
Lab Dept: Chemistry

Test Name: L-ASPARAGINASE ACTIVITY

General Information

Lab Order Codes: LASP

Synonyms: Asparaginase Level; L-Asparaginase Assay

CPT Codes: 82657 x2 – Enzyme activity in blood cells, cultured cells, or tissue, not elsewhere specified; nonradioactive substrate, each specimen

Test Includes: L-Asparaginase activity reported in mIU/mL.

Logistics

Test Indications: To monitor levels of L-asparaginase in patients treated with pegylated or non-pegylated L-asparaginase drug substances including Oncaspar, Elspar, Kidrolase, Erwinase or Asparlas.

L-asparaginase is a high molecular weight enzyme which often induces an immune response in a significant percentage of treated patients. As a result, hypersensitivity to L-asparaginase is a clinically relevant issue regardless of the source from which the drug is prepared

There are two forms of hypersensitivity to asparaginase in the clinic. Clinical hypersensitivity ranges from a mild local rejection to full blown anaphalaxis. Since asparaginase derived from E.coli is frequently used as first treatment, patients who develop such a reaction are switched to Erwinaze (derived from Erwinia chrysanthemi) to continue their treatment because of a lack of cross-reactivity of anti-E.coli antibodies to Erwinaze. The second form of hypersensitivity is when antibodies are formed, but the patients do not experience any clinical signs of hypersensitivity. Yet these antibodies can either inactivate the enzyme or enhance the metabolism of asparaginase such that the patient may not have adequate serum/plasma activity levels to achieve an anti-leukemic effect (often referred to as “silent inactivation” or “silent hypersensitivity”).

Testing will help clinicians identify these patients as well as to ensure adequate asparaginase activity is present during asparaginase treatment. The patient sample is obtained after treatment to be submitted for the L-Asparaginase assay.

Lab Testing Sections: Chemistry – Sendouts

Referred to: Next Molecular Analytics, Chester, VA

Phone Numbers: MIN Lab: 612-813-6818

STP Lab: 651-220-6550

Test Availability: Daily, 24 hours

Turnaround Time: 2 – 4 days

Special Instructions: N/A

Specimen

Specimen Type: Blood

Container: SST (Gold, marble or red top)

Draw Volume: 2 mL blood

Processed Volume: 0.6 mL (Minimum: 0.3 mL) serum.

Collection: Routine venipuncture (following treatment with L-asparaginase)

Note: Leave the stopper intact throughout collection and centrifugation.

Special Processing: Lab Staff:
1. If using as SST tube, invert the tube gently 5 times..
2. Remove stopper avoiding serum contamination with red cells. Using a disposable pipette, transfer a portion of the serum sample into a labeled specimen transfer tube. **Make sure to transfer at least 0.3 mL of serum.**
3. Record the sample collection date/time and sample type on the sample submission form/requisition as well as the time and date of the last asparaginase administration. Indicate pre or post sample.
4. Send samples Monday-Thursday overnight express. Specimens can be held at refrigerated temperatures up to 5 days if necessary.

Patient Preparation: Post-treatment with L-asparaginase

Sample Rejection: Mislabeled or unlabeled specimens

Interpretive

Reference Range: None, physician evaluation

Critical Values: N/A

Limitations: N/A

Methodology: Coupled enzymatic assay

References:

[Next Molecular](#) August 2017

Update:

11/29/22: Added drug Asparlas to test per reference lab.