Overview

Useful For
Monitoring serum hydroxychloroquine concentrations, assessing compliance, and adjusting dosage in patients

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 (gel tubes/SST are not acceptable)

Submission Container/Tube: Plastic vial

Specimen Volume: 1 mL

Collection Instructions:
1. Collect specimen immediately before next scheduled dose.
2. Centrifuge and aliquot serum into plastic vial within 2 hours of collection.

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>Gross hemolysis</th>
<th>OK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross lipemia</td>
<td>OK</td>
</tr>
<tr>
<td>Gross icterus</td>
<td>OK</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>
</tr>
</thead>
<tbody>
<tr>
<td>Serum Red</td>
<td>Refrigerated (preferred)</td>
<td>28 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Frozen</td>
<td>28 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ambient</td>
<td>21 days</td>
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## Clinical and Interpretive

### Clinical Information

Hydroxychloroquine is an antimalarial drug used to treat or prevent malaria. It is highly effective against erythrocytic forms of *Plasmodium*, but not effective against exoerythrocytic forms of parasites. Hydroxychloroquine is also used to treat symptoms of acute or chronic rheumatoid arthritis and systemic lupus erythematosus (SLE).

Adult doses range from 400 mg/week for suppressive therapy to 1200 mg/day for acute malaria attacks. Typical daily doses of 200 to 600 mg are used for SLE and rheumatoid diseases. Hydroxychloroquine has a long terminal elimination half-life in blood (>40 days), which exceed those in plasma. The oral bioavailability averages 75%.

Hydroxychloroquine accumulates in several organs, especially melanin-containing retina and skin. Mild to moderate overdose can result in gastrointestinal effects (ie, nausea, vomiting, and abdominal pain), headache, visual and hearing disturbances, and neuromuscular excitability. Acute hepatitis, cardiotoxicity, and retinopathy may occur with therapeutic doses. The effects of overdosage with hydroxychloroquine include headache, drowsiness, visual disturbances, convulsions, cardiovascular collapse, and respiratory arrest. Toxic retinopathy has also been associated with higher doses and longer duration of use.

### Reference Values

For suppressive treatment of malaria, suggested plasma or serum concentrations should be >10 ng/mL.

For systemic lupus erythematosus, proposed serum target concentrations should be > or =500 ng/mL.

### Interpretation

The serum concentration should be interpreted in the context of the patient's clinical response and may provide useful information in patients showing poor response, noncompliance, or adverse effects. Concentrations less than 106 ng/mL have been associated with non-compliance.

### Cautions

Specimens that are obtained from serum gel tubes are not acceptable, as the drug can absorb on the gel and lead to falsely decreased concentrations.

Hydroxychloroquine is currently under investigational use for the prevention or post-exposure prophylaxis and treatment of coronavirus disease 2019 (COVID-19); the safety and efficacy of its use has not been established.

### Clinical Reference


Test Definition: HCQ
Hydroxychloroquine, S


7. Disposition of Toxic Drugs and Chemicals in Man. 10th ed. Biomedical Publications; 2014


Performance

Method Description
Samples are extracted with analyte detection by tandem mass spectrometry. (Unpublished Mayo method)

PDF Report
No

Day(s) and Time(s) Test Performed
Sunday, Tuesday, Thursday; 11:59 p.m.

Analytic Time
1 day

Maximum Laboratory Time
7 days

Specimen Retention Time
14 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
80375
G0480 (if appropriate)

LOINC® Information

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<td>HCQ</td>
<td>Hydroxychloroquine, S</td>
<td>3684-8</td>
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<table>
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<td>Hydroxychloroquine, S</td>
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