

Characterization of VapA-specific immune responses to *Rhodococcus equi*

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Rhodococcus equi infects and causes pneumonia in foals less than 6 months old. In contrast, immunocompetent adults remain clinically normal. Understanding the protective response against *R. equi* in adult horses is important to develop new vaccine strategies, since those mechanisms likely reflect the protective phenotype an effective vaccine would generate in the foals. Evidence suggests that immunity to *R. equi* is cell mediated. We hypothesize that a protective immune response against *R. equi* in horses is associated with IFN- γ and production of antibody isotypes associated with opsonization and complement fixation. In the present study, cells from bronchoalveolar lavages (BALs) of adult horses challenged with virulent *R. equi* were stimulated *in vitro* with VapA, a highly immunogenic surface protein encoded by a virulence associated plasmid of *R. equi*. Also, antibody isotypes were characterized from sera samples. We demonstrate that adult horses immune to rhodococcal pneumonia develop a VapA-specific immune response which is associated with IFN- γ expression and have increased anti-VapA IgGb and IgGa antibody titers.