Overview

Useful For
Evaluation of suspected insulinoma characterized by hypoglycemia and increased plasma insulin concentration.

Detecting drugs that stimulate insulin secretion

If hypoglycemia is the result of 1 of these drugs, the test will detect the drug at physiologically significant concentrations in serum during an episode of hypoglycemia.

Drugs detected by this procedure are:

- The first-generation sulfonylureas—acetohexamide, chlorpropamide, tolazamide, and tolbutamide

- The second-generation sulfonylureas—glimepiride, glipizide, and glyburide

- The meglitinide—repaglinide

Drugs designed to make tissues more sensitive to insulin that do not induce hypoglycemia, such as pioglitazone, rosiglitazone, and troglitazone (recently withdrawn from the United States market) are not included in this screen test.

Drugs that lower blood glucose through mechanisms not related to stimulation of insulin secretion, such as acarbose, metformin, and miglitol are not included in this screen test.

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

NY State Available
Yes

Specimen

Specimen Type
Serum Red

Specimen Required
Collection Container/Tube: Red top
Submission Container/Tube: Plastic vial

Specimen Volume: 3 mL

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

Specimen Minimum Volume
1.1 mL
Test Definition: HYPOG
Hypoglycemic Agent Scrn, S

Reject Due To

<table>
<thead>
<tr>
<th>Condition</th>
<th>Result</th>
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</thead>
<tbody>
<tr>
<td>Gross hemolysis</td>
<td>OK</td>
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<tr>
<td>Gross lipemia</td>
<td>Reject</td>
</tr>
<tr>
<td>Gross icterus</td>
<td>Reject</td>
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</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>Serum Red</td>
<td>Frozen (preferred)</td>
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<tr>
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<td>Ambient</td>
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<tr>
<td></td>
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Clinical and Interpretive

Clinical Information
The metabolic and hormonal profiles of insulinoma and sulfonylurea-induced hypoglycemia are identical. Therefore, in the evaluation of the hypoglycemic patient, the possible use of oral hypoglycemic agents as the cause for low blood glucose and elevated plasma insulin must be considered. Absence of hypoglycemic drugs in blood serum during an episode of low blood glucose should be demonstrated before considering pancreatic exploration for suspected insulinoma.

Reference Values

**ACETOHEXAMIDE**
Negative: <1,000 ng/mL

**CHLORPROPAMIDE**
Negative: <1,000 ng/mL

**TOLAZAMIDE**
Negative: <20 ng/mL

**TOLBUTAMIDE**
Negative: <50 ng/mL

**GLIMEPIRIDE**
Negative: <20 ng/mL

**GLIPIZIDE**
Negative: <3 ng/mL
GLYBURIDE
Negative: <3 ng/mL

REPAGLINIDE
Negative: <3 ng/mL

**Note:** The report indicates a specific drug is **positive** if that drug is detected at a concentration greater than the sensitivity limit. The test sensitivity limit listed for each drug is lower than the concentration that will cause increased insulin and decreased glucose.

**Interpretation**
Use of hypoglycemic agents outside of the context of treatment of type 2 diabetes is likely to cause hypoglycemia associated with elevated plasma insulin. Patients presenting with hypoglycemia due to ingestion of a first-, second-, or third-generation hypoglycemic agent will have drug present in serum greater than the minimum effective concentration (see Reference Values). Presence of drug indicates that the patient has recently ingested a hypoglycemic agent.

**Cautions**
Proper interpretation requires that the blood specimen be drawn during or close to the time of a hypoglycemic episode. Drugs will not be detected (and are not likely to be present) if blood is drawn when blood glucose is normal in nondiabetic patients.

All drugs that stimulate insulin secretion undergo extensive metabolism before excretion. The parent drug is therefore not present in urine. Blood serum is the specimen of choice for detecting use of the hypoglycemic drugs: urine or plasma is not an acceptable specimen.

This test is not intended for therapeutic drug monitoring.

**Clinical Reference**

**Performance**

**Method Description**
Serum specimens are subjected to organic extraction. The extract is analyzed by liquid chromatography-tandem mass spectrometry. (Unpublished Mayo information)

**PDF Report**
No

**Day(s) and Time(s) Test Performed**
Monday, Wednesday, Friday (9 a.m. cutoff)

**Analytic Time**
2 days

**Maximum Laboratory Time**
8 days
Performing Laboratory Location
Rochester

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 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 U.S. Food and Drug Administration.

CPT Code Information
80307

LOINC® Information

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<tr>
<th>Test ID</th>
<th>Test Order Name</th>
<th>Order LOINC Value</th>
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<tbody>
<tr>
<td>HYPOG</td>
<td>Hypoglycemic Agent Scrn, S</td>
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<table>
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