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Project Title	The study of immunological activation mechanism of umbilical cord-derived mesenchymal stromal cells
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Report

Umbilical cord-derived mesenchymal stromal cells (UC-MSCs) are activated to have the immunosuppressive potency, upon the adjacent of the activated T cells, and/or inflammatory cytokines. However, activation mechanisms of UC-MSCs in complicated environment remained unclear. The objectives of this study are to evaluate the influence of priming effect of with triptolide (TPL) isolated from from a Chinese herb-Tripterygium wilfordii Hook.f, on UC-MSC in immunosuppression and anti-inflammation potency. UC-MSCs were primed with TPL, which was washed out thoroughly, and the TPL-primed UC-MSCs were resuspended in fresh medium. Although TPL inhibited the proliferation of UC-MSCs, 0.01 μM TPL for 24 hours was tolerable. The surface markers of TPL-primed UC-MSCs was identical to that of non-primed UC-MSCs. TPL-primed UC-MSCs exhibited stronger anti-proliferative effect for activated CD4+ and CD8+ T cells in the allogeneic mixed lymphocyte reaction assay than the non-primed UC-MSCs. TPL-primed UC-MSCs promoted the expression of IDO-1 in the presence of IFN-γ, but TPL alone was not sufficient. Furthermore, TPL-primed UC-MSCs showed increased expression of PD-L1. Conclusively, up-regulation of IDO-1 in the presence of IFN-γ and induction of PD-L1 enhances the immunosuppressive potency of TPL-primed UC-MSCs on the proliferation of activated T cells. Thus, TPL- primed MSCs may provide a novel immunosuppressive cell therapy.