

# T-Cell Clonality

## Indication for Ordering

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Diagnosis of T-cell lymphoproliferative disorders

## Test Description

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- DNA extracted from whole blood, bone marrow, formalin-fixed, paraffin-embedded (FFPE) tissue, or fresh/frozen tissue
- Polymerase chain reaction (PCR) amplification of TCRG gene rearrangements
- PCR/capillary electrophoresis

## Tests to Consider

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### Primary test

[T-Cell Clonality Screening by PCR 0055567](#)

- Aid in diagnosis of T-cell lymphoproliferative disorders

### Related tests

[T-Cell Clonality by Flow Cytometry Analysis of TCR V-Beta 0093199](#)

- Aid in diagnosis of T-cell lymphoproliferative disorders

[Leukemia/Lymphoma Phenotyping by Flow Cytometry 2008003](#)

- Aid in evaluation of hematopoietic neoplasms (ie, leukemia, lymphoma)
- Monitor therapy in patients with established diagnosis of hematopoietic neoplasms

## Disease Overview

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### Incidence

T-cell lymphomas account for ~15% of all non-Hodgkin's lymphomas (Blood, 2016)

### Diagnostic issues

- T-cell lymphoproliferative disorders may be a diagnostic challenge
- T-cell clonality testing aids in distinguishing between benign and reactive T-cell populations

## Genetics

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### Gene – *TCRG*

### Structure/function

- *TCRG* gene rearrangements occur in early T-cell lymphoid differentiation
- Polyclonal rearrangements are characteristic of either benign or reactive disease
- Monoclonal rearrangements are characteristic of T-cell lymphoproliferative disorders

## Test Interpretation

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**Analytical sensitivity** – one clonal cell in a background of 8 polyclonal cells, or 12.5%.

### Results

- Detected – there is a detectable monoclonal T-cell receptor gamma gene rearrangement by PCR analysis
- Not detected – there is no evidence of a monoclonal T-cell population by PCR analysis

### Limitations

Clonal *TCRG* gene rearrangements below the limit of detection will not be reported

## References

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Swerdlow SH, Campo E, et al. The 2016 revision of the World Health Organization classification of lymphoid neoplasms. *Blood*. 2016;127:2375-2390