

TÍTULO: FREQUENCY AND ACTIVATION OF NATURAL KILLER T CELLS FROM ASTHMATIC INDIVIDUALS EXPOSED TO SCHISTOSOMA ANTIGENS

AUTOR(ES): BRUNA SOUZA SANTOS OLIVEIRA, YURI TABAJARA, KELVIN EDSON MARQUES DE JESUS, ÁLVARO CRUZ FILHO, LUCIANA SANTOS CARDOSO, RICARDO RICCIO OLIVEIRA

INSTITUIÇÃO: CENTRO DE PESQUISAS GONÇALO MONIZ

Asthma is a chronic inflammatory disease which involves many cell types, such as Th2 cells, mast cells, basophils and eosinophils. Natural Killer T Cells (NKT), for instance, which are activated by glycolipids bound to CD1d, present an important role in the development and regulation of the immune response in asthma. Since it has been demonstrated that *Schistosoma mansoni* infection negatively regulates the inflammation observed in asthma, it is possible that glycolipids of this parasite have modulatory effects on NKT cells. This cross-sectional study investigated individuals with severe asthma. Peripheral blood mononuclear cells (PBMC) was incubated with CD1d tetramer conjugated with aGalCer or *S. mansoni* soluble egg antigen (SEA). PBMC of healthy individuals

when in the presence of CD1d-SEA showed higher frequency of NKT cells comparing to PBMC of severe asthmatics ($p=0.057$). However, the mean fluorescence intensity (MFI) of Va24Ja18 was higher in NKT cells of individuals with severe asthma, in all tested conditions. The frequency of CD69 and intracellular expression of IL-10 was similar between healthy controls and asthmatic individuals, in all evaluated conditions. Additionally, the frequency of CD1d-SEA positive cells was lower when compared to CD1d-aGalCer in subjects with severe asthma ($p=0.0286$), however there was no difference between MFI of CD1d-SEA of healthy controls and subjects with severe asthma, even when compared to different stimuli within the same group. Although preliminary, our data suggest that NKT cells from asthmatic individuals are more prepared to recognize antigens, as they have higher expression of the invariant TCR Va24Ja18. Additionally, we demonstrate that besides aGalCer

NKT cells are able to recognize CD1d tetramers associated with SEA, although at a lower intensity in asthmatic NKT cells when compared to the healthy control, suggesting that infection with *S. mansoni* would be able to modulate these cells in asthmatic individuals.

Keywords: Schistosomiasis; Asthma; NKT cells.

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