THE INDUCTION OF A CELL-MEDIATED IMMUNE RESPONSE TO BOVINE VIRAL DIARRHEA VIRUS WITH AN ADJUVANTED INACTIVATED VACCINE

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Bovine viral diarrhea virus (BVDV) is a major pathogen of cattle, causing respiratory and reproductive disease. This study evaluated the induction of bovine viral diarrhea virus (BVDV) cell-mediated and humoral immune responses after vaccination with an adjuvanted inactivated product. In vaccinated animals, there was an overall treatment effect (P < .05), for an increased percentage of BVDV-specific CD8 T cells expressing interferon-γ (IFN-γ). The percentages of IFN-γ producing γδ-T cells in the vaccinated group were increased on days 7 (P = .10), 14 (P = .09), and 31 (P = .12). CD4 T cells expressing IFN-γ were increased on day 42 (P = .05). Stimulated peripheral blood mononuclear cells of the vaccine group had increased IFN-γ production on days 14 and 35 (P < .05). BVDV type 1 antibody titers began at day 14, with peak titers at day 42 (14 days after booster vaccination). Additionally, BVDV type 2 antibody titers also began at day 14, with peak titers achieved between days 35 and 42. In summary, the intracellular accumulation and release of IFN-γ, a T helper cell 1 (TH1) cytokine, indicates that an adjuvanted inactivated BVDV vaccine is capable of invoking a cell-mediated response while delivering a targeted humoral response.