**European Respiratory Society**  
**Annual Congress 2013**

**Abstract Number:** 5468  
**Publication Number:** P515

**Abstract Group:** 10.2. Tuberculosis  
**Keyword 1:** Tuberculosis - mechanism **Keyword 2:** Bronchoalveolar lavage **Keyword 3:** Monocyte / Macrophage

**Title:** Neutrophils increase M. tuberculosis growth in a human lung model

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**Body:** Introduction: In respect to tuberculosis granuloma formation the influence of neutrophils has been neglected. Limited data report elevated neutrophil count in peripheral blood in humans, and murine models have shown a correlation between tissue destruction and increased recruitment of neutrophils to the site of disease. Material and Methods: Following informed consent, peripheral blood was drawn and a bronchoscopy was performed on 12 HIV-seronegative and 10 HIV-positive adults (in all cases active tuberculosis was excluded) from a high tuberculosis-incidence setting of Cape Town, South Africa. To investigate the effect of neutrophils on mycobacterial growth, alveolar macrophages were cocultured with different numbers of autologous neutrophils, infected with M. tuberculosis and bacterial load was determined as colony forming unit (CFU) after 96 hours culture. Results: Addition of neutrophils to an ex vivo human alveolar macrophage model of M. tuberculosis infection increased M. tuberculosis growth: Alveolar macrophages without neutrophils contained a median of 2775 cfu/100 µL, addition of neutrophils at 1:1 non-significantly increased the CFU to 4500 cfu/100 µL, and a ratio of 1 alveolar macrophage:10 neutrophils increased the growth to 20693 cfu/100 µL (7.5 fold, p < 0.0001). Stratifying by HIV-status or M. tuberculosis sensitization revealed no difference. Conclusion: These preliminary data reveal that the addition of neutrophils in excess to alveolar macrophages enhances growth of M. tuberculosis. Abrogating the immunopathological neutrophil response might have therapeutic application in humans with severe tuberculosis.