Blood Sample Handling Best Practices

Keys to Successful Testing

Quality of sample analyzed = Quality of result

Avoid vein collapse when drawing samples
- Minimize suction on the syringe, and do not draw back too quickly.

Prevent hemolysis
- Use the largest vein and needle appropriate for blood collection.
- Never use any needle smaller than a 23 gauge size.
- Use minimal alcohol on fur/skin.
- Remove the needle from the syringe before dispensing into the blood tube, unless using a closed vacuum blood collection system.

Ensure the correct ratio of anticoagulant to blood
- Always use the smallest collection tube needed.
- Fill lithium heparin and EDTA tubes to minimum fill line.
- Fill sodium citrate tubes exactly to the fill line.

Prevent unwanted blood clotting
- Do not hold off the vein for more than a few seconds before venipuncture.
- If for feline samples collected from the medial saphenous vein: a vacuum blood collection system instead of a syringe is recommended.

Do not allow samples to degrade
- Run the sample as soon as possible after drawing.

Collection Tubes & Fill Order

SODIUM CITRATE anticoagulant for coagulation
NO ANTICOAGULANT for chemistry
LITHIUM HEPARIN anticoagulant for chemistry
EDTA anticoagulant for hematology

Always fill blood tubes in the correct order to avoid contamination. EDTA contamination of chemistry samples may affect electrolyte results, and cause a falsely low Ca and falsely high K⁺.

Sample Quality

NORMAL plasma and serum samples are straw colored, and do not have a yellow, red, or pink tinge.

HEMOLOYED plasma and serum samples have a pink/red tint due to broken red blood cells.
- Avoid hemolysis by using proper sample collection and handling techniques.

LIPEMIC plasma and serum samples have a milky appearance due to a high concentration of fat in the blood.
- Avoid lipemia by using a fasted patient sample whenever possible. Remind clients to refrain from feeding their pet for at least 6-8 hours prior to their appointment.

ICTERIC plasma and serum samples have a yellow color due to a disease or condition that causes excessive bilirubin in the blood.

Chemistry
Whole blood samples must be inverted 5-10 times after collection and re-inverted just prior to use.

Hematology
Samples must be inverted 10-15 times after collection and re-inverted just prior to use.

Never shake blood sample tubes.
1.3 mL and smaller tubes may need additional inversions for proper mixing.
- Do not rely on a rocker to mix blood samples properly; rockers do not take the place of proper tube inversion, and may cause hemolysis.

Ensure the correct ratio of anticoagulant to blood
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Prevent unwanted blood clotting
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Sample Storage

<table>
<thead>
<tr>
<th></th>
<th>Room Temp 68-77 °F</th>
<th>Refrigerated 36-46 °F</th>
<th>Frozen* 14 °F</th>
</tr>
</thead>
<tbody>
<tr>
<td>For Chemistry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Anticoagulant Serum</td>
<td>5 hours</td>
<td>48 hours</td>
<td>5 weeks</td>
</tr>
<tr>
<td>Lithium Heparin Serum</td>
<td>1 hour</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>For Hematology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDTA</td>
<td>4 hours</td>
<td>8 hours</td>
<td>N/A</td>
</tr>
</tbody>
</table>

* Freeze must not have a self-defrost cycle.
** Stored plasma and serum samples must be separated and kept in a stoppered test tube containing no additive.