

---

*The previously announced effective date of May 5, 2022 has been changed to June 28, 2022.*

---

## T-Cell Receptor Excision Circles Analysis, Blood

**Test ID:** TRECS

**Useful for:**

- Measuring T-cell output or reconstitution (thymopoiesis) following hematopoietic cell transplantation or highly active antiretroviral therapy
- Evaluating thymic function in patients with cellular or combined inborn errors of immunity (formerly primary immunodeficiencies), or receiving immunotherapy or cancer vaccines
- Assessing T-cell recovery following thymus transplants for DiGeorge syndrome

**Methods:**

Real-Time Quantitative Polymerase Chain Reaction (PCR)

**Reference Values:**

The appropriate age-related reference values will be provided on the report.

**Specimen Requirements:**

For serial monitoring, it is recommended to perform specimen collection at the same time of day, if possible.

**Supplies:** Ambient Shipping Box-Critical Specimens Only (T668)

**Container/Tube:** Lavender top (EDTA)

**Specimen Volume:** **Adults:** 10 mL  
**Pediatrics:** >1 year: 5 mL, < or =1 year old: 3 mL

**Collection Instructions:** 1. **Do not collect specimen using a butterfly needle.**  
2. Send whole blood specimen in original tube. **Do not aliquot.**

**Minimum Volume:** Adults: 10 mL  
Pediatrics: >1 year old: 5 mL, <1 year old: 1 mL

### Shipping Instructions:

- **Specimens must be received in the laboratory on weekdays and by 4 p.m. on Friday.** Collect and package specimen as close to shipping time as possible.
- It is recommended that specimens arrive within 24 hours of collection.
- Samples arriving over the weekend or on observed holidays may be canceled.

### Note:

- Ordering physician's name and phone number are required.
- **[TREC Assay Patient Information](#) (T589) is required.** Testing will proceed without the form; however, results will be held under the information is received

### Specimen Stability Information:

Specimen Type	Temperature	Time	Special Container
Whole Blood EDTA	Ambient	48 hours	Purple or Pink EDTA

### Cautions:

While indicative of thymic function and T-cell recovery, T-cell receptor excision circle (TREC) results cannot be taken as a direct measure of thymic output because TRECs are diluted by peripheral T-cell division and intracellular degradation. In addition, the longevity of naive T cells in the periphery precludes TREC from being regarded as recent thymic emigrants. The assay provides a quantitative measure of TREC, ie, TREC copies per million CD3 T cells; however, this number should be regarded as a relative, rather than absolute, number because of the caveats explained above.

The TREC assay should not be ordered on adults over age 60 due to physiological decline in thymic function in the sixth and seventh decades of life.

Assay results are dependent on the patient's T-cell counts and in patients with profound lymphopenia it may be impossible to perform the assay if there are insufficient numbers of cells.

Temperature and time are critical to the performance of the assay. Temperatures that exceed or drop below 20 to 25 degrees C can dramatically affect the assay. High temperatures can cause substantial hemolysis that will interfere with the methodology used to perform the assay. Transportation delays may result in significant TREC degradation.

Consistency in timing of blood collection is critical when serially monitoring patients for lymphocyte subsets. See Clinical Information.

### CPT Code:

81479-Unlisted molecular pathology procedure

**Day(s) Performed:** Varies

**Report Available:** 6 to 8 days

### Questions

Contact Michelle Rath, Laboratory Technologist Resource Coordinator at 800-533-1710.