### Ordered Items

**Ustekinumab and Anti-Ustek Ab**

<table>
<thead>
<tr>
<th>TESTS</th>
<th>RESULT</th>
<th>FLAG</th>
<th>UNITS</th>
<th>REFERENCE INTERVAL</th>
<th>LAB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ustekinumab</strong></td>
<td>5.0</td>
<td></td>
<td>ug/mL</td>
<td>01</td>
<td></td>
</tr>
</tbody>
</table>

Quantitation Limit: <0.1 ug/mL

Results of 0.1 ug/mL or higher indicate detection of ustekinumab.

**COMMENTS:**

- **Induction levels in Crohn's Disease:**
  - Patients who received IV 130 mg or 6 mg/kg had median trough concentrations of 2.1 ug/mL and 6.4 ug/mL, respectively, at week 8 in UNITI trials.\(^1\)

- **Maintenance levels:**
  - Of UNITI patients with trough levels greater than 1.1 ug/mL, about 80% achieved clinical remission (HBI < 5) and about 50% attained CRP normalization.\(^2\)
  - Higher maintenance concentrations, greater than 4.5 ug/mL (achieved with q8wk or q4wk dosing after SQ induction), may be necessary for endoscopic response (SES-CD score reduction >=50%).\(^3\)
  - Trough levels predictive of mucosal healing and fistula healing have yet to be determined.

- **In plaque psoriasis,** median trough ustekinumab concentrations were 0.4 ug/mL at weeks 14 and 28 (ranging from undetectable to 3.6 ug/mL).\(^4\) Although PASI50 responders had higher trough concentrations than non-responders in a study of 76 patients, a definitive therapeutic target range for psoriasis has yet to be established.\(^5\)

- As with other biologics, the optimal drug concentration depends upon patient-specific factors including co-morbidities, disease and desired therapeutic endpoint.

- This ustekinumab drug assay measures the free fraction of ustekinumab (antibody-unbound ustekinumab) when serum anti-ustekinumab antibodies are present.

| Anti-Ustekinumab Antibody | <40 | ng/mL | 01 |

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\(^1\) data from: Internal Laboratory Reports

\(^2\) data from: Internal Laboratory Reports

\(^3\) data from: Internal Laboratory Reports

\(^4\) data from: Internal Laboratory Reports

\(^5\) data from: Internal Laboratory Reports
Quantitation Limit: < 40 ng/mL
Results of 40 ng/mL or higher indicate detection of anti-ustekinumab antibodies.

COMMENTS:
- This anti-ustekinumab antibody assay is drug-tolerant, i.e. the detection of anti-ustekinumab antibodies is not impeded by the presence of ustekinumab in serum.
- All positive anti-ustekinumab antibody results are verified by a confirmatory test.
- The concomitant free ustekinumab drug concentration (reported above) is the pharmacodynamically active drug when anti-ustekinumab antibodies are present.
- Serial measurements over time may be helpful to assess the impact of immunogenicity on the free drug level.
- In the IM-UNITI trial, the incidence of anti-ustekinumab antibodies in Crohn's Disease at 1 year was 2.3%.(1)
- In psoriasis, anti-ustekinumab antibodies occurred in 4-6% of patients.(6)

References:

These tests were developed and their performance characteristics determined by LabCorp. They have not been cleared or approved by the Food and Drug Administration.

However, both drug and anti-drug antibody assays have been developed and validated in accordance with FDA Guidance for Industry documents: Bioanalytical Method Validation (2013) and Assay Development and Validation for Immunogenicity Testing of Therapeutic Protein Products (2016).
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