

# 16<sup>th</sup> European Dermatology Congress

June 07-08, 2017 Milan, Italy

## IL-10+ Breg cells are inversely correlated with IFN- $\gamma$ + NK cells and IL-17+ NK cells in psoriasis and psoriatic arthritis

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**Background & Purpose:** Recently we reported functional impairment and numerical decrease of transitional and memory IL-10-producing regulatory B cells (Bregs) in patients with psoriasis (Ps) and psoriatic arthritis (PsA). In this study we explore the relationship of IL-10+Breg cells with NK subsets expressing the IFN- $\gamma$  and IL-17 pro-inflammatory cytokines.

**Methods:** Peripheral blood mononuclear cells from 40 PsA, 40 Ps patients and 20 healthy controls (HCs) were studied. Flow cytometric analysis was carried out with MoAbs against cell surface markers CD56, CD16, CD3, CD7, CD19, CD24, CD27 and CD38. Intracellular expression of cytoplasmic IFN- $\gamma$ , IL-17 and IL-10 following bacterial CpG (ODN2006) and PMA/ionomycin stimulation was also examined by flow cytometry.

**Results:** The percentages of CD3-CD56+ (NK) inversely correlated with CD19+CD24hiCD38hi (transitional) Bregs and CD19+CD24hiCD27+ (memory Bregs) ( $p < 0.05$ , for both). IFN- $\gamma$ + NK cells negatively associated with IL-10+Bregs. Also, IL-17+ NK cells inversely correlated with IL-10+Bregs ( $p < 0.05$ ). IFN- $\gamma$  or IL-17 production from NK cells was significantly higher in PsA and Ps compared to HCs ( $p < 0.05$  for both).

**Conclusion:** Deficient IL-10-producing Breg cells are associated with an increase of IFN- $\gamma$ - and IL-17-producing NK cells in Ps and PsA suggesting an important pathogenetic role of pro-inflammatory innate immune cells in these diseases.

### Biography

Lazaros I Sakkas is working as a Professor of Medicine and Rheumatology, Chairman, Department of Rheumatology and Clinical Immunology, Faculty of Medicine, School of Health Sciences, University of Thessaly. He is also an Adjunct Assistant Professor, Temple University School of Medicine, Philadelphia, PA, USA (Jun 2003-present) and an Adjunct Professor, Center for Molecular Medicine, Old Dominion University, Norfolk, VA, USA (March-2010-March 2017). He is the President at the Institute for Rheumatic Diseases (2011-present).

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