

## The Search for a Molecular T Cell Vaccine for Chlamydia

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Chlamydia trachomatis is an obligate intracellular bacterial pathogen of human epithelial cells for which T cell immunity is essential to clearance of infection. The pathogen is a major global cause of infertility and blindness. The murine model of C muridarum infection is a tractable system enabling discovery of the molecular components for a human C trachomatis vaccine. We initially identified chlamydia peptides presented by class II MHC molecular from bone marrow derived dendritic cells infected with C muridarum using tandem mass spectrometry. Of 13 chlamydia peptides 3 were found to be immunodominant in T cell cytokine assays using spleen cells from mice immune to infection. Two antigens which are polymorphic membrane proteins G and F (PmpG and PmpF) were prepared as recombinant proteins and are unique to chlamydia and therefore further studied as vaccine candidates. They were compared with the leading vaccine antigen, the major outer membrane protein (MOMP). We next proceeded to evaluate delivery systems and immunomodulators comparing the cationic liposomes DOTAP and DDA as delivery systems and LPS and TDB as immunomodulators. The best protection ( over 4 logs) was observed when PmpG, PmpF and MOMP were used in combination with DDA/TDB which approximated immunity seen in animals who recovered from prior infection. These data together with studies of other delivery systems and immunomodulators will be presented.