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**Title:** Pulmonary granuloma infiltration in sarcoidosis, inflammatory markers and domestic exposure to fungi

Prof. Dr Marjeta 7679 Tercelj-Zorman marjeta.tercelj@kclj.si MD , Prof. Dr Barbara 7680 Salobir barbara.salobir.pulmo@kclj.si MD , Dr. Mirjana 7681 Zupancic mirjana.zupancic@kclj.s , Dr. Branka 7682 Wraber branka.wraber@mf.uni-lj.si and Prof. Dr Ragnar 7683 Rylander envhealth@biofact.se MD . <sup>1</sup> Clinic of Pulmonary Diseases and Allergy Slovenia, University Medical Centre, Ljubljana, Slovenia, 1000 ; <sup>2</sup> Clinic of Pulmonary Diseases and Allergy Slovenia, University Medical Centre, Ljubljana, Slovenia, 1000 ; <sup>3</sup> Laboratory Department, Children's Hospital, University Medical Centre, Ljubljana, Slovenia, 1000 ; <sup>4</sup> Institute of Microbiology and Immunology, Faculty of Medicine, Faculty of Medicine, Ljubljana, Slovenia, 1000 and <sup>5</sup> BioFact Environmental Health Research Center, BioFact Environmental Health Research Center, Lerum, Sweden .

**Body:** Background. Previous studies have demonstrated high levels of inflammatory mediators in sarcoidosis patients and an increased exposure to fungi in their homes. This study was performed to measure the amount of  $\beta$ -glucan, different inflammatory mediators in serum, and to relate the levels to the degree of pulmonary granuloma infiltration. Material and Methods. The subjects comprise 98 patients with sarcoidosis and 27 controls. Exposure to fungi at home was determined by taking air samples and analysing for N-acetylhexosaminidase (NAHA).  $\beta$ -glucan was measured in broncho-alveolar lavage (BAL), and TNF- $\alpha$ , IL-6, IL-10, IL-12, ACE, and chitotrioxidase in serum. X-rays were taken and the degree of granuloma infiltration was judged, using a numerical score. Results. The NAHA values in the homes of sarcoidosis than in controls ( $p = 0.017$ ). Significantly higher levels of  $\beta$ -glucan were found in BAL in sarcoidosis as compared to controls ( $p < 0.001$ ). The relation between  $\beta$ -glucan in BAL and NAHA home in sarcoidosis was significant ( $p = 0.002$ ). There were significant relationships between the degree of granuloma infiltration on x-ray and the levels of the different inflammatory mediators TNF- $\alpha$  ( $p < 0.001$ ), IL-6 ( $p = 0.006$ ) and IL-12 ( $p < 0.001$ ). In contrast to the other mediators, IL-10 values were not related to the x-ray scores and showed a biphasic relationship. Conclusions. A specific agent, previously suspected to be related to the risk of sarcoidosis, has been detected in high levels in the lung of subjects with the disease. The levels were related to the home exposure to fungi. The results suggest that a possible exposure to fungi should be explored when dealing with patients with sarcoidosis.