

Supplementary Materials

Neuropilin-1 enriched mesenchymal stem cell derived-exosomes alleviate vascular hyperpermeability in acute lung injury

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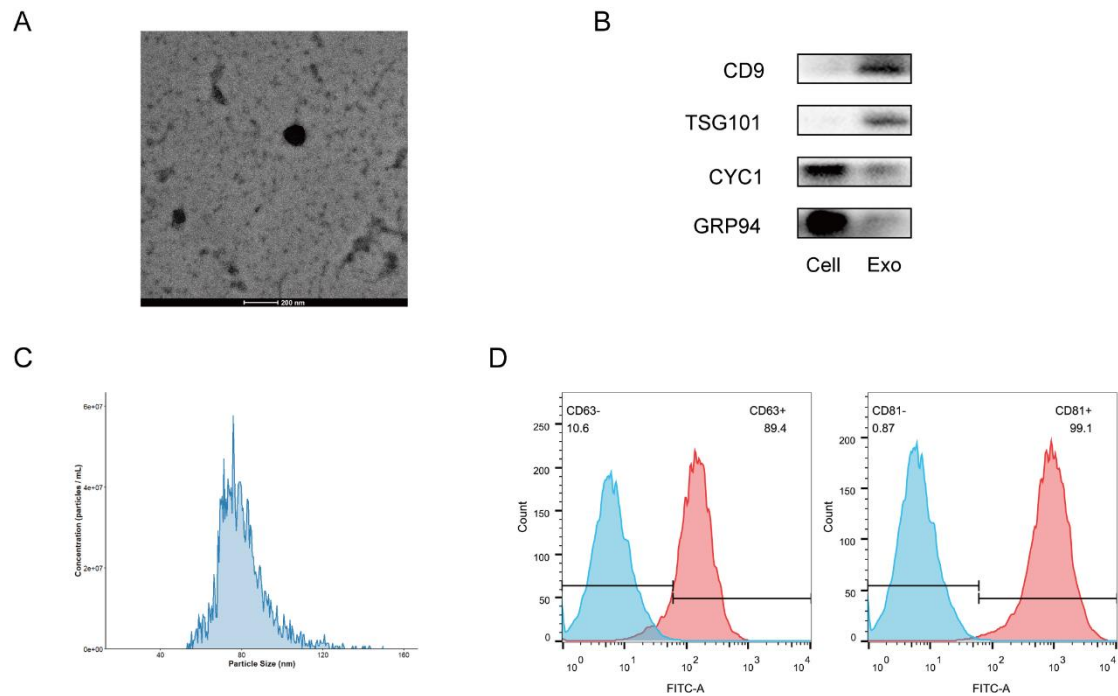
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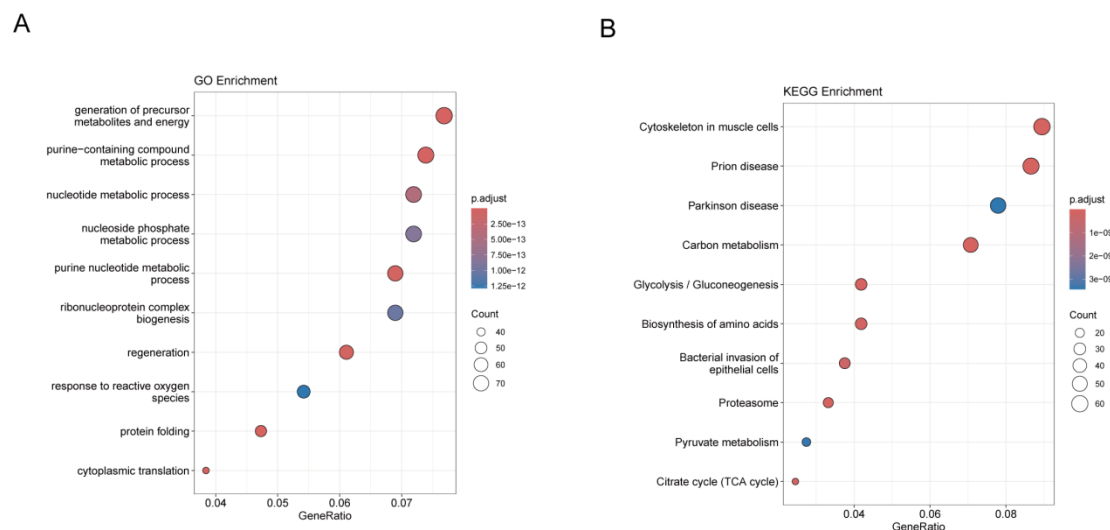
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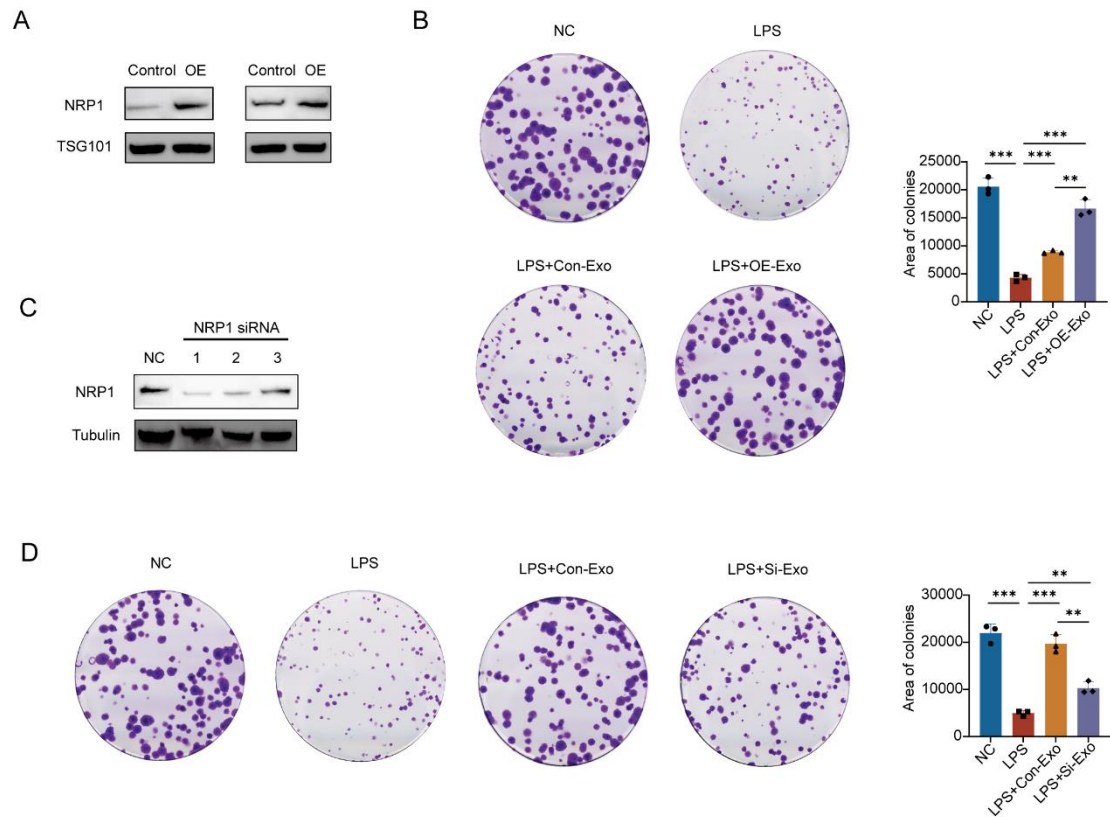
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Supplementary Figure 1. (A) TEM image of MSC-Exo; (B) Western Blot analysis of surface markers and contaminant proteins in MSC-Exo; (C) Nanoparticle tracking analysis (NTA) showing particle size distribution of MSC-Exo; (D) Flow cytometry detection of MSC-Exo surface marker positivity.



Supplementary Figure 2. (A) Bubble plot of top 10 GO-enriched terms; (B) Bubble plot of top 10 KEGG-enriched pathways. The X-axis indicates gene ratio, while the Y-axis displays functional terms (A) and pathway information (B). Bubble size corresponds to the number of enriched genes, with color intensity reflecting $-\log_{10}$ (P -value) (darker hues indicate higher significance levels). Smaller enrichment P -values denote greater statistical significance.



Supplementary Figure 3. (A) Western blot analysis of NRP1 expression in exosomes derived from control and NRP1-overexpressing MSCs; (B) Colony formation assay confirmed the proliferative advantage of PMVECs treated with NRP1-overexpressing MSC-Exo. All experiments were independently repeated three times; (C) Western blot screening confirmed that siRNA1 exhibited the highest knockdown efficiency among three candidate siRNA constructs. NRP1 expression was further evaluated in MSC-derived exosomes, showing a significant reduction in exosomes from siNRP1-transfected MSCs compared with non-targeting siRNA controls. All experiments were independently repeated three times; (D) Colony formation assay confirms that downregulation of NRP1 in MSC-Exo diminishes its pro-proliferative effect. All experiments were independently repeated three times.