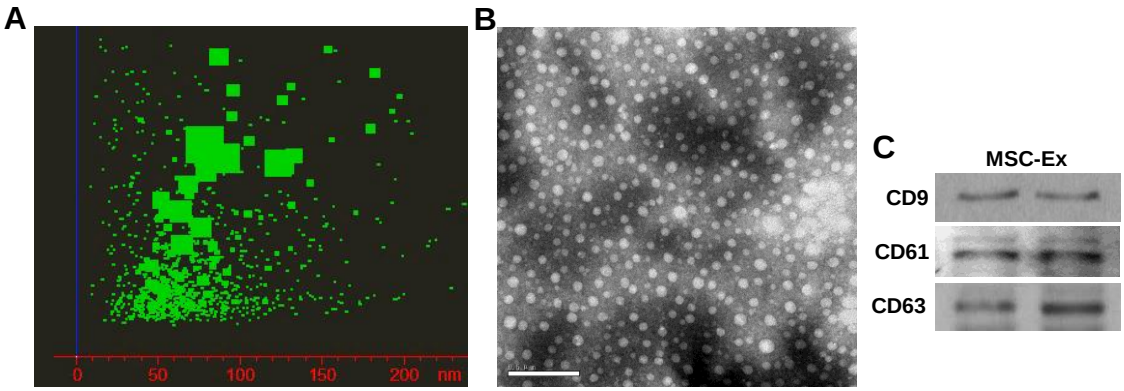

Fig.S2. HucMSC-Ex are detected by Nanoparticle Tracking Analysis (NTA) (A) and images under TEM are spheroid (scale bar 500 nm) (B). Western blot of CD9, CD61 and CD63 positive expression in hucMSC-Ex (C).

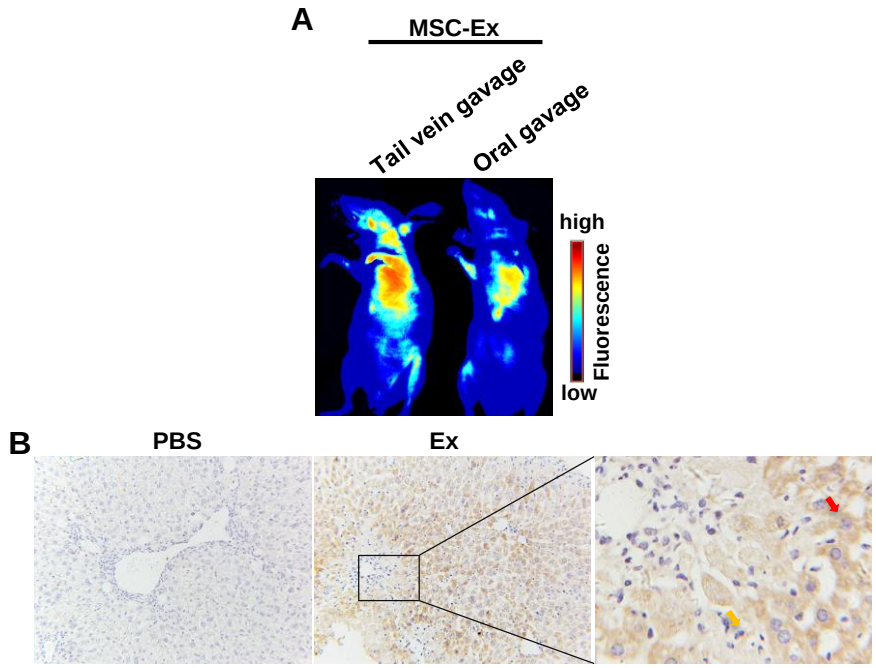

Fig.S3. Distribution of CM-Dir labeled hucMSC-Ex in normal mice after tail vein or oral gavage administration (A).Results showed that CM-Dir-labeled hucMSC-Ex administered by tail vein or oral gavage could target normal livers at 24 h post injection. CD63 staining of hucMSC-Ex in CCl_4 injured mouse liver; in each group 48 h after treatment (n = 3; *, P < 0.05; **, P < 0.01; ***, P < 0.001). (Red arrow: hepatocyte; Yellow arrow: Kupffer cells). Original magnification 200x (B).

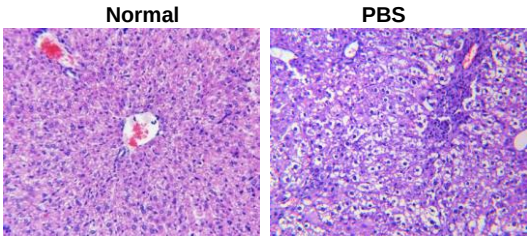

Fig.S4. Representative H&E images of mouse livers 72 h after PBS treatment. Original magnification 200x.Large areas of fatty degeneration and portal hepatocyte necrosis were induced in PBS treated mice.

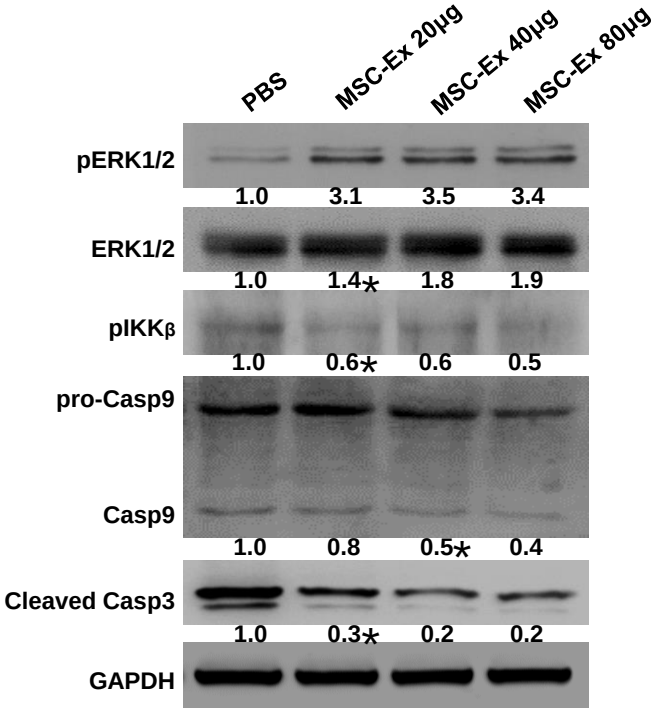

Fig.S5. Western blot quantification of pERK1/2, total ERK1/2, pIKKβ, casp9 and cleaved casp3 in CCl_4-injured L02 cells treated with PBS and hucMSC-Ex. he quantitated data expressed as relative ratio of specific proteins to GAPDH shown as numbers under individual blots (n = 3; *, P < 0.05).

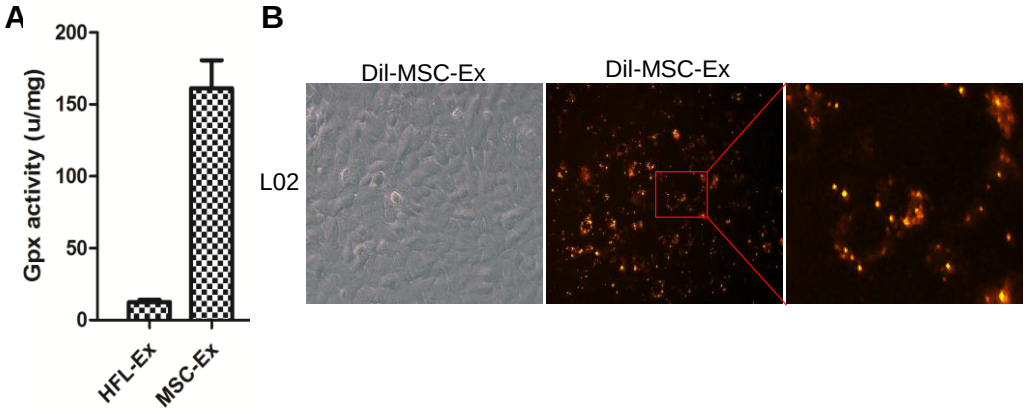

Fig.S6. Gpx activity of HFL-Ex and MSC-Ex. (n = 3) (A). Representative image of Dil labeled exosomes in L02 cells. Original magnification 200x. (B)

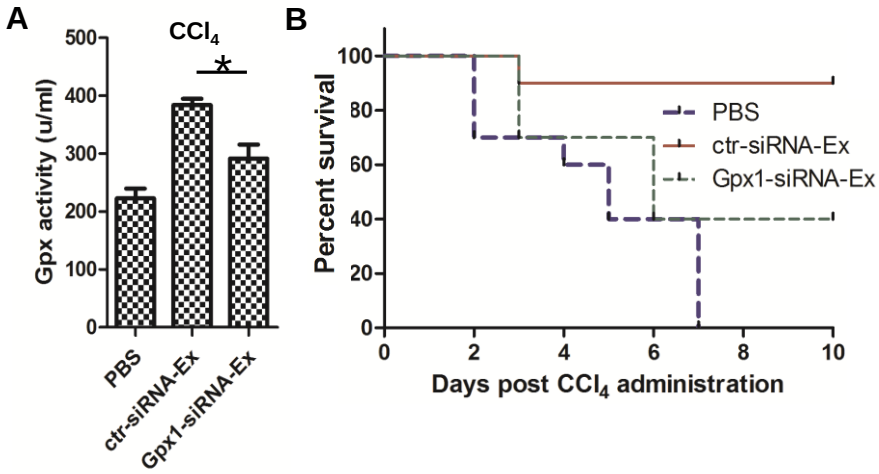

Fig.S7. Gpx activity of mice livers measured 48 h after PBS, ctr-siRNA-Ex or Gpx1-siRNA-Ex treatment. (n = 3; *, $P < 0.05$) (A). Survival curves of CCl_4 injured mice that underwent PBS, ctr-siRNA-Ex and Gpx1-siRNA-Ex administration by tail vein at 32mg/kg body weight (bt). (ctr-siRNA-Ex vs Gpx1-siRNA-Ex, n = 10, $P < 0.01$) (B). Gpx1 knockdown reduced Gpx activity in ex vivo hepatocytes (n = 3; *, $P < 0.05$) and attenuated the rescue of hucMSC-Ex on CCl_4 induced liver failure (n = 10; *, $P < 0.05$).