

## EFFICACY OF A MEDICAL DEVICE CONTAINING XYLOGLUCAN ON A MOUSE MODEL OF ALLERGIC RHINITIS

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**Background:** Allergic rhinitis (AR) is the most common atopic disorder that affect the quality of life of millions of people. As with the other atopic disorders such as asthma, eczema, and food allergy, AR is part of a systemic disease complex. Within minutes of exposure to allergen, IgE-sensitized release of both preformed and newly synthesized mediators. Many of these mediators lead to the characteristic symptoms of AR, including sneezing, itchiness, rhinorrhea, and congestion. These early-phase responses have been attributed to the immediate release of prostaglandins, histamine, and pro-inflammatory cytokines. Thus, the aim of the present study was to evaluate the capacity of a medical device containing xyloglucan, to restore the physiological functions of the nasal epithelial mucosa by forming a mechanical barrier and reducing the contact between allergens, irritants, pathogens and triggering factors with the mucosa. In this regards we performed an *in vivo* model of AR by systemic immunization and nasal challenge with ovalbumin (OVA).

**Materials and methods:** To induce AR, BALB/c mice were sensitized on days 0 and 7 via intraperitoneal injection of OVA (10  $\mu$ g), which was emulsified in 2mg of AL(OH)<sub>3</sub>(OVA/alum). Two weeks later, mice were challenged while awake by instilling 10- $\mu$ L droplet of either OVA (1mg/mL; AR group) or medical device containing xyloglucan for 3days on 3consecutive weeks. At days 38the mice were sacrificed and the nasal hyper-responsiveness through the Penh system, changes in IgE and eosinophil infiltration into nasal mucosa as well as production of pro-inflammatory cytokines were analysed.

**Results:** The results obtained demonstrated that treatment with a medical device, containing xyloglucan, reduced the production of pro-inflammatory cytokines such as IL-4, IFN-gamma, IL-5and IL-13measured on BALF; reduced the serum value of IgE as well as the number of inflammatory cell infiltration around nasal mucosa evaluated by haematoxylin and eosin staining.

**Discussion and conclusion:** In conclusion, in the present study we have demonstrated that a medical device containing xyloglucan creates a protective physical barrier on nasal epithelial cells which avoids the contact with pro-inflammatory mediators. Therefore, these results confirm the utility of this medical device in the management of nasal respiratory diseases like allergic rhinitis.