

## **Mesenchymal Stem Cells from Patients with Rheumatoid Arthritis Display Impaired Function in Inhibiting Th17 Cells**

Yue Sun<sup>1</sup>, Wei Deng<sup>1</sup>, Linyu Geng<sup>1</sup>, Lu Zhang<sup>1</sup>, Weiwei Chen<sup>1</sup>, Genhong Yao<sup>1</sup>, Huayong Zhang<sup>1</sup>, Xuebing Feng<sup>1</sup>, Xiang Gao<sup>2</sup>, Lingyun Sun<sup>1</sup>

1. Department of Rheumatology and Immunology, The Affiliated Drum Tower Hospital of Nanjing University Medical School, Nanjing, Jiangsu 210008, China
2. Key Laboratory of Model Animal for Disease Study, Model Animal Research Center, Nanjing University, Nanjing, Jiangsu 210000, China

### **Abstract:**

Mesenchymal stem cells (MSCs) possess multipotent and immunomodulatory properties and are suggested to be involved in the pathogenesis of immune-related diseases. This study explored the function of bone marrow MSCs from rheumatoid arthritis (RA) patients, focusing on immunomodulatory effects. RA MSCs showed decreased proliferative activity and aberrant migration capacity. No significant differences were observed in cytokine profiles between RA and control MSCs. The effects of RA MSCs on proliferation of peripheral blood mononuclear cells (PBMCs) and distribution of specific CD4<sup>+</sup> T cell subtypes (Th17, Treg, and Tfh cells) were investigated. RA MSCs appeared to be indistinguishable from controls in suppressing PBMC proliferation, decreasing the proportion of Tfh cells, and inducing the polarization of Treg cells. However, the capacity to inhibit Th17 cell polarization was impaired in RA MSCs, which was related to the low expression of CCL2 in RA MSCs after coculture with CD4<sup>+</sup> T cells. These findings indicated that RA MSCs display defects in several important biological activities, especially the capacity to inhibit Th17 cell polarization. These functionally impaired MSCs may contribute to the development of RA disease.

### **Full text:**

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