Equine Arteritis Virus cELISA: Validation as an alternative to the virus neutralization test

ELISA for EAV diagnosis (OIE Terrestrial Manual)*
- Recommended for determining population prevalence
- Suitable for positive and negative individual animal diagnosis
- Comparable in most situations with virus neutralization (VN)

<table>
<thead>
<tr>
<th>Method</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Population screen for infection</td>
</tr>
<tr>
<td>ELISA</td>
<td>+</td>
</tr>
<tr>
<td>VN</td>
<td>+</td>
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</tbody>
</table>

+++ = recommended method
++ = suitable method
+ = May be used in some situations, but application is limited by certain factors

VMRD cELISA
- High sensitivity & specificity
- Rapid (~3 hours)
- Cost effective
- Standardized commercial kit
- Not affected by serum factors

Virus Neutralization
- High sensitivity & specificity
- Time consuming & laborious
- Expensive
- Inter-laboratory variation**
- Non-viral serum cytotoxicity**

**(Vaccine, 2004; 22:4117)

Sensitivity and Specificity:
Gluck Equine Research Center validation study

<table>
<thead>
<tr>
<th>Sample #</th>
<th>Sensitivity</th>
<th>Specificity</th>
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</thead>
<tbody>
<tr>
<td>Experimental samples</td>
<td>1235</td>
<td>98.9%</td>
</tr>
<tr>
<td>Field samples</td>
<td>1851</td>
<td>99.6%</td>
</tr>
</tbody>
</table>

The Bottom Line:
VMRD cELISA for EAV
- Rapid and accurate alternative to VN for detecting EAV-specific antibodies in horses
- Short turnaround (~3 hours) versus VN, which can take up to 72 hours
- Performance comparable to VN
- Available globally
