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Local and systemic antibody and cell-mediated immune response after vaccination and infection with porcine respiratory and reproduction system (PRRS) virus

Toman M[1], **Celer V**[2], **Jankova J**[2], **Leva L**[1], **Kudlackova H**[1], **Ondrackova P**[1] and **Faldyna M**[1]
[1]Veterinary Research Institute, Czech Republic
[2]University of Veterinary and Pharmaceutical Sciences, Czech Republic

In spite of many similarities with other systems of mucous associated lymphatic tissues (MALT), the immune response in respiratory tract has its own properties and is not so much recognized as the immune response in gut. In our experiment we compared immune response of piglets against PRRS virus after immunization with four different (inactivated and modified live - MLV) vaccines. We also monitored the changes in leukocyte population and lymphocyte subpopulation in blood and lavages after immunization and infection. The first specific antibodies were detected in the serum 7 days after the second dose of inactivated vaccines. Antibodies were also detected in bronchoalveolar lavages but not in saliva. Vaccination with inactivated vaccine with oil adjuvant cause strong cellular reaction *in vivo*, therefore it was difficult to estimate the specific cell mediated immune response *in vitro*. The virus in piglets vaccinated with killed vaccine was detected in all samples including faeces 3 days after infection and the shedding was massive at the end of the experiment (21 days post infection). In piglets vaccinated with MLV, the first specific antibodies were detected 14 days after the administration of vaccine and were detected both in serum and saliva and in lavages. The cell mediated immunity tested in vitro with blood lymphocytes appeared 7 days after immunization but a strong response was detected only after experimental infection. The antigen specific interferon production was also detected in leukocytes derived from bronchoalveolar lavages. The virus in piglets vaccinated with MLV was detected in blood and saliva 3 days and in faeces 14 days after immunization. The virus was also detected after infection but the shedding decreased with time and the virus was not detected in some of the animals 14 - 21 days post infection.

Biography

Toman M is the Professor of Veterinary Microbiology and Immunology at the University of Veterinary and Pharmaceutical Sciences Brno, Czech Republic. He has been working at the Veterinary Research Institute Brno, Czech republic as the senior Researcher at the Dept. of Immunology; in 2001 - 2012 he also acted also as the Director of the Institute. His research interest is host pathogen interaction and possibility of nonspecific and specific immunoprophylaxis, especially in pig infection models. He is also interested in clinical immunology of companion animals.

toman@vri.cz