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Role of plasmacytoid dendritic cells in mouse models of experimental arthritis

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Plasmacytoid dendritic cells (pDCs) are major type-I IFN producers following activation. They play an important role in the initiation of the inflammatory response and participate to the etiology of several chronic diseases. However, anti-inflammatory actions of type-I IFN were also considered, especially IFN- β , for its beneficial effect in murine models of rheumatoid arthritis (RA). Furthermore, a depletion of circulating pDCs was observed in RA patients, suggesting a protective role of these cells. The aim of our work is to better characterize the role of pDCs in RA using mouse models to clarify these contradictory observations. Arthritis in pDC-deficient mice was induced by arthritogenic (K/BxN) serum transfer or upon injection of heterologous collagen (CIA). Symptoms were evaluated by visual scoring and measurements of the thickness of the joints. Cellular infiltrates and pDCs depletion were analyzed by FACS, cytokines expression with ELISA and RT-qPCR and bone erosion was evaluated by histological staining (TRAP). A mouse genetic model (Ikaros^{L/L}) of pDC deficiency showed exacerbation of inflammatory and arthritic symptoms after arthritogenic serum transfer; this was also observed in wild-type animals after antibody (120G8)-mediated pDCs depletion. Next, we used topical application of a TLR7 agonist which induces pDCs recruitment at the inflammatory arthritic joints. This treatment reduces articular inflammation in K/BxN and CIA arthritis models. Our results suggest that pharmacological targeting of pDCs could have a beneficial effect in arthritis.

Biography

Ramzi Amar Nehmar began his training at the University of Sciences in Algiers, Algeria. He has obtained his Master degree at "Université Pierre et Marie Curie" in Paris, France. He is currently a PhD student in Immunology at the University of Strasbourg, France. He is a co-author of an article published in *Arthritis & Rheumatology* in 2016 describing the role of DICER1 in rheumatoid arthritis. He is an active Member of the association of PhD students and PhDs in Alsace (Addal). He has also experience in teaching.

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