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Cellular immune responses of pregnant Guinea pigs Immunized with live attenuated *Rhodococcus equi*

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Abstract

Rhodococcus equi (R. equi) remains significant causes of severe pneumonia in neonatal foals. And considers as an opportunistic pathogen for compromised cellular immunity people. The potential to increase passive transfer of specific *R. equi* cellular immunity to newborn by preparturient vaccination of their dams was evaluated in Pregnant Guinea pigs as a pilot study. Attenuated autogenous vaccine was prepared from a Congo red negative (CR-) *R. equi* local isolate mixed with adjuvant (potassium alum sulphate), tested for sterility, safety and potency before vaccination. Two groups of pregnant G. pigs were used. The first group was vaccinated twice subcutaneously (S.C) with the prepared vaccine at five and three weeks prior expected parturition. Similarly, the second group was inoculated with adjuvant plus phosphate buffer saline (PBS) twice s.c and kept as control. Cellular immune response in vaccinated animals was detected by skin test which measured at 24, 48 and 72 hours post intradermal (i.d) inoculation of *R. equi* soluble antigen. Offspring from both vaccinated and control dams were assessed for cellular immune responses specific to *R. equi* by in vivo delayed-type hypersensitivity (DTH) test and in vitro extraction of specific *R. equi* transfer factor (TF) from their spleen. Delayed-type hypersensitivity responses to *R.equi* were detected only for offspring of vaccinated dams, specific *R. equi* TF was extracted from offspring of vaccinated dams but not from offspring of nonvaccinated dams. The results revealed that vaccination of pregnant G. pigs with the prepared attenuated vaccine was safe and efficient method to stimulate cell mediated immunity which transferred to their offspring and participated in the protection against experimental challenge.

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