Characterization of Equine Rhinitis A Virus (ERAV): Genome Sequencing and Animal Experimental Infection

Andrés Diaz-Méndez, Med Vet, MSc**; Éva Nagy, DVM, PhD, DSc; and Laurent Viel, DVM, MSc, PhD*

Equine rhinitis A virus (ERAV) does induce clinical respiratory disease in horses and should be considered when investigating respiratory outbreaks. Genome sequencing has shown that the Ontario isolate has retained 96% identity since the first virus was isolated in 1962. Authors’ addresses: Department of Pathobiology (Diaz-Méndez and Nagy) and Department of Clinical Studies (Viel), Ontario Veterinary College, University of Guelph, Guelph, ON, Canada N1G 2W1; e-mail: lviel@uoguelph.ca (Viel); adiaz@uoguelph.ca (Diaz-Méndez). *Corresponding author; **Presenting author. © 2011 AAEP.

1. Introduction
Equine rhinitis A virus (ERAV) is commonly identified during equine respiratory infections by serology testing; however, virus isolation is not consistently achieved. Recently, an ERAV isolate (ERAV/ON/05) was recovered from a respiratory outbreak in Ontario.¹ The objectives of this study were to characterize this isolate and study the clinical signs associated with an experimental infection.

2. Materials and Methods
The genome of ERAV/ON/05 was fully sequenced, analyzed, and compared with worldwide isolates. Furthermore, this isolate was used as an inoculum to infect eight seronegative ponies (12 mo old) by nebulization with a tight-fitting facemask.

3. Results
A 96% amino acid identity was detected in ERAV/ON/05 compared with other reported ERAV. The 5’ and 3’ untranslated regions (UTRs) of the isolate resemble those regions characteristic of other ERAV. Nebulization of ERAV/ON/05 to healthy ponies resulted in clinical respiratory disease that lasted up to 21 days. The disease is characterized by pyrexia, nasal discharge, abnormal lung sounds, tracheal mucus, and enlarged submandibular lymph nodes.

4. Discussion
The experimental infection showed that ERAV can mimic respiratory clinical signs similar to equine influenza or herpes virus infection.²⁻³ ERAV infection could be described as a clinically relevant upper and lower viral respiratory infection with an onset at 24 h post-infection.

References