Equine Viral Arteritis (EVA) Diagnostic Test Information

University of Kentucky Veterinary Diagnostic Laboratory (UKVDL)

Introduction:

Equine Viral Arteritis (EVA) is a contagious viral disease of equids caused by equine arteritis virus (EAV) - an RNA virus classified in the genus *Alphaarterivirus*. The Bucyrus strain is the most prevalent serotype of the virus, although variants exist. Equine arteritis virus is found in horse populations worldwide.

The majority of naturally acquired infections with EAV are subclinical. Clinical signs of EVA can vary in range and severity but often cause fever, depression, anorexia, edema, conjunctivitis, urticaria/hives, and abortion. Edema is common in the limbs, scrotum, prepuce, or mammary glands. Sudden pneumonia and enteritis may occur in young foals. Apart from mortality in young foals, the case-fatality rate of EVA is very low. Affected horses almost invariably make complete clinical recoveries. A long-term carrier state can occur in some infected stallions. The carrier stallion is the greatest concern in transmission.

EVA Testing:

For diagnostic cases: PCR, Virus Neutralization (VN), and Virus Isolation (VI), tests are recommended. For regulatory or export cases: VN antibody tests are recommended. Vaccination titer checks may be required for stallions - check with export country requirements (usually three blood draws each 2 weeks apart). Semen analysis may be required for exporting stallions.

Test	Specimen Type
PCR	Nasopharyngeal or conjunctival swab, EDTA blood (10 mL tube), tissue*, wash, seminal fluid, upper respiratory tract aspirate
VI	Nasopharyngeal or conjunctival swab, EDTA blood (10 mL tube), tissue*, semen
VN	Serum from red top tube with no additives (7- or 10-mL blood tube or 2 mL of serum)
*Tissue collected from mortality cases include lymphatic glands near alimentary tract, lung, liver, and/or spleen. Deceased equine may be submitted to UKVDL for a necropsy.	

Specimen Collection:

Use aseptic techniques when collecting and handling specimens. Complete an accession sheet (found on our website, https://vdl.uky.edu/) to accompany any sample being submitted for testing. Clearly label samples with the horse name, test requested, and date sample was taken.

Swabs:

1. Properly restrain horse.
2. Using a sterile 16" (40 cm) cotton, synthetic, or uterine swab, swab horse's nasopharynx via the ventral meatus at least 6 inches in. Allow 1 minute to absorb respiratory secretions. Conjunctival swabs may also be taken.
3. Once collected, place swab into a 5-10 ml glass or plastic tube with leak-proof cap. Add sufficient viral transport media to cover the swab tip. If no transport media is available, sterile saline can be used. Do not submit in gel or Amies swab tubes.
4. Keep sample chilled and transport to laboratory within 24 hours.

Blood Tubes:

1. Collect blood in appropriate tube for test requested (see test chart above).
2. Collect a blood tube for each test requested. Blood that is hemolyzed cannot be used for testing.
3. Keep the sample chilled and submit it to lab as soon as possible.
4. For diagnostic purposes, 2 convalescent samples collected about 3 weeks apart are recommended.

Semen samples:

1. Collect semen samples in a sterile container. A minimum of 15 ml in a conical tube is recommended for submission. **Contact lab and inform them when sample is coming and how many**.
2. Do not use antiseptics/disinfectant on the stallion genitalia prior to collecting.
3. The sample should be from the full ejaculate containing the sperm-rich portion. The pre-ejaculate portion is not suitable for testing.
4. The sample should be kept cool and submitted to the lab within 24 hours. If the semen sample cannot be submitted within 24 hours or if shipping the sample overnight, then keep the sample frozen.
5. For diagnostic purposes, two semen collections are recommended either a few days or weeks apart.