**Supplementary Data**

**The Immunoregulatory effect of mechanical stress on three-dimensional cultured mesenchymal stem cells after** **extensive expansion**

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**Figure S1. Long-term cultured UC-MSCs decreased expression of MSCs-specific surface antigens and immunoregulation.** (A) UC-MSCs were incubated with antibodies for human CD73, CD105, CD90, HLA-Ⅱ, CD34 and CD45 at 4 °C. The samples (P5 and P15) were measured by flow cytometric analysis. (B) Cell proliferation was analyzed with CCK-8 and the diagram of the method that UC-MSCs were co-cultured with activated CD3+ T cells. (C) Cell proliferation was analyzed with cell CCK-8. IL-6, IL-10 and TGF-β in cell supernatant of UC-MSCs co-cultured with activated CD3+ T cells were detected by ELISA (values were shown as mean ± SD, n = 3 per group).



**Figure S2.** (A) The original FACS of surface markers for the Figure 1B. (B) The original FACS of T cells for the Figure 1G.



**Figure S3.** (A) The original photos of colon for the Figure 2C.



**Figure S4.** (A-D) The original FACS of T cells for the Figure 5.



**Figure S5.** (A) The original photos of colon for the Figure 6C.