Correlation between five radioimmunoassay systems for bovine pregnant associated glycoprotein (PAGs)

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Introduction

- Pregnancy-associated glycoproteins, also known as pregnancy-specific protein or pregnancy-serum protein 60 kDa belong to a large family of placental glycoproteins expressed in trophoblast cells in ruminant species.
- They are members of the aspartic proteinase (AP) gene family, having high sequence homology with each other as well as with pepsin, chymosin, cathepsin D and E (Xie et al., 1991).
- In veterinary practice, the detection of these placenta-secreted proteins in maternal peripheral blood can be used for early pregnancy diagnosis in cattle from Day 28 of gestation onwards (Zoli et al., 1992).

Materials and Methods

- The experiment was carried out Holstein Friesian females (n=37) of mixed age and parity.
- Blood samples were collected in the coccygeal vein into tubes containing EDTA at Day 30, 45, 60 and 80 after AI.
- In all RIA systems, 67 kDa PAG preparation was used as tracer (according to the Chloramine T method) and as standard. Five antisera were raised in rabbits against different PAG preparations according to the technique of Vaitukaitis.
- Plasmatic PAG concentration was measured by radioimmunoassay technique with some modifications (Ayad et al., 2007).

AIM

The present study was undertaken to describe PAG concentrations during the first trimester of pregnancy by use of homologous and heterologous RIA systems.

Results

![Figure: Mean (± SE) ratios of five PAG-RIA systems in pregnant females presenting detectable values from day 30 to 80 after AI. a,b,c Values with different superscripts at different days in a same RIA system differ statistically (P > 0.05).]

<table>
<thead>
<tr>
<th></th>
<th>RIA-497</th>
<th>RIA-706</th>
<th>RIA-780</th>
<th>RIA-809</th>
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<tr>
<td>RIA-706</td>
<td>0.89**</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>RIA-780</td>
<td>0.81*</td>
<td>0.94**</td>
<td>-</td>
<td>-</td>
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<tr>
<td>RIA-809</td>
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<td>0.90**</td>
<td>0.91**</td>
<td>-</td>
</tr>
<tr>
<td>RIA-Pool</td>
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<td>0.97**</td>
<td>0.94**</td>
<td>0.94**</td>
</tr>
</tbody>
</table>

Table: Correlation coefficients of PAG concentrations measured in 37 pregnant Friesian Holstein females from Day 30 to 80 after AI by five RIA systems (* P < 0.001, ** P < 0.0001)

Conclusion

Our results suggest that all tested PAG-RIA are highly correlated and can be useful to follow PAG concentrations in samples collected during the first trimester of gestation.

References


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