



Porcine circovirus type 2 in muscle and bone marrow is infectious and transmissible to naïve pigs by oral consumption

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Abstract

Pork products are a possible source of introduction of PCV2 isolates into a pig population. However, limited work has been done on the transmission through meat of porcine circovirus type 2 (PCV2), a virus associated with several disease syndromes in pigs. The objectives of this study were to determine if pork products from PCV2-infected pigs contain PCV2 DNA/antigen and to determine if the PCV2 present in the tissues is infectious by performing *in vitro* and *in vivo* studies. Skeletal muscle, bone marrow, and lymphoid tissues from pigs experimentally inoculated with PCV2 were collected 14 days post-inoculation (DPI). The tissues were tested for presence of PCV2 DNA by quantitative real-time PCR, for PCV2 antigen by immunohistochemistry (IHC), and for presence of infectious PCV2 by virus isolation and inoculation of PCV2 naïve pigs. Lymphoid tissues contained the highest amount of PCV2 (positive by PCR, IHC, and virus isolation), bone marrow contained a lower amount of PCV2 (positive by PCR and IHC but negative by virus isolation), and skeletal muscle contained the lowest amount of PCV2 (positive by PCR but negative by IHC and virus isolation). Naïve pigs fed for three consecutive days with either skeletal muscle, bone marrow, or lymphoid tissues all became PCV2 viremic as determined by quantitative real-time PCR on serum starting at 7 DPI. The pigs also seroconverted to PCV2 as determined by PCV2 IgM and IgG ELISA. In addition, PCV2 antigen was detected by IHC stains in lymphoid tissues and intestines collected from the majority of these pigs. Results from this study indicate that uncooked PCV2 DNA positive lymphoid tissues, bone marrow, and skeletal muscle from PCV2 viremic pigs contain sufficient amount of infectious PCV2 to infect naïve pigs by the oral route.

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