Title: The role of chaperone α-Bcrystallin (HspB5) in COPD pathogenesis

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Body: Background: α-Bcrystallin (HspB5) is a chaperone whose role as a marker of innate immunity activation as well as its therapeutic potential have recently been investigated in several inflammatory diseases – multiple sclerosis, myocardial ischaemia, Guillain Barre syndrome. Aim: The aim of the study is to determine the role of α-Bcrystallin in COPD pathogenesis and inflammation. Materials: Plasma levels of α-Bcrystallin were studied in 163 patients – 52 healthy non-COPD smokers; 20 COPD smokers I - II stage GOLD; 43 COPD smokers – III-IV stage (GOLD) and forty-eight patients with acute inflammatory respiratory disease. The plasma levels of α-Bcrystallin antibodies were determined by ELISA (human anti alpha-Bcrystallin Abcam), and were confirmed with Western blotting. Results: The mean levels of anti-α-Bcrystallin antibodies were: in non-COPD smokers – 0,291 OD; in COPD smokers – 0,352OD; in healthy non-COPD smokers – 0,433 OD. There was a statistically significant difference between COPD smokers and healthy non-COPD smokers (p-0,010). The same could be observed comparing the group of patients with acute inflammation and non – COPD healthy smokers (p-0,007). There was not a statistically significant difference in patients with mild/moderate and those with severe COPD. Conclusion: α-Bcrystallin is increased in patients with inflammatory lung diseases. Though unspecific it could be used in a panel of markers discerning COPD smokers from healthy non-COPD smokers. Being a regulator of innate immunity and a therapeutic anti-inflammatory agent its exact role in COPD pathogenesis and therapy should further be explored.