28th ECCMID EUROPEAN CONGRESS OF CLINICAL MICROBIOLOGY AND INFECTIOUS DISEASES
Madrid, Spain
21 – 24 April 2018

P1248 CD169 positive macrophages as a therapeutic target for prevention of invasive pneumococcal disease

Joseph J Wanford[1], Giuseppe Ercoli[1], Sarah Glenn[1], Christopher Bayliss[1], Luisa Martinez-Pomares[2], Peter Andrew[1], E Richard Moxon[3], Marco Rinaldo Oggioni*[1]

[1]University of Leicester, *[2]University of Nottingham*, *[3]University of Oxford*

Background: The pathogenesis of pneumococcal disease, includes an early, intracellular phase of bacterial replication in splenic CD169+ macrophages; a significant shift from the accepted paradigm. Here we report the prevention of pneumococcal sepsis by intravenous therapy with a monoclonal anti-CD169 antibody.

Materials/methods: Mice were infected intravenously (IV) with *S. pneumoniae* D39. For blocking experiments, anti-CD169 mAb, or an isotype matched control were administered IV fifteen minutes prior to infection. All experiments investigated signs of disease, blood counts and distribution of bacteria in the spleen by confocal microscopy.

Results: Four hours following infection pneumococci were found to replicate in splenic macrophages of control mice, while mice pre-treated with antibody did not form foci of infection in CD169+ macrophages. Mice pre-treated with antibody, were less bacteraemic 24 hours post-infection, whereas all control mice developed disease. At the endpoint, significantly more mice in the mAb treated group were clear of cultivable bacteria in the blood, and spleen, whereas all control mice contained bacteria. Overall, mice treated with blocking antibody survived significantly better than control mice.

Conclusions: We conclude that CD169 is crucial to the pneumococcal-host interaction underpinning bacteraemia, and that modulation of this interaction may be employed as a therapeutic strategy.