



# UNIVERSITY OF ILLINOIS

## Hospital & Health Sciences System

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**Department of Pathology**

**Laboratory Alert**

**June 16, 2016**

**Lab Alert – Chimerism Assay by STR Analysis**

Effective immediately, the molecular Pathology laboratory will change the method to analyze chimerism in post-transplant specimens from real time PCR to Short tandem repeat (STR) analysis. The change is necessary because real time PCR reagents are no longer available from the manufacturer.

**Test Procedure:**

DNA is extracted from the donor, pre-transplant recipient and post-transplant specimens. Chimerism analysis is performed by multiplex PCR amplification of Short tandem repeat loci (STR, Promega PowerplexFusion, 24 loci) followed by capillary electrophoresis. Recipient specific informative loci are identified. Data is analyzed by Genemapper 5.0 software using informative allele peak areas. Mean percent recipient DNA in the post-transplant sample obtained from all informative loci is reported.

Lineage specific analysis: CD3 positive T cells or CD33 positive myeloid cells are isolated by positive selection using anti-CD3 or anti-CD33 coated magnetic particles. DNA is extracted and analyzed for chimerism by STR.

**Specimen requirements**

- **Pre-transplant recipient sample** : Peripheral blood, lavender top tube (EDTA anti-coagulant), 10ml
- **Donor sample** : Peripheral blood, lavender top tube (EDTA anti-coagulant), 5ml
- **Post-transplant recipient sample** : Peripheral blood, lavender top tube (EDTA anti-coagulant)  
10ml - for total DNA analysis  
10ml – for Lineage specific analysis  
Bone marrow, lavender top tube (EDTA anti-coagulant), 3-5ml

**Result reported** : % recipient DNA

**Analytical sensitivity** : 3% recipient DNA in the post-transplant specimen

**Reportable range** : 3 – 100% recipient DNA

**Turn around time** : 10 days, excluding weekends

**Please note:**

STR analysis is a widely used method to determine chimerism in post-transplant specimens. Our validation study showed that the results from STR analysis correlated closely with real time PCR results. Although the chimerism values correlated well, the actual percentages may vary due to methodologic differences.

**For questions about the molecular test results, please contact:**

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