Mesenchymal Stromal Cells modulate the immune response by orchestrating myelo-monocytic cell fate.

Uncontrolled immune response and inability to regain homeostatic conditions upon tissue damage is a source of morbidity and mortality in patients affected by immune-related disorders. Mesenchymal Stromal Cells (MSC) have been proved as a safe cellular product able to dampen immune cells activation and favour tissue repair in humans, but their mechanism of action is still under debate and could be direct on the effector cells or indirect, through cell types which in turn regulate the immune response. In our lab we are investigating the immuno-modulatory properties of MSC by testing their influence on antigen presenting cells, the main orchestrator of the adoptive immune response. In this seminar I will share data showing that MSC can alter the phenotype and function of monocyte-derived dendritic cells (DC). In particular, we tested the consequence of the presence of MSC during DC differentiation and/or maturation, finding that their main effect is concentrated in the differentiation phase. This indicates that MSC can modulate the immune response by handling the fate of differentiating myelo-monocytic cells.