Yaffa Mizrachi Nebenzahl, J Immunome Res 2017, 13:1 (Suppl)
http://dx.doi.org/10.4172/1745-7580.C1.011

Identification of novel *S. pneumoniae* candidate vaccine antigens and the nature of the immune response elicited by them

Yaffa Mizrachi Nebenzahl
Ben Gurion University of the Negev, Israel

Mortality due to pneumococcal infections remains high worldwide, augmented by widespread antibiotic resistance in many pneumococcal strains. To identify protein antigens that could be involved in the development of protective immunity to *S. pneumoniae*, a pneumococcal cell wall protein-enriched extract was screened using 2-D gel electrophoresis and immunoblotting with either sera obtained longitudinally from children attending day-care centers or sera obtained from mice immunized with the pneumococcal cell wall protein extract. The identified proteins that share no- or low- homology to human proteins and which are conserved among different *S. pneumoniae* strains were tested for their ability to elicit protection against *S. pneumoniae* challenge in animal models. Moreover the nature of the elicited immune response was studied in mice. *S. pneumoniae* proteins PtsA, GtS, Nox, PsipB, FBA, TF and FtsZ were amplified from TIGR4 strain, cloned, expressed in *E. coli* and purified. Mice were immunized three times intra-nasally or subcutaneously with these proteins in presence of adjuvant and challenged two weeks later. Nasopharyngeal and lung colonization levels were quantified for 48 hours following bacterial challenge and survival was monitored daily for seven days. The cytokine profile elicited by rFBA was determined by multiplex ELISA. All seven proteins elicited protective immune responses in mice as determined by reduced nasopharyngeal and lung colonization, prolonged survival, and the ability of antibodies obtained from immunized mice to *ex-vivo* neutralize bacterial virulence for the intra-peritoneal challenge model. Moreover, rFBA elicits Th1, Th2 and Th17-type cytokines in mice. Taken together several antigenic and immunogenic protein with no or low homology to human proteins were identified and found to elicit protective immune response in the mouse model accompanied by Th1, Th2 and Th17 type of immune responses.

Biography

Yaffa Mizrachi Nebenzahl has her expertise in Microbiology and Immunology and has studied Microbial Pathogenesis (innate and adaptive immune to microbial infections). She has completed her PhD from the Weizmann Institute, Rehovot, Israel. She is Head of the Molecular Microbiology Laboratory, Department of Microbiology, Immunology and Genetics at the Faculty of Health Sciences in Ben Gurion University of the Negev, Israel.

ymizr@bgu.ac.il

Notes: