

# European Respiratory Society Annual Congress 2013

**Abstract Number:** 472

**Publication Number:** P1900

**Abstract Group:** 6.2. Occupational and Environmental Health

**Keyword 1:** Asthma - mechanism **Keyword 2:** Occupation **Keyword 3:** Biomarkers

**Title:** Effect of inhalation exposure to an occupational allergen on sputum levels of brain-derived neurotrophic factor

Roberto 3791 Castano roberto.castano@umontreal.ca MD <sup>1</sup>, Melanie 3792 Welman melaniewelman@hotmail.com <sup>1</sup>, Lucero 3793 Castellanos castellanos.lucero@gmail.com <sup>1</sup>, Carole 3794 Trudeau c-trudeau@crhsc.rtss.qc.ca <sup>1</sup>, Karim 3795 Maghni karim.maghni@umontreal.ca <sup>1</sup> and Jean-Luc 3796 Malo jean-luc.malo@umontreal.ca MD <sup>2</sup>. <sup>1</sup> Chronic Disease Research Division, Hôpital Du Sacré-Coeur De Montréal, Montreal, Canada and <sup>2</sup> Chest Department, Hôpital Du Sacré-Coeur De Montréal, Montreal, Canada .

**Body:** Background: There is raising interest on the potential role of neurotrophins in pathogenic mechanisms and clinical manifestations of respiratory allergic diseases. The neurotrophin brain-derived neurotrophic factor (BDNF) seems to play a role in the pathophysiology of asthma. However, there are not data on changes in sputum levels of BDNF after inhalation challenge with occupational allergens. Thus, we sought to assess the effect of inhalation challenge with a high-molecular-weight agent on levels of BDNF in induced sputum in patients with allergic occupational asthma. Methods: Eight patients sensitized to flour underwent control and active challenge on consecutive days. Bronchial response to challenge was monitored by measuring FEV1 before the challenge and then serially for 7 h afterwards. Induced sputum was performed at the end of control and active challenge days. Results: In contrast to control day, flour challenge induced clinically significant bronchial reactions in all subjects. After flour challenge, the levels of BDNF in induced sputum were significantly increased as compared to levels after control challenge ( $p=0.02$ ). Also, a nonsignificant increase in the number of eosinophils as compared to control challenge levels ( $p=0.07$ ) was observed. No correlation between BDNF levels and inflammatory cells in induce sputum was noted. Conclusions: We showed that BDNF increases in induced sputum after inhalation challenge with flour. The results support the suggestion that neurotrophins may be involved in the pathogenesis of allergic occupational asthma.