

Mesenchymal stem cell-mediated T cell immunosuppression

ABSTRACT

Besides being a pool for stromal 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 can interact with nearly all cells of the immune system, in a convoluted mechanism with the ability of inhibiting the activation, proliferation, and function of T cells. These characteristics showcase MSCs' candidature as a natural immunosuppressive agent in regenerative medicine, therapies for immune disorders and tissue engineering. In this review, the intricate mechanisms of MSC-mediated immunosuppression on T cells were briefly evaluated. The physical, paracrine and molecular interactions that being tools for delivering the immunosuppression were also highlighted.

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