ARCHITECT Rubella IgG

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Standardization

ARCHITECT

Calibrators are referenced to the third WHO international standard:


AxSYM

Calibrators are referenced to the second WHO international standard:


The WHO international standard used to manufacture ARCHITECT Rubella IgG Calibrators is a newer standard than the WHO 2nd International Standard used to manufacture AxSYM Rubella IgG Calibrators.
ARCHITECT vs. AxSYM

The ARCHITECT Rubella IgG assay was compared to the AxSYM Rubella IgG by Least Squares regression analysis.

In this study, 1,253 specimens were tested on both assays with the following, representative data:

- Slope: 0.65; (95% CI: 0.63 to 0.67)
- Intercept: -0.42; (95% CI: -4.94 to 4.10)
- Correlation: 0.91; (95% CI: 0.90 to 0.92)
Reasons for bias

DIFFERENCES MAY BE DUE TO

• **Standardization** – true for AxSYM
• **Use of Antigens** – NOT TRUE for AxSYM, same antigen is used in both assays
• **Assay format** (direct format vs. G-capture format) - NOT TRUE for AxSYM, same format is used in both assays
• **Assay Technology** (Enzyme label vs. Chemiluminescence can influence kinetic of an assay) - true for AxSYM
Proposed Solution - Reference Measurement System

- Take Current WHO Standard
- Produce a Secondary in a Commutable Matrix
- Establish Reference Method
- Submit RMS to JCTLM
- Commercial Assays Traceable to RMS
### Comparison of ARCHITECT and Centaur

<table>
<thead>
<tr>
<th>ARCHITECT Rubella IgG</th>
<th>Centaur Rubella IgG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive</td>
</tr>
<tr>
<td>Positive</td>
<td>785</td>
</tr>
<tr>
<td>GZ</td>
<td>18</td>
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<tr>
<td>Negative</td>
<td>5</td>
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</tbody>
</table>

N = 832

- Concordance 96.9% (806/832)
- Greyzone Architect 2.64% (22/832)
- Greyzone Centaur 0.48% (4/832)

N = 809 without Greyzone results

Concordance 99.4% (804/809)
Quantitative Agreement vs. Centaur

The ARCHITECT Rubella IgG assay was compared to the Centaur Rubella IgG

In this study, 661 specimens fell within the dynamic range of both assays with the following representative data:

- Slope: 0.36; (95% CI: 0.34 to 0.38)
- Intercept: 5.74; (95% CI: 4.19 to 8.25)
- Correlation: 0.66

The Centaur Rubella IgG is calibrated to the same WHO standard than ARCHITECT
Reasons for slope differences vs. Centaur

The main reason for the large quantitative differences observed between ARCHITECT and Centaur Rubella IgG is due to their use of IgG-capture format.

Centaur basically generates higher values than any other commercial assay on the market as can be shown by NEQAS data from Spring 2007:

<table>
<thead>
<tr>
<th>Specimen : 8278</th>
<th>Rubella IgG positive (&gt;10 IU/mL)</th>
<th>n</th>
<th>range</th>
<th>median</th>
<th>5%-95%</th>
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<tbody>
<tr>
<td>All methods</td>
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<td>9-67</td>
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<td>29-34</td>
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<td>Abbott : AxSYM</td>
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<td>128-217</td>
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<td>Biokit : Bioelisa</td>
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<tr>
<td>bioMerieux : Vidas</td>
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<tr>
<td>DBehring : Enzygnost</td>
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<td>DiaSorin</td>
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<td>24</td>
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<td>DiaSorin : Liaison</td>
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<tr>
<td>DPC : Immulite</td>
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<tr>
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<td>47-125</td>
<td>64</td>
<td>48-115</td>
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# Comparison of ARCHITECT and DiaSorin

<table>
<thead>
<tr>
<th>ARCHITECT Rubella IgG</th>
<th>DiaSorin Rubella IgG</th>
</tr>
</thead>
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<tr>
<td></td>
<td>Positive</td>
</tr>
<tr>
<td>Positive</td>
<td>941</td>
</tr>
<tr>
<td>GZ</td>
<td>9</td>
</tr>
<tr>
<td>Negative</td>
<td>0</td>
</tr>
</tbody>
</table>

**N=996**

- Concordance 96.4% (960/996)
- Greyzone Architect 2.61% (26/996)
- Greyzone Liaison 4.01% (40/996)

**N = 945 without Greyzone results**

- Concordance 100% (945/945)
Comparison of ARCHITECT and DiaSorin

Range 0 – 100 IU/mL
N = 635
R = 0,60 ; y = 1,31 x + 0,36

Range 0 – 500 IU/mL
N = 934 (values outside of range excluded)
R = 0,79 ; y = 1,56 x – 5,35
Reasons for slope differences vs. Liaison

Quantitative values measured by ARCHITECT and DiaSorin Liaison match very well in general, although the ARCHITECT tends to give somewhat higher values in the majority of cases (see previous slides).

Both assays are using the same WHO standard, assay format and assay technology. Differences may be due to incubation time, volume of samples etc.

For individual samples, the values with Liaison can be higher as seen in the last NEQAS evaluation – this is the problem when quantitation is based on a comparison to a reference preparation of pooled human plasma. The antibody cocktail in the standard may differ largely from individual human samples.