Reduction of Classical Swine Fever Virus-Specific Cell Proliferative Response of Porcine Peripheral Blood Mononuclear Cells by Porcine Circovirus Type 2

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ABSTRACT Porcine circovirus type 2 (PCV2) infection reducing the efficacy of Lapinized Philippines Coronel (LPC) vaccine of classical swine fever virus (CSFV) has been demonstrated in the previous study. In order to investigate the possible mechanisms of PCV2-derived interference on the CSFV-specific cell-mediated immune response, an ex vivo model of CSFV-specific cell proliferative response of peripheral blood mononuclear cells (PBMCs) from PCV2-carrier pigs was established. The ALD, a virulent CSFV strain, induced a significantly higher CSFV-specific cell proliferative response than the attenuated LPC strain did. The ALD strain at a dose of 0.1-1 multiplicity of infection (MOI) induced a significantly higher CSFV-specific cell proliferative response than that at 3 MOI did. Pre-inoculated PCV2 significantly reduced the levels of CSFV-specific cell proliferative response and CD25 expression in PBMCs than that of ALD alone. The PCV2-derived interference was not associated with the CpG-ODNs of PCV2 genome neither the cytokine levels of IL-2, IL-4, IL-10, and TNF-α in the supernatant of PBMC cultures. These results indicated that PCV2 could reduce CSFV-specific cell proliferative response in PBMCs partially through the reduction of CD25 expression in stimulated PBMCs.

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