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BEI-inactivated PRRs vaccine adjuvanted with montanidetm Gel 01 St elicits virus specific cross-protective immune responses in piglets

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Porcine reproductive and respiratory syndrome (PRRS) is the leading cause of economic casualty in swine industry worldwide. Vaccination with killed vaccines (KV) is one of the solutions to control PRRS. The MontanideTM Gel 01 ST (Gel 01) adjuvanted modified live vaccine (MLV) against PRRS can confer increased protection to homologous but not heterologous porcine reproductive and respiratory syndrome virus (PRRSV) challenge. In this study, experimental inactivated PRRSV vaccine was developed, based on treatment with binary ethylenimine (BEI) and adjuvanted with Gel01. We explored the efficacy of developed PRRS vaccine in piglets challenged with two genetically distinct strains of PRRSV. The vaccine reduced lung and lymph node pathology scores in piglets challenged with Arterivirus/LKZ/2010 (parental strain of KV vaccine) and NADC-8 (heterologous strain), when compared to that in piglets vaccinated with un-adjuvanted KV. Piglets vaccinated three times (0, 21, 35 dpi) with vaccine had higher levels of PRRS-specific antibodies, as measured by BIONOTE ELISA and virus neutralizing (VN) antibodies, after vaccination and Arterivirus/LKZ/2010 or NADC-8 challenge. These results demonstrate that the BEI-inactivated vaccine adjuvanted with Gel01 provides enhanced protection against homologous and heterologous PRRSV infection, possibly by regulating the production of PRRSV-specific antibodies. Thus, Gel01 is a promising adjuvant that can be formulated with BEI-inactivated PRRSV vaccines to reduce disease severity and tissue damage caused by PRRSV infection in piglets.

Biography

Tabynov Kairat has completed his MSc in veterinary medicine at the age of 29 years from Kazakh National Agrarian University. He is the senior researcher of laboratory collection of microorganisms of Research Institute for Biological Safety Problems, an executive of grant «Development of technology for production of inactivated vaccine against PRRSV» for 2012-2014, financed by the Ministry of Education and Science of the Republic of Kazakhstan. He has published more than 10 papers in journals and proceedings of international conferences. Author of the patent #80066 on the PRRSV strain Kostanay-CM/08 (type 1).

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