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**Lab Dept:** Chemistry

**Test Name:** SUCCINYLACETONE, BLOOD SPOT

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***General Information***

**Lab Order Codes:** SUAC

**Synonyms:** Tyrosemia Type I; Tyr 1; SUAC

**CPT Codes:** 82542 - Column chromatography, includes mass spectrometry, if performed, non-drug analyte not elsewhere specified

84510 - Assay of Tyrosine

**Test Includes:** Quantitative results for tyrosine and succinylacetone with reference values. When applicable, reports of abnormal results may contain an interpretation based on available clinical information.

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***Logistics***

**Test Indications:** Second-tier newborn screen for tyrosinemia type 1 (HT-1) when primary screen showed nonspecific elevations of tyrosine.

Diagnosing HT-1 when used in conjunction with testing for urine organic acids, liver function, alpha-fetoprotein, and molecular genetic analysis of *FAH*

The preferred test for diagnosis and monitoring of patients with tyrosinemia type 1 is TYRBS / Tyrosinemia Follow Up Panel, Blood Spot.

**Lab Testing Sections:** Chemistry - Sendouts

**Referred to:** Mayo Clinic Laboratories (Mayo Test Code: SUAC)

**Phone Numbers:** MIN Lab: 612-813-6280

STP Lab: 651-220-6550

**Test Availability:** Daily, 24 hours (performed by reference lab Monday through Friday)

**Turnaround Time:** 3 – 6 days

**Special Instructions:** Please follow collection information carefully to ensure a quality specimen is collected.

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***Specimen***

<b>Specimen Type:</b>	Blood
<b>Container:</b>	Card-Blood Spot Collection (Filter Paper) (Mayo supply T493 preferred)  Alternative: Whatman Protein Saver 903 Paper, PerkinElmer 226 (formerly Ahlstrom 226) filter paper, Munktell filter paper, or blood collected in tubes containing EDTA and dried on filter paper.
<b>Draw Volume:</b>	2 blood spots filled (Minimum: 1 blood spot filled)
<b>Collection:</b>	Warm the hand/heel being used for blood collection. Sterilize heel skin or finger with rubbing alcohol, dry, and puncture with sterile lancet not longer than 2 mm. Wipe away the first drop of blood with gauze. Allow large drops to form and apply directly to filter paper. Completely fill all circles with blood to allow saturation through the paper. Filled circles should appear the same on both sides of the paper. Send to lab to dry.  <ul style="list-style-type: none"> <li>• Do not squeeze tissue to obtain blood.</li> <li>• Do not use devices that contain EDTA or capillary tubes.</li> <li>• Do not apply specimen to both sides of filter paper.</li> </ul>
<b>Special Processing:</b>	Allow blood to dry at room temperature in a horizontal position for 3 or more hours. Do not stack wet specimens or expose to heat. Forward promptly when dried, preferably within 24 hours of collection.  Blood spot specimens stable at room temperature (preferred) for 7 days, refrigerated for 14 days, frozen for 90 days.  See reference lab catalog for alternative specimen type option.
<b>Sample Rejection:</b>	Incompletely filled blood spots; layered blood spots; insufficient or multiple applications of blood spots; presence of serum rings; blood spots from specimens collected in EDTA; specimens collected on unapproved filter papers; unlabeled or mislabeled specimens.

### ***Interpretive***

<b>Reference Range:</b>	An interpretive report will be provided SUCCINYLACETONE $\leq 1.0$ nmol/mL  TYROSINE <4 weeks: 40 - 280 nmol/mL $\geq 4$ weeks: 25 - 150 nmol/mL  Elevations of succinylacetone (SUAC) above the reference range with or without elevations of tyrosine (TYR) are indicative of tyrosinemia type 1.  Elevations of TYR above the reference range without elevations of SUAC may be suggestive of tyrosinemia type II, type III, transient hypertyrosinemia of the neonate, or nonspecific liver disease.
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**Critical Values:** N/A

**Limitations:** Normal levels may be seen in affected individuals undergoing treatment.  
In rare cases of tyrosinemia type I, tyrosine or succinylacetone may not be elevated.

**Methodology:** Liquid Chromatography Tandem Mass Spectrometry (LC-MS/MS)

**References:** [Mayo Clinic Laboratories](#) (February 2024)

**Updates:** 2/20/2023: Updated analyte and reference ranges, added specimen stability  
2/27/2024: Updated reference ranges and specimen stability.