

Table 1. Number of swine sera by year tested by IDEXX PRRS ELISA and confirmed positive using an indirect immunofluorescence (IIF) assay for IgG antibody against the porcine reproductive and respiratory syndrome virus

Year	# Sera tested	# Sera positive in ELISA	# Sera suspicious in ELISA	# Sera confirmed positive by IIF
1978	50	0	0	ND
1979	51	2	0	2
1980	51	7	1	8
1981	57	11	0	10
1982	56	10	0	10

ND = not done

were confirmed positive in an indirect immunofluorescence test to determine IgG specific for a Canadian isolate of PRRS virus (Institut Armand Frappier). **This is the earliest reported detection of antibody to PRRS virus worldwide.**

The long time between the presence of antibody and the recognition of disease in Ontario suggests that less

virulent PRRS virus strains may have been circulating in Ontario prior to the severe disease outbreaks recognized in 1987.

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Isolation of a distinct serotype of porcine reproductive and respiratory syndrome (PRRS) virus in Ontario

At the beginning of 1995, segregated early weaned pigs housed in a new 2000 head all-in/all-out finishing barn in southern Ontario experienced an outbreak of dyspnea and coughing. These 25-kg feeder pigs were sourced from several 1000 head all-in/all-out nursery barns that housed piglets that were purchased from 10 sow herds and co-mingled at weaning. Histopathology of lungs revealed lesions of nonsuppurative and necrotizing bronchitis, bronchiolitis, and alveolitis.

The ONT-TS strain of PRRS virus was isolated from clarified lung homogenates of a 3-month-old dyspneic pig in MARC-145 cells, a cell line highly permissive to the PRRS virus. Isolation of PRRS virus was serologically confirmed by indirect immunofluorescence (IIF) using the SDOW17 monoclonal antibody (MAB), raised against the prototype US strain ATCC-VR2332 of PRRS virus. This MAB is directed against a group specific-epitope of the nucleocapsid (N) protein of both European and North American strains of the virus (1,2).

The antigenic relatedness of the ONT-TS strain to North American (ATCC-VR2332, IAF-Klop) and European (Lelystad virus) reference strains was determined by comparing their reactivities to 4 MABs (SDOW17, VO17, EP147, IAFK8) directed to the 15-kDa N protein (2) and 2 MABs (IAFK6, IAFK3) directed to the 19-kDa membrane (M) protein of PRRS virus (submitted for publication). The IIF test was used to titrate each of the 6 MABs against all isolates. As reported in Table 1, comparable titers were obtained for the IAFK8 and SDOW17 anti-N MABs with all the PRRS virus isolates tested. However, as for the Lelystad

virus (LV) strain, the ONT-TS strain showed no reactivity towards the VO17 and EP147 anti-N MABs. Interestingly, both anti-M MABs, raised against the Québec IAF-Klop strain, also failed to react against the ONT-TS strain, as was also the case for the LV strain and the ATCC-VR2332 vaccine strain. **These observations suggest that unique strains of PRRS virus, which react differently from North American strains and similar to European PRRS virus isolates in MAB panels, may be established in Ontario swine herds.**

Previous studies have demonstrated that European and North American PRRS virus strains belong to 2 distinct genotypes (3). To further investigate the relationship between the ONT-TS strain and the reference European LV strain, genomic regions (ORFs 6 and 7) encoding for the M and N viral structural proteins were amplified by RT-PCR. Digestion of amplified products with 4 restriction enzymes (*AluI*, *BsaI*, *HaeIII*, *MspI*), followed by electrophoresis analysis on agarose gels, indicated that the ONT-TS strain was genomically more closely related to the North American strains of PRRS virus, notwithstanding distinct restriction enzyme digestion profiles.

These MAB and restriction endonuclease studies using the ONT-TS strain indicate that Canadian isolates of PRRS virus are antigenically more diverse than has previously been demonstrated (1,4), especially if the comparison is extended to genes encoding for other viral structural proteins than the N protein.

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Table 1. Cross-reactivities of anti-N and anti-M monoclonal antibodies towards PRRS virus isolates as determined by indirect immunofluorescence

MAbs	Viral protein specificities	Antibody titers to PRRS virus isolates ^a			
		ONT-TS	IAF-Klop ^b	ATCC-2332 ^b	LV ^b
SDOW17	N	102400	51200	102400	51200
VO17	N	<25	102400	102400	<25
EP147	N	<25	1600	1600	<25
IAFK8	N	51200	51200	51200	51200
IAFK3	M	<25	1600	<25	<25
IAFK6	M	<25	3200	<25	<25

^aTiters of PRRS virus MAbs by indirect immunofluorescence expressed as the reciprocal of the highest dilution of ascitic fluid at which specific cytoplasmic fluorescence was observed

^bThe origins of the reference PRRS virus strains have been described elsewhere (2-4)

Mab = monoclonal antibody

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Dr. John Brocklebank, author of "No-mucus skin disease' of farmed Atlantic salmon (*Salmo salar*) fingerlings in a freshwater lens in British Columbia" (*Can Vet J* 1995; 36: 487), wishes to acknowledge the contribution of **Dr. Marty Haulena**, Fish Pathology Laboratory, Ontario Veterinary College, who provided histopathological consultation and diagnostic interpretation for the case reported.



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