Supplementary Information

Nondestructive Isolation of Mesenchymal Stem Cells from Bone Marrow Using DNA Aptamers

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Supporting Tables:

Table S1. List of Apt-W2 and complementary sequences.

Name	Sequence
Apt-W2	5'-Cy5-CCACTGACTACCAAGGGAGTGTTGCGCTATTATGTAAATGTCGTGTACGTTGAAGTCAGTCGG-Biotin-3'
complementary sequences of Apt-W2	5'-CCGACTGACTTCAACGTACACGACATTTACATAATAGCGCAACACTCCCTTGGTAGTCAGTGG-3'

Table S2. Primers sequence for qPCR detection.

Gene name	Forward primer (5'-3')	Reverse primer (5'-3')
Gapdh	ACTTCAACAGCAACTCCCACTC	TAGGCCCCTCCTGTTATTATGG
Cd29	CTCCGGCCAGAAGACATTAC	GCCAATGCGGAAGTCTGAAG
Cd73	TAGAGCAGACCAGCGATGAC	CAGTGCCATAGCATCGTAGC
Cd105	TGCGTGAAGTCCACGTTCTC	TCCTGGAGGTAAGGGATGGT
Lif	TCAATGGCAGCGCCAATGCT	CGGTACTTGTTGCACAGACG
Nanog	TCAGCCTCCAGCAGATGCAA	AGGCTTCCAGATGCGTTCAC
Oct4	CCTTGCAGCTCAGCCTTAAG	GCTGATTGGCGATGTGAGTG
E4f1	CGTTCACCTGCACACAGTGT	GGTGTGTCCGGAAGTGTACT
Cdkn2d	GGCCTTGCAGGTCATGATGT	AGGAGCTAGGAAGCTGACCA
Ccnd1	TCTGTGAGGAGCAGAAGTGC	CCAGGTTCCACTTGAGCTTG

Supporting Figures:

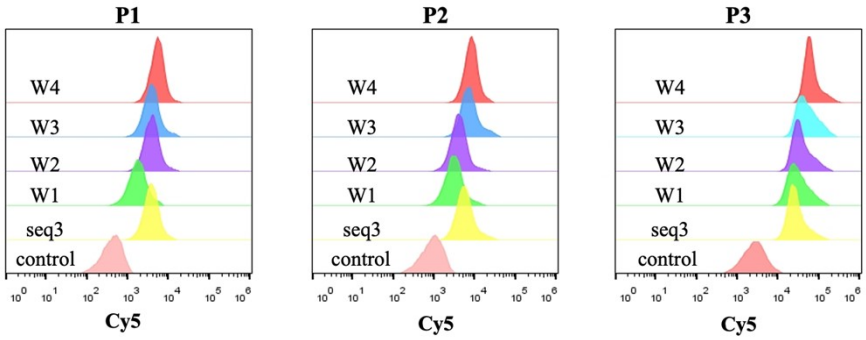

Figure S1. Flow cytometric assay for the binding ablity of the Cy5-labeled aptamers against mBMSC cells at different pages.

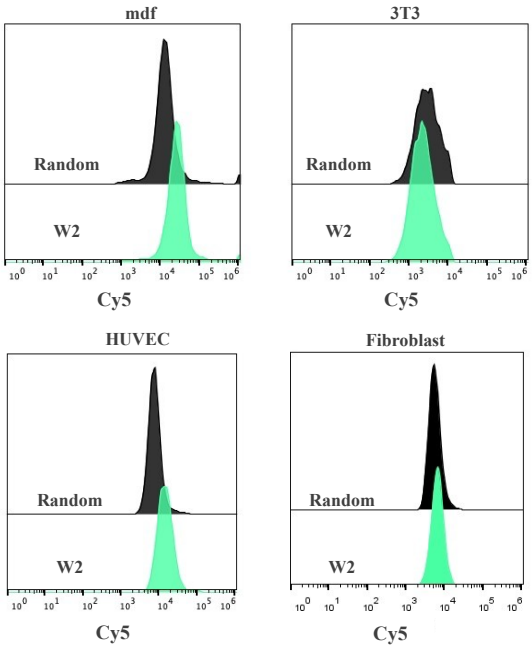

Figure S2. Flow cytometric assay for the selectivity of the Cy5-labeled truncated aptamer W2 against different cell lines.

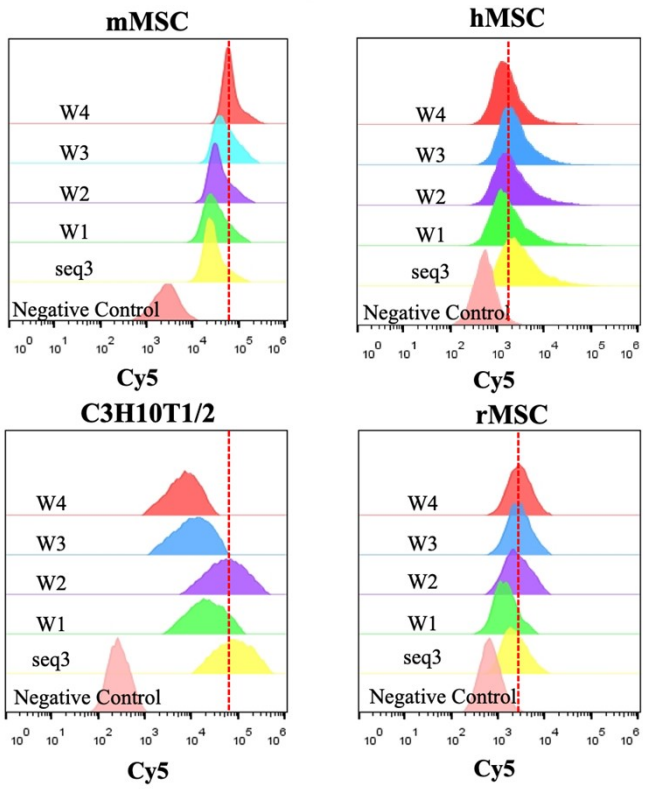

Figure S3. Flow cytometric assay for the a of the Cy5-labeled truncated aptamers against different mesenchyma stem cell lines.

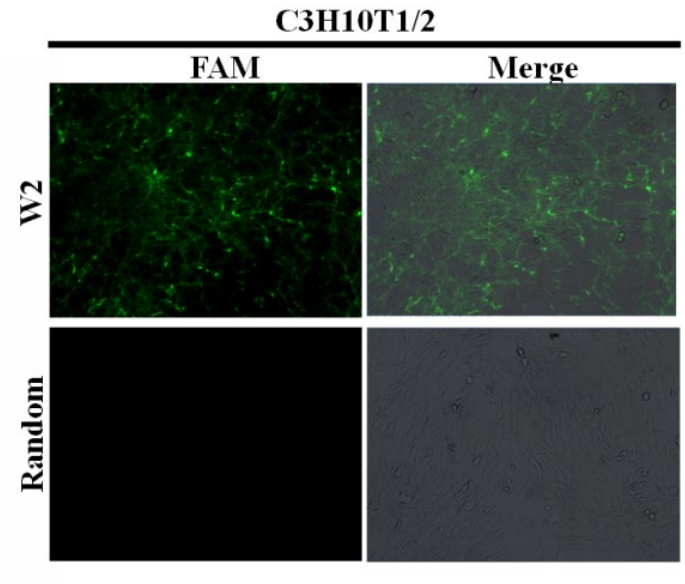

Figure S4. Fluorescence images of binding of FAM-labeled W2 (250 nmol/L) to C3H10T1/2 cells. The fluorescence signal was detected by a 10 × objective (fluorescence channel: EX 495 nm, EM 520 nm long-pass).

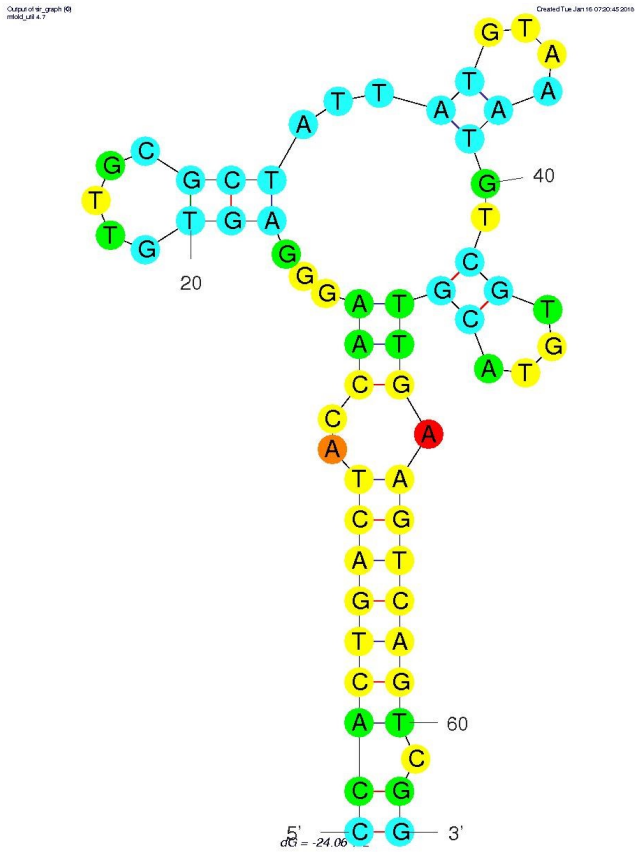

Figure S5. Secondary structural analysis of Apt-W2.

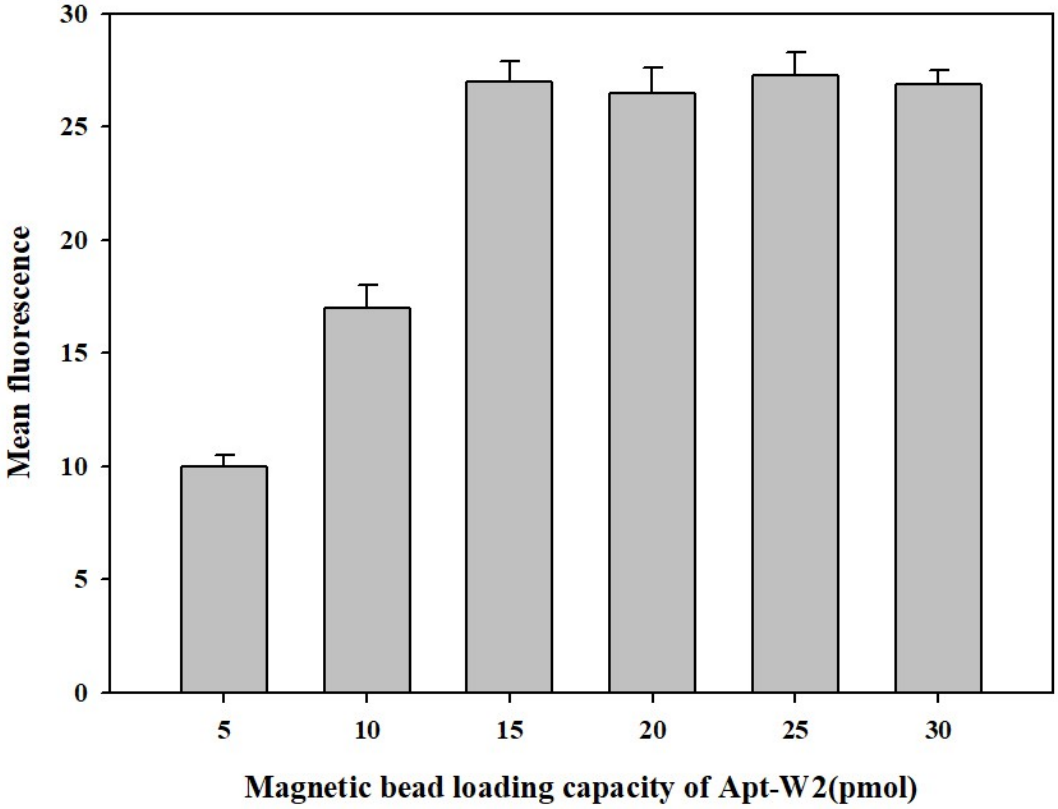

Figure S6. The loading capacity of magnetic beads for DNA aptamer. The amount of magnetic beads was fixed at 0.05 mg, when 15 pmol Apt-W2 was put in, the loading capacity of magnetic beads reached saturation.

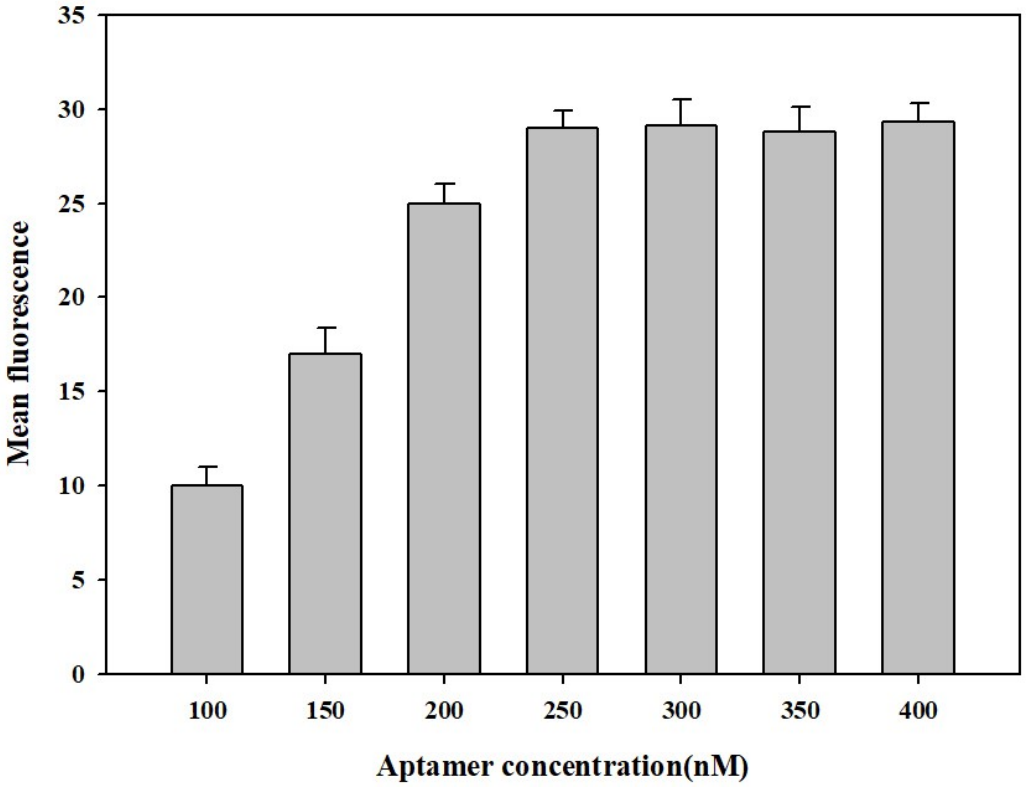

Figure S7. The affinity between Apt-W2 and target cells. When the Apt-W2 concentration was 250 nM, the affinity reached saturated.

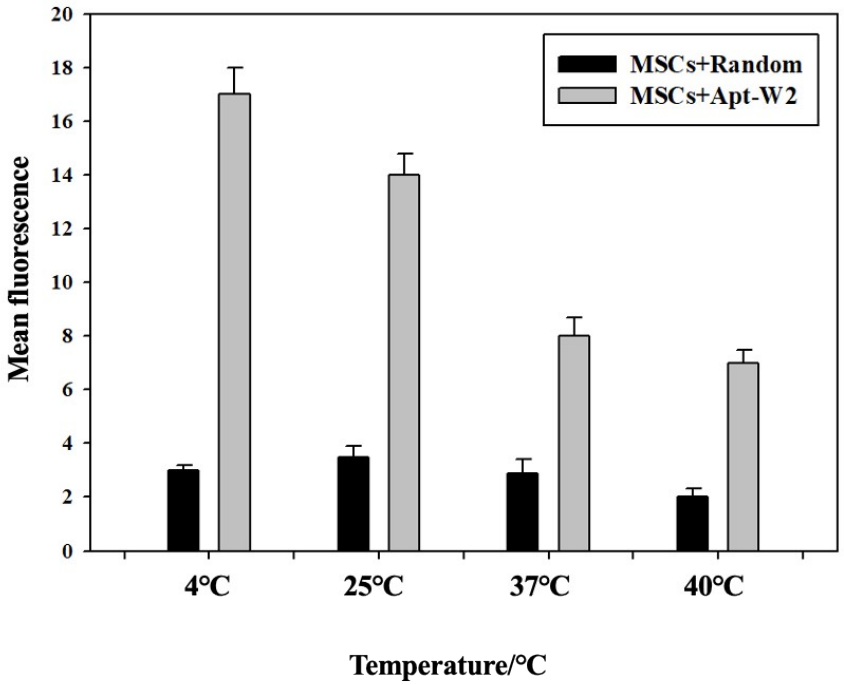

Figure S8. Effect of temperature on the binding of Apt-W2 to MSCs. Apt-W2 were incubated with MSCs at 4℃, 25℃, 37℃ and 40℃ respectively.

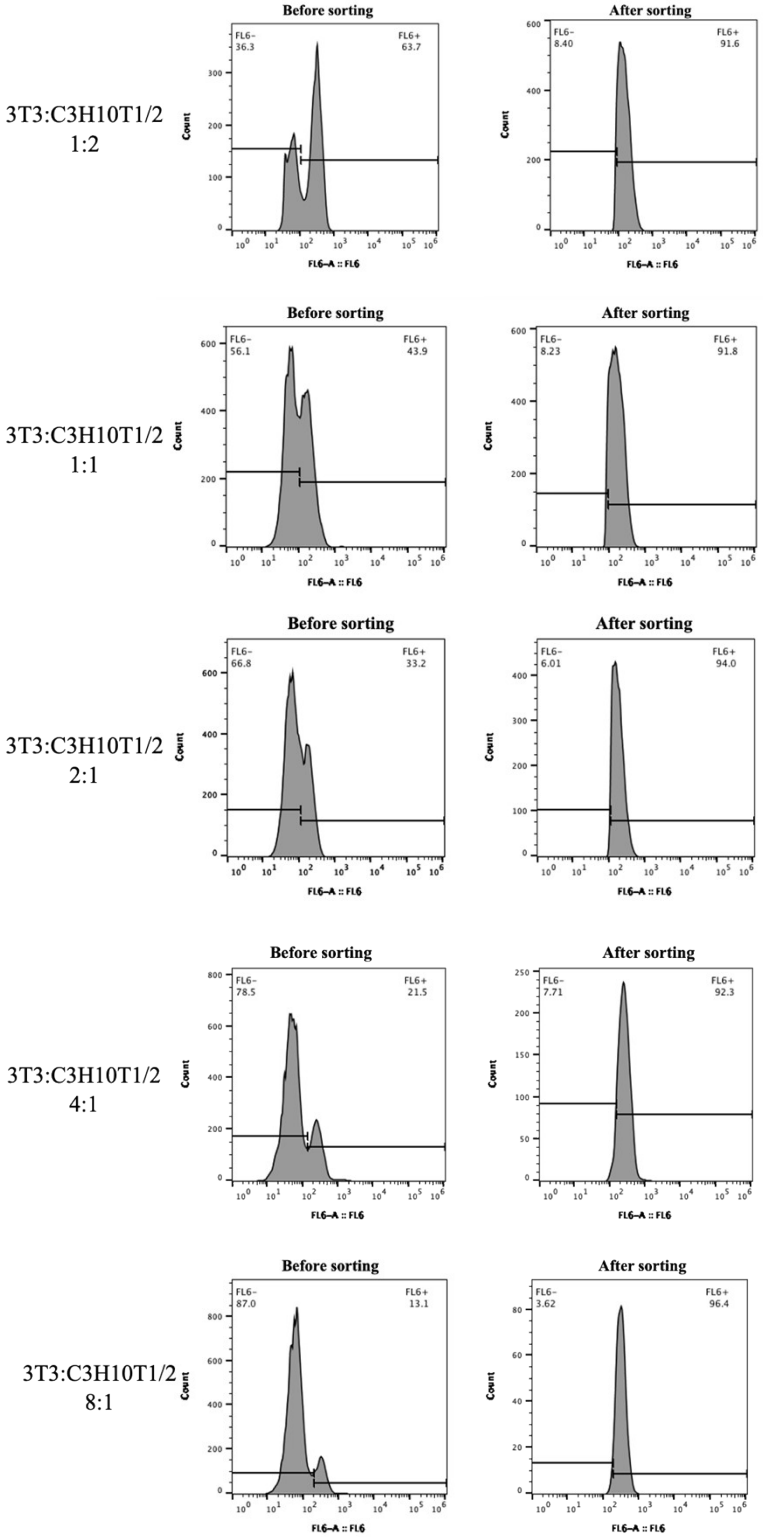

Figure S9. The cell sorting experiment for artificial mixed C3H10T1/2 and 3T3 cells, and the proportion (C3H10T1/2: 3T3) of mixed cells were 2:1, 1:1, 1:2, 1:4 and 1:8 respectively.