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Dendritic Cell Populations in Patients with Self-reported Food Hypersensitivity

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OBJECTIVE

Self-reported hypersensitivity to food is a common condition and many of these patients have indications of intestinal immune activation. Dendritic cells (DCs) are recognized as the most potent antigen presenting cells involved in both initiating immune responses and maintaining tolerance. The aim of this study was to evaluate DCs population with their phenotype and T cell stimulatory capacity in patients with food hypersensitivity and to study its relationship with atopic disease.

MATERIAL AND METHODS

Blood samples from 10 patients with self-reported food hypersensitivity, divided into atopic and non-atopic subgroups, and 10 gender- and age-matched healthy controls were analyzed by flow cytometry using the Miltenyi Blood Dendritic cells Enumation kit. Monocyte-derived DCs (moDCs) were evaluated concerning their phenotype and T cell stimulatory capacity. Cytokine production was analyzed by ELISA.

RESULTS

• Patients with self-reported food hypersensitivity have similar percentage of peripheral blood DC populations compared to healthy controls (Figure 1). LPS-stimulated monocyte-derived dendritic cells (moDCs) from atopic patients express significantly more CD38 compared to similarly stimulated moDCs from non-atopic patients (Figure 2). MoDCs from atopic patients produce significantly more IL-10 after LPS stimulation than stimulated moDCs from non-atopic patients or healthy controls (Figure 3).

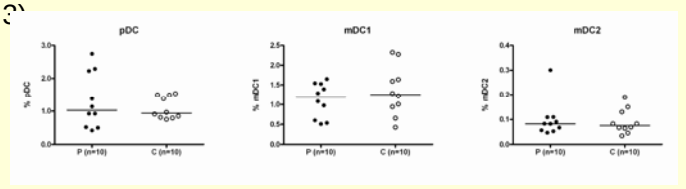
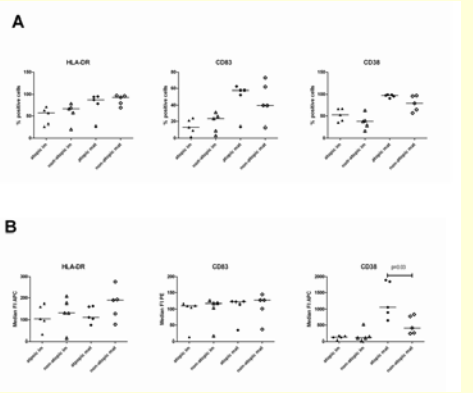


Fig.1

pDC: plasmacytoid DC, mDC1: type-1 myeloid DC, mDC2: type-2 myeloid DC

Fig.2



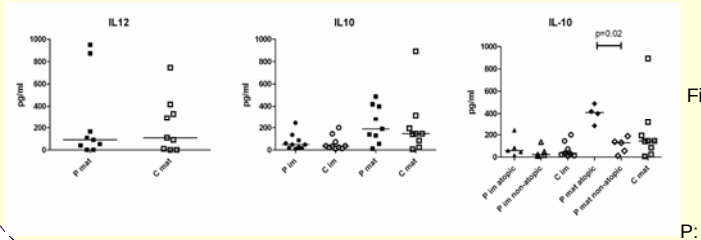


Fig.3

P: patients, C: controls, mat: mature DCs, im:Immatur DCs

CONCLUSIONS

Even though only a limited number of patients were included in the present pilot study, atopic patients had significantly higher CD38 expression on LPS-stimulated moDCs compared to non-atopic patients. Moreover, LPS stimulated moDCs from atopic patients produced significantly more IL-10 compared to non-atopic patients. Interestingly, CD38 expression was correlated to total serum IgE levels. These findings support the notion of immune activation in some patients with self-reported food hypersensitivity. Further studies including DC populations in the intestinal mucosa and in response to food challenge are warranted.

Disclosure of Interest: N