Overview

Useful For
Measuring heparin concentration:
- In patients treated with low-molecular-weight heparin preparations
- In the presence of prolonged baseline activated partial thromboplastin time (APTT) (eg, lupus anticoagulant, "contact factor" deficiency, etc)
- When unfractionated heparin dose needed to achieve desired APTT prolongation is unexpectedly higher (>50%) than expected

Not useful for monitoring therapy with the heparinoid "danaparoid"

Method Name
Chromogenic Method

NY State Available
Yes

Specimen

Specimen Type
Plasma Na Cit

Specimen Required
Specimen Type: Platelet-poor plasma

Collection Container/Tube: Light-blue top (3.2% sodium citrate)

Submission Container/Tube: Plastic vial

Specimen Volume: 1 mL

Collection Instructions: Spin down, remove plasma and spin plasma again

Additional Information: Double-centrifuged specimen is critical for accurate results as platelet contamination may cause spurious results.

Specimen Minimum Volume
0.5 mL

Reject Due To
<table>
<thead>
<tr>
<th>Condition</th>
<th>Acceptance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemolysis</td>
<td>Mild OK; Gross Reject</td>
</tr>
<tr>
<td>Lipemia</td>
<td>Mild OK; Gross OK</td>
</tr>
<tr>
<td>Icterus</td>
<td>Mild OK; Gross OK</td>
</tr>
<tr>
<td>Other</td>
<td>NA</td>
</tr>
</tbody>
</table>
**Specimen Stability Information**

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Temperature</th>
<th>Time</th>
<th>Special Container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plasma Na Cit</td>
<td>Frozen (preferred)</td>
<td>14 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ambient</td>
<td>2 hours</td>
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</tbody>
</table>

**Clinical and Interpretive**

**Clinical Information**

Heparins are sulfated glycosaminoglycans that inactivate thrombin, factor Xa, and several other coagulation factors; act by enhancing activity of the plasma coagulation inhibitor, antithrombin III (AT III); and prolong the activated partial thromboplastin time (APTT). The anti-Xa assay is the preferred method for monitoring low-molecular-weight heparin (LMWH) therapy because of reduced sensitivity of APTT. Heparin is absent in normal plasma. The heparin level obtained has to be analyzed taking into account the treatment given to the patient (type of heparin, dosage, administration mode, time of sampling, etc) and the desired therapeutic effect. It is clinically recommended that platelet counts be monitored frequently in patients receiving unfractionated heparin (UFH) or LMWH in order to detect heparin-induced thrombocytopenia (HIT).

**Reference Values**

**Adult Therapeutic Range**

- UFH therapeutic range: 0.30-0.70 IU/mL
  - (6 hours following initiation or dose adjustment)
- LMWH therapeutic range: 0.50-1.00 IU/mL for twice daily dosing*
- LMWH therapeutic range: 1.00-2.00 IU/mL for once daily dosing*
- LMWH prophylactic range: 0.10-0.30 IU/mL
  - (*sample obtained 4-6 hours following subcutaneous injection)

Heparin Anti-Xa assay is used to measure heparin concentrations in patients receiving low-molecular-weight heparin or unfractionated heparin.

**Interpretation**

Results above the therapeutic range may be supratherapeutic suggesting that the heparin dose may need to be decreased.

Results below the therapeutic range may be subtherapeutic suggesting that the heparin dose may need to be increased.

**Cautions**

This is not a test for the presence of inhibitors directed against factor X (FX).
Plasma specimen must be depleted of platelets by repeat centrifugation before freezing.

In order to reduce the influence from heparin antagonists, such as platelet factor 4 (PF4), dextran sulfate is included in the reaction mixture.

Very low endogenous antithrombin III (AT III) levels might result in spuriously-low results.

Antibodies to bovine factor X or AT III can interfere with assay (very rare).

**Clinical Reference**


5. Fraser G, McKenna J: Monitoring low molecular weight heparins with antiXa activity: house of cards or firm foundation? Hospital Pharmacy 2003;38:202-211


**Performance**

**Method Description**

The Liquid Anti-Xa kit (ACL TOP) is a 1-stage chromogenic assay based on a synthetic chromogenic substrate and on factor Xa inactivation.(Package insert HemosIL Liquid Anti-Xa)

**PDF Report**

No

**Day(s) and Time(s) Test Performed**

Monday through Sunday; Continuously

**Analytic Time**

Same day/1 day

**Maximum Laboratory Time**

1 day

**Specimen Retention Time**

1 day

**Performing Laboratory Location**
Fees and Codes

Fees
- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their Regional Manager. For assistance, contact Customer Service.

Test Classification
This test has been cleared or approved by the U.S. Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

CPT Code Information
85520

LOINC® Information

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<tr>
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<th>Test Order Name</th>
<th>Order LOINC Value</th>
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<tbody>
<tr>
<td>HEPTP</td>
<td>Heparin Anti-Xa, P</td>
<td>3274-8</td>
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</table>

<table>
<thead>
<tr>
<th>Result ID</th>
<th>Test Result Name</th>
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