HYPOALLERGENIC MOLECULE OF *Blomia tropicalis* AND THE POLARIZATION OF MACROPHAGES IN DIFFERENT ASTHMATIC PHENOTYPES

Exposure to the house dust mite *Blomia tropicalis i*s one of the main risk factors for the development of asthma in tropical and subtropical climates. Advances in molecular biology have allowed the development of hypoallergenic hybrid proteins. Our research group used fragments of the Blo t 5 and Blo t 21 proteins, the main allergens of *Blomia tropicalis*, to construct the hypoallergenic protein - BTH2. Recent studies have shown that the interaction of T, B, dendritic, epithelial cells, and macrophages individually contributes to clinical tolerance. It is believed that macrophage polarization may help to reduce the pathogenesis of asthma. Therefore, the purpose of this study was to characterize the effects of the hypoallergenic recombinant protein on the activation profile of macrophages among the different asthmatic endophenotypes. For this purpose, the study population of this project consisted of 30 individuals classified into 3 groups: severe asthma, mild/moderate asthma, and control (without asthma). Sociodemographic data were collected, vital signs were measured, anthropometry was performed and allergy tests were performed. Monocyte-derived macrophages were challenged with crude extract of *Blomia tropicalis*, recombinant proteins Blo t 5 and Blo t 21, and the hypoallergenic molecule - BTH2. The immunophenotyping of macrophages was evaluated by flow cytometry through surface markers that corresponded to each phenotype (CD14, CD80, MHCII, CD163, and CD206). There was a high expression of the CD14 co-receptor in the severe asthma group. The CD80 and MHCII markers were similar between the groups tested. The CD163 molecule was more observed in cultures challenged by BTH2 from the severe asthma group. The CD206 molecule showed lower expression in macrophages stimulated by BTH2 in the severe asthma group. The BTH2 molecule was able to induce an immunoregulatory macrophage profile, enabling the prevention of asthma onset in its early stages. It is believed that it may promote immunomodulation of the disease by directing the immune response to the specific antigen, modifying its mechanisms and consequently biomarkers, resulting in a lasting and even lifelong reduction in symptoms.