IL-17A AND *STREPTOCOCCUS PNEUMONIAE* RESPIRATORY INFECTION: PROSPECTS FOR THE DEVELOPMENT OF NEW IMMUNOTHERAPIES

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Nasopharyngeal colonization by *Streptococcus pneumoniae* constitutes a pre-requisite for development of pneumonia and invasive pneumococcal diseases. Colonization is typically asymptomatic and is resolved due to a dynamic and complex interplay between microbiota, host immune system and environmental factors. Working with a murine model of pneumococcal nasopharyngeal colonization, we have shown that IL-17A is a key cytokine in this process, since *Il17a-/-* mice were persistently colonized for up to 6 months whereas wild type mice cleared colonization in 10 days. We are currently trying to elucidate the downstream mechanisms that may account for the phenotype showed in *Il17a-/-* mice, including the production of specific antibodies, as well as the recruitment of innate cells and the expression of immune mediators in WT and *Il17a-/-* mice. On the other hand, we have studied the role of IL-17A in the development of protective immunity against acute pneumococcal pneumonia. Previously, we showed that prior sublethal infection resulted in solid protection against invasive pneumonia which is associated with over expression of IL-17A together with the presence of Th17 cells in the lungs. However, *Il17a-/-* mice showed same level of protection than WT, demonstrating that IL-17A by itself is not essential for protective immunity. Interestingly *Il17a-/-* mice showed overexpression of other IL-17 related genes suggesting a complex network where compensatory effects may be occurring. Finally, we have developed and tested alternative immunotherapies against pneumococcal pneumonia, and have evaluated the role of IL17A in the protection afforded. Overall, we believe that deciphering the molecular basis of protective immunity will result in the development of new cost-effective immunotherapies against pneumococcal pneumonia.