von Willebrand Factor Antigen for Bleeding Risk Assessment
von Willebrand Factor Antigen – vWF Ag®

The Dade Behring vWF Ag® test has been developed for the quantitative determination of vWF Ag in human plasma by immuno-turbidimetry. This in vitro diagnostic assay is intended for use on Dade Behring’s advanced range of coagulation analyzers.

Important features

- Large measurement range from 2 to 600% (depending on the analyzer and setting).
- Very low detection limit of 2% vWF:Ag.
- No high dose hook effect up to 1000%.
- No influence by heparin and low molecular heparin up to 5 IU/mL.
- Automated ratio determination of vWF:RCo to vWF:Ag on the BCS® system.
- Application on BCS®, BCT® and Sysmex® CA-1500 systems available.
- Application on Sysmex® CA-560 and Sysmex® CA-7000 systems will be available in Quarter 4, 2003.
- Bar-coded reagents for safety and convenience.
- Turn-around-time approximately 7 minutes.
The von Willebrand Factor (vWF) is a multimeric glycoprotein, which plays an important role both in primary hemostasis through the formation of the hemostatic plug (due to its function in platelet adhesion and aggregation) and in the coagulation process by the stabilization of factor VIII. Qualitative and/or quantitative deficiency in vWF is the cause of von Willebrand disease (vWD), which is the most common hereditary bleeding disorder.

**Method**

Small polystyrene particles, to which specific antibodies have been attached by covalent bonding, are agglutinated when mixing with samples containing von Willebrand Factor antigen. This agglutination is then detected turbidimetrically with the increase in turbidity being proportional to the antigen level present in the test sample.

Precision of the vWF Ag® assay was determined with Dade Behring Control Plasma N (CPN) and Control Plasma P (CPP).

**CV (%) of vWF Ag® available on various coagulation analyzers supplied by Dade Behring**

<table>
<thead>
<tr>
<th></th>
<th>BCS®</th>
<th>BCT®</th>
<th>Sysmex® CA-1500</th>
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</thead>
<tbody>
<tr>
<td><strong>Control Plasma N</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intra-Assay</td>
<td>1.6</td>
<td>1.7</td>
<td>1.4</td>
</tr>
<tr>
<td>Inter-Assay</td>
<td>0.9</td>
<td>2.4</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>Control Plasma P</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intra-Assay</td>
<td>1.6</td>
<td>3.0</td>
<td>2.4</td>
</tr>
<tr>
<td>Inter-Assay</td>
<td>1.9</td>
<td>1.3</td>
<td>2.6</td>
</tr>
</tbody>
</table>

**Reference ranges in % (5-95 percentiles) for vWF Ag® on various coagulation analyzers supplied by Dade Behring**

<table>
<thead>
<tr>
<th></th>
<th>BCS®</th>
<th>BCT®</th>
<th>Sysmex® CA-1500</th>
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<tbody>
<tr>
<td><strong>Total</strong></td>
<td>57-173</td>
<td>57-163</td>
<td>57-153</td>
</tr>
<tr>
<td>Blood group O</td>
<td>51-133</td>
<td>53-135</td>
<td>54-134</td>
</tr>
<tr>
<td>Blood group non-O</td>
<td>69-179</td>
<td>67-171</td>
<td>69-159</td>
</tr>
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</table>

Reference ranges for vWF Ag® on various Dade Behring coagulation analyzers were determined with n = 185 plasma samples. Subjects with blood group O show significantly lower vWF Ag values than subjects with other blood groups.
Bleeding Disease Management

Effective Bleeding Disease Management (BDM) can be achieved by the Dade Behring concept, which may be applied to patients with a positive bleeding history or before high risk surgery for instance.

The Dade Behring vWF Ag® assay can be part of such a concept, which uses the PFA-100® test as a screening method, together with basic laboratory tests such as APTT and PT. In case of suspected vWD, follow up testing with BC von Willebrand assay (vWF:RCo) and vWF Ag® assay can be performed. Both assays can help to differentiate vWD subtypes.

Simplified scheme of the bleeding disease management concept

Patient at risk
(e.g. bleeding history, before surgery, post-surgical bleeding)

Laboratory analysis
(e.g. PT, APTT, FXIII, PFA-100®)

Normal

Abnormal
- Appropriate therapy with e.g. factor concentrate or DDAVP
- Define vWD subtype by utilizing BC von Willebrand (vWF:RCo) and/or vWF Ag

Order information vWF Ag® assay

Order number: OPAB03
• 4 x 6 mL (2 mL latex reagent + 4 mL diluent for latex reagents)
• 4 x 5 mL glycine buffer

Further needed:
Standard Human Plasma for calibration (ORKL)
Control Plasma N and P for quality control (ORKE) and (OUPZ)