

European Respiratory Society Annual Congress 2012

Abstract Number: 2003

Publication Number: P2305

Abstract Group: 5.3. Allergy and Immunology

Keyword 1: Asthma - mechanism **Keyword 2:** Inflammation **Keyword 3:** Cell biology

Title: Peripheral blood neutrophil activity during *D. pteronyssinus* induced late-phase airway inflammation in asthma and rhinitis patients

Ms. Simona 4792 Lavinskiene lavinskiene.simona@gmail.com , Dr. Jolanta 4793 Jeroch jolanta.jeroch@kaunoklinikos.lt , Ms. Ieva 4794 Bajoriuniene ieva.bajoriuniene@gmail.com , Prof. Kestutis 4795 Malakauskas Kestutis.Malakauskas@ismuni.lt MD , Ms. Edita 4796 Gasiuniene edita.gasiuniene@gmail.com and Prof. Raimundas 4797 Sakalauskas raimundas.sakalauskas@kmuk.lt MD . ¹ Department of Pulmonology and Immunology, Lithuanian University of Health Sciences, Kaunas, Lithuania ; ² Department of Pulmonology and Immunology, Lithuanian University of Health Sciences, Kaunas, Lithuania ; ³ Department of Pulmonology and Immunology, Lithuanian University of Health Sciences, Kaunas, Lithuania ; ⁴ Department of Pulmonology and Immunology, Lithuanian University of Health Sciences, Kaunas, Lithuania ; ⁵ Department of Pulmonology and Immunology, Lithuanian University of Health Sciences, Kaunas, Lithuania and ⁶ Department of Pulmonology and Immunology, Lithuanian University of Health Sciences, Kaunas, Lithuania .

Body: Background. Recent investigations suggest that neutrophils may play an important role in the late-phase allergen-induced inflammation in allergic airway diseases. Aim. To evaluate neutrophil chemotaxis, phagocytosis, and reactive oxygen species (ROS) production in patients with allergic asthma and rhinitis challenged with inhaled *D. pteronyssinus*. Methods. Twenty eight patients with allergic asthma and 27 with rhinitis, all sensitized to *D. pteronyssinus*, as well as 10 healthy subjects underwent bronchial challenge with *D. pteronyssinus*. Neutrophils from peripheral blood were isolated 24 h before as well as 7 h and 24 h after challenge. For chemotaxis analysis neutrophils were stimulated with interleukin-8, and for ROS analysis as well as for phagocytosis cells were stimulated with *S. aureus* bacteria. Neutrophil functions were analyzed flow cytometrically. Results. Neutrophils chemotaxis and ROS production were increased, while phagocytosis was decreased 24 h before challenge in patient groups compared with healthy subjects ($P<0.05$). After challenge, neutrophil chemotaxis and phagocytosis increased after 7 h and 24 h, when ROS production – only after 24 h. Bronchial allergen challenge had no influence for neutrophil functions in healthy subjects ($P<0.05$). Conclusions. Results show that peripheral blood neutrophil activity is impaired in allergic asthma and rhinitis patients. *D. pteronyssinus* induced late-phase airway inflammation enhance their chemotaxis, phagocytosis and ROS production.