Mesenchymal stem cell-mediated T cell immunosuppression

ABSTRACT

Besides being a pool forstromal cells and connective tissues, the mesenchymal stem cells (MSCs) as well exert a potent immunosuppression against almost all types of immune cells, particularly T cells. Many in vitro and in vivo studies revealed that the reported regenerative property of MSCs is partially due to the immunosuppressive activity of MSCs where it creates an optimal microenvironment for the execution of reparative and restorative processes. To date, MSCs caninteract with nearly all cells of the immune system, in a convoluted mechanism with theabilityof inhibiting the activation, proliferation, and function of T cells. These characteristicsshowcaseMSCs' candidature as anaturalimmunosuppressive agent in regenerative medicine,therapies for immune disorders and tissue engineering. In this review, the intricate mechanisms of MSC-mediated immunosuppression on Tcellswere briefly evaluated. The physical, paracrine and molecular interactions that being toolsfor delivering the immunosuppressionwere also highlighted.

Keyword: Mesenchymal stem cell; T cell; Immunosuppression; Immune cells