D36
The investigation of the role of IL-21 and IL-33 in the pathogenesis of allergic rhinitis
Neriman Aydin, Işıl Bakis, Ceren Gunel, Buket Demirci, Mete Eyigor
1 Adnan Menderes University Medical Faculty Department of Medical Microbiology, Aydın, Turkey
2 Adnan Menderes University Institute of Health Sciences, Aydın, Turkey
3 Adnan Menderes University Medical Faculty Department of Ear Nose and Throat, Aydın, Turkey
4 Adnan Menderes University Medical Faculty Department of Medical Pharmacology Aydın, Turkey
5 Akdeniz University Medical Faculty Department of Medical Microbiology, Antalya, Turkey

Introduction
Allergic rhinitis is an inflammatory disease of nasal mucous membrane by immunoglobulin E (IgE)-mediated (allergic) reaction to aeroallergens. It was found that several cytokines are involved in the pathogenesis of allergic rhinitis.3 In this study, it was aimed to investigate the role of IL-21 and IL-33 in allergic rhinitis by using a rat model.

Methods
A total of 21 rats were included in this study in three groups: (1) rats with allergic rhinitis, (2) rats with allergic rhinitis and corticosteroid (3) the control group. Rats were anesthetized with xylazine-ketamine anesthesia and samples were taken. The levels of IgE, OVA sIgE, IL-21 and IL-33 were investigated in serum samples, and IL-21 and IL-33 levels were investigated in tissue samples by Enzyme Immune Assay (EIA) method.

Results
The IL-33 levels in tissue were found to be statistically higher in both allergic rhinitis (p=0.048) and corticosteroid+allergic rhinitis groups (p=0.035) compared to the control group. Despite the lack of statistically significant difference in IL-21 tissue levels between the groups, the tissue levels in both allergic rhinitis and corticosteroids + allergic rhinitis groups were found to be higher than the control group. IgE levels in serum in the control group was found significantly higher than both the levels in allergic rhinitis group (p=0.009) and corticosteroid+allergic rhinitis group (p=0.011). Contrary to the serum IgE levels, OVA sIgE serum level was found to be the lowest in control group, however the difference was not statistically significant.

Conclusion
It is concluded that IL-33 and IL-21 have a role in the pathogenesis of allergic rhinitis; they are synthesized in higher levels in tissues with allergic rhinitis. Additionally, it is suggested that IL-21 has a role in downwards regulation of serum IgE levels.

References
2. Glück J, Rymarczyk B, Rogala B. Serum IL-33 but not ST2 level is elevated in intermittent allergic rhinitis and is a marker of the disease severity. Inflammation Research 2012, 5, 547–50.