

Supplementary materials

Exosomes from M2c Macrophages Alleviate Intervertebral Disc Degeneration by Promoting Synthesis of the Extracellular Matrix via MiR-124/CILP/TGF- β

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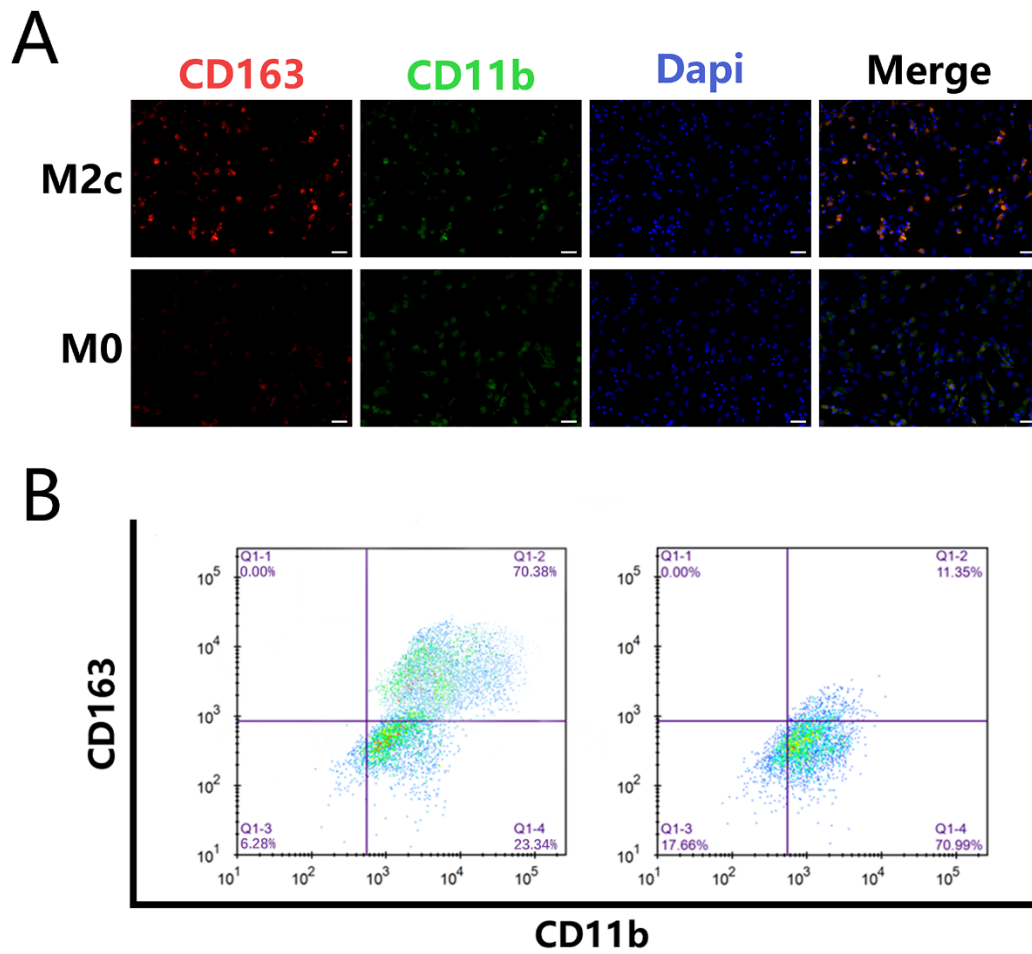


Fig. S1 Identification of M2c polarization of macrophage induced with IL-10. (A) immunofluorescent staining of CD11b (general marker of macrophage) and CD163 (specific marker of M2c macrophage). (B) Flow cytometry analysis on CD11b and CD163 of M2c macrophage. Scale bar = 50 μ m.

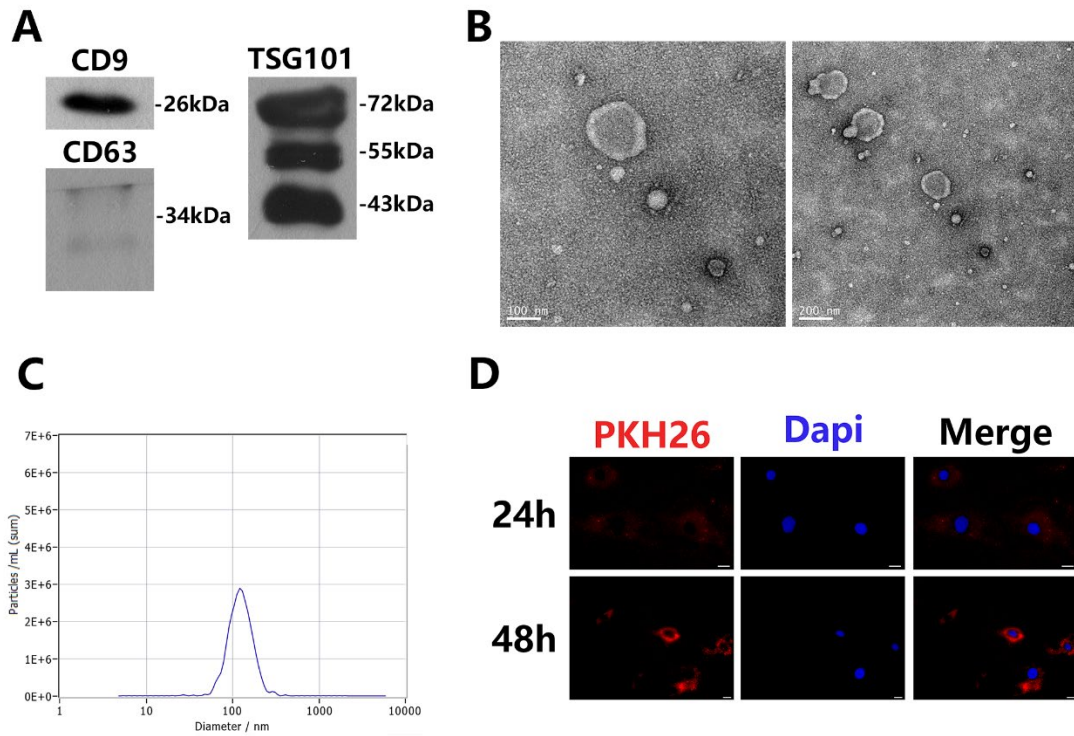


Fig. S2 Identification of exosomes from M2c macrophage induced with IL-10. (A) Western blot of exosomal makers including CD9, CD63, TSG101. (B) Representative images of M2c-Exo under TEM. Scale bar: 100 and 200 nm. (C) The size distribution of M2c-Exo detected by NTA. Internalization of PKH26 labeled M2c-Exo by NPCs. Scale bars = 20 μm .

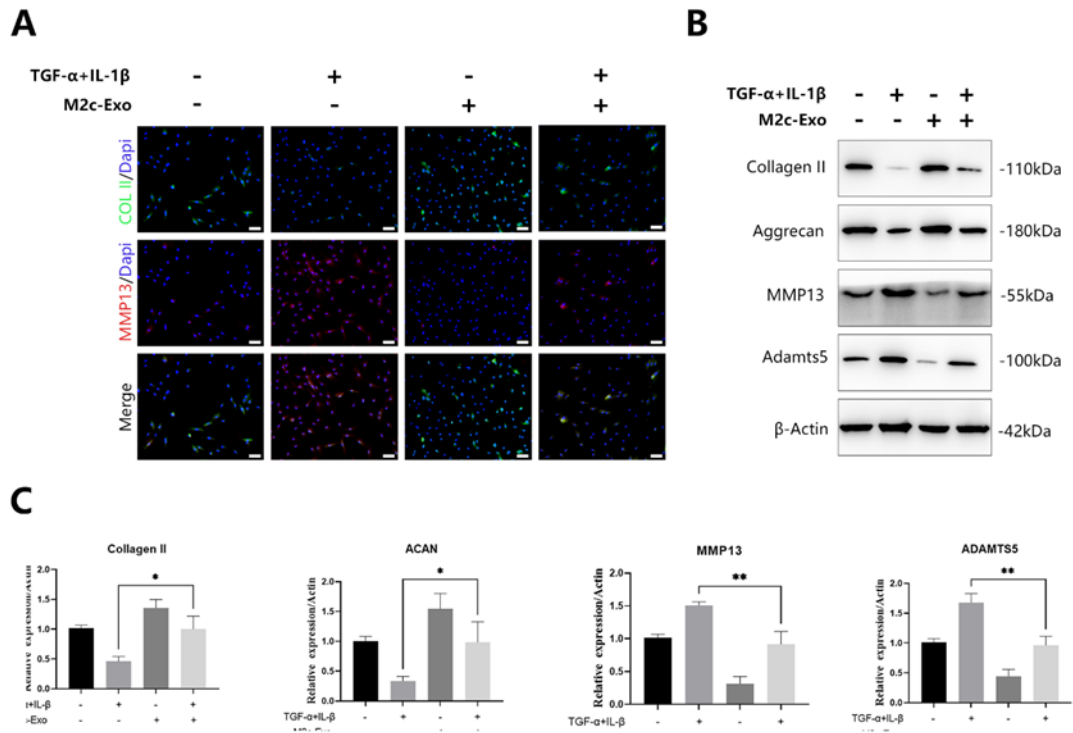


Fig. S3 M2c-Exos improved ECM metabolism of NPCs in treatment of TNF- α and IL-1 β . (A, B) The alternation of Col II, aggrecan, MMP13 and ADAMTS5 in NPCs incubated in conditions of TNF- α and IL-1 β with or without M2c-Exos (150 μ g/ml) shown by immunofluorescent staining and Western blotting. Scale bar = 100 μ m. (C) Quantification for immunofluorescent staining and Western blotting. * $p < 0.05$, ** $p < 0.01$.

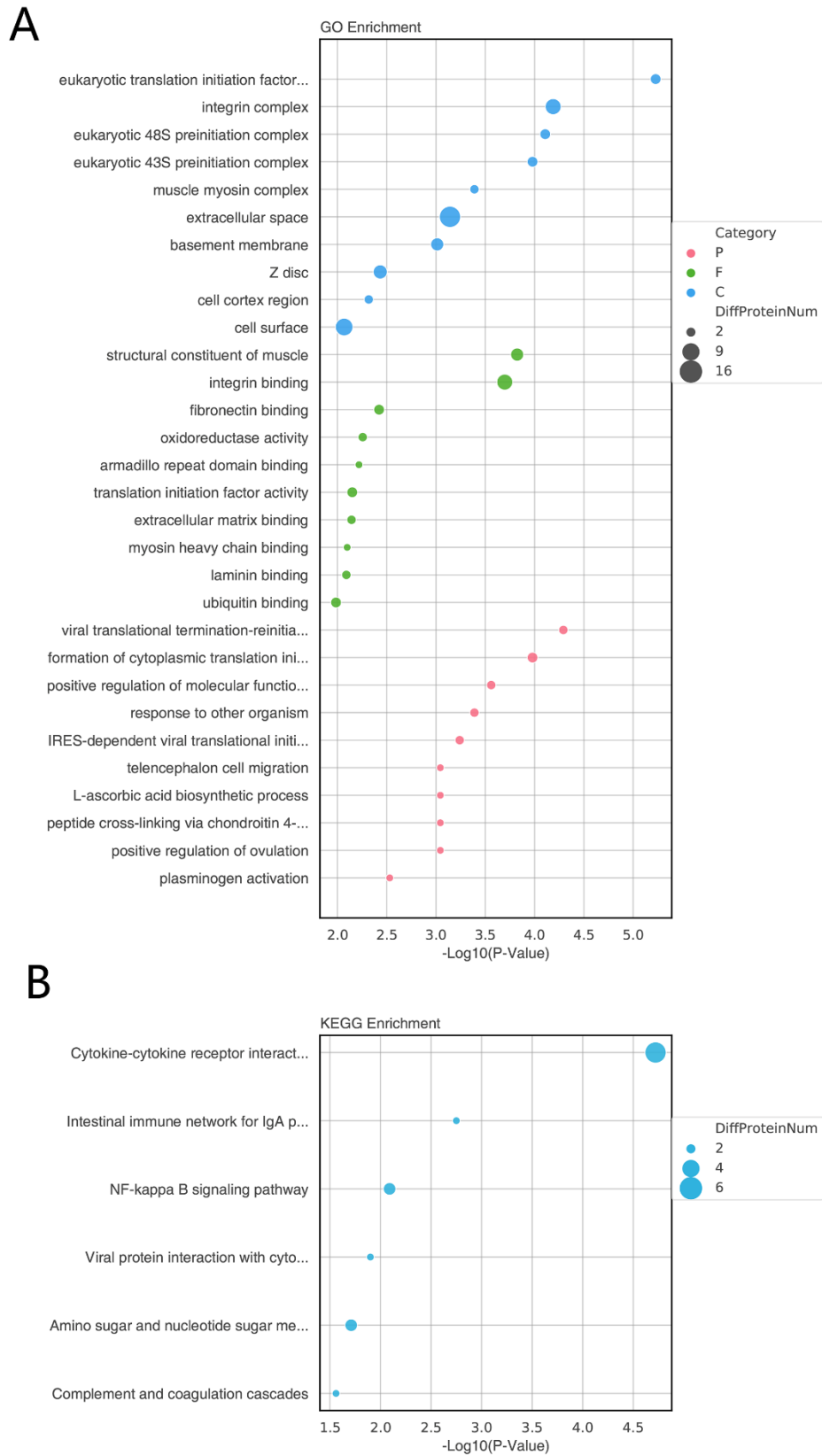


Fig. S4 Gene Ontology analysis (A) and KEGG analysis (B) of different expressed proteins in NPCs treated with M2c-Exos or M0-Exo.

Table S1. Primers for miRNAs

miR-124	Forward	5'-aggcacgcggtga-3'
	Reverse	5'-tccagttttttttttggca-3'
miR-18a	Forward	5'-ttgtctaaggtgcatctagtcagatagtagtag actagcatctactgcctaagtgtccttct-3'
	Reverse	5'-gggccagttttttttttgac-3'
miR-7a	Forward	5'-gccctgtctggaagactagtgattttgtgtgtctgtg-3'
	Reverse	5'-gtccagttttttttttgatgtg-3'
miR-452	Forward	5'-caggctaaacacttacaactgt-3'
	Reverse	5'-gggccagttttttttttgca-3'
miR-186	Forward	5'-ttccaagaattctcctttgggcttt ctcattttatttaagcccaaaggtgaattttgggaagt-3'
	Reverse	5'-gtccagtttttttttttagctc-3'
miR-17	Forward	5'-caaagtgtctacagtcaggtagcttcttgaga-3'
	Reverse	5'-tccagttttttttttcatggt-3'
miR-1	Forward	5'-gagcacatactctttatgtacca tatgaacatagaatgctatggaatg-3'
	Reverse	5'-gggccagttttttttttacct-3'
miR-191a	Forward	5'-cgggcaacggaatcccaaaa gcagctgtgtctccagagcattccag-3'
	Reverse	5'-gtccagtttttttttttaggca-3'