### Overview

#### Useful For
Verifying abstinence or use of ethanol especially in liver transplant candidates/patients

#### Method Name
Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS)

#### NY State Available
Yes

### Specimen

#### Specimen Type
Whole Blood EDTA

#### Specimen Required
- **Container/Tube:** Lavender top (EDTA)
- **Specimen Volume:** 1 mL
- **Collection Instructions:**
  1. Do not centrifuge.
  2. Send whole blood specimen in original tube. **Do not aliquot.**

#### Forms
*If not ordering electronically, complete, print, and send a Therapeutics Test Request* (T831) with the specimen.

#### Specimen Minimum Volume
0.5 mL

#### Reject Due To

<table>
<thead>
<tr>
<th>Condition</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>Gross lipemia</td>
<td>OK</td>
</tr>
<tr>
<td>Gross icterus</td>
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</tbody>
</table>

### Specimen Stability Information

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Temperature</th>
<th>Time</th>
<th>Special Container</th>
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<tbody>
<tr>
<td>Whole Blood EDTA</td>
<td>Frozen (preferred)</td>
<td>28 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Refrigerated</td>
<td>14 days</td>
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Clinical Information
Phosphatidylethanol (PEth) is a direct biomarker for alcohol (ethanol) intake. In presence of ethanol, phosphatidylcholine is converted to PEth on the red blood cell membrane by the phospholipase D enzyme. PEth homologues (16:0/18:1 \[POPEth: 1-palmitoyl-2-oleoyl-sn-glycero-3-phosphoethanol\] and 16:0/18:2 \[PLPEth: 1-palmitoyl-2-linoleoyl-sn-glycero-3-phosphoethanol\]) levels correlate with the amount of alcohol consumed within the previous 2 weeks and may be detected in the blood up to 2 to 4 weeks after excessive alcohol consumption. POPEth and PLPEth comprise approximately 60% of all observed PEth homologues in the blood.(1)

Reference Values
Negative (<10 ng/mL)

PEth 16:0/18:1 (POPEth): Lower limit of quantification =10 ng/mL
PEth 16:0/18:2 (PLPEth): Lower limit of quantification =10 ng/mL

Interpretation
POPEth (1-Palmitoyl-2-oleoyl-sn-glycero-3-phosphoethanol):
A result of 20 ng/mL to 200 ng/mL is considered evidence of moderate ethanol consumption, while results over 200 ng/mL indicate heavy ethanol consumption. However, the Center for Substance Abuse Treatment advises caution in interpretation and use of biomarkers alone to assess alcohol use. Results should be interpreted in the context of all available clinical and behavioral information.(2)

PLPEth (1-Palmitoyl-2-linoleoyl-sn-glycero-3-phosphoethanol):
There are no current clinical reference limits for this phosphatidylethanol (PEth) homologue.

PEth 16:0/18:1 (POPEth)
Less than 10 ng/mL: Not detected
10-19 ng/mL: Abstinence or light alcohol consumption (<2 drinks per day for several days a week)
20-200 ng/mL: Moderate alcohol consumption (up to 4 drinks per day for several days a week)
Greater than 200 ng/mL: Heavy alcohol consumption or chronic alcohol use (at least 4 drinks per day several days a week)

PEth 16:0/18:2 (PLPEth): Reference ranges are not well established.

Cautions
No significant cautionary statements

Clinical Reference
2. Substance Abuse and Mental Health Services Administration (SAMHSA) and National Institute on Alcohol Abuse and Alcoholism: Medication for the Treatment of Alcohol Use Disorder: A Brief Guide. HHS Publication No. (SMA) 15-4907. SAMHSA; 2015.
Test Definition: PETH
Phosphatidylethanol Confirmation, Blood

Performance

Method Description
The received whole blood sample is diluted and mixed with internal standard and clinical laboratory reagent water and extracted using supported liquid extraction and analyzed by an in-house developed liquid chromatography-tandem mass spectrometry method. (Unpublished Mayo method)

PDF Report
No

Day(s) Performed
Monday through Friday

Report Available
2 to 7 days

Specimen Retention Time
14 days

Performing Laboratory Location
Rochester

Fees & 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 account representative. For assistance, contact Customer Service.

Test Classification
This test was developed, and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information
80321
G0480 (if appropriate)

LOINC® Information

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<th>Test Order Name</th>
<th>Order LOINC® Value</th>
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<td>PEth Interpretation</td>
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