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Monitoring the state of

HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT)

introducing

Chimerism Testing

- **Patients** with hematopoietic cell transplantation require engraftment to be monitored in the post transplantation period for an estimate of donor and recipient cells.
- **Chimerism testing** (engraftment analysis) is an important investigation in hematopoietic stem cell transplantation where donor/recipient chimerism is monitored by analysing the genomic polymorphisms called Short Tandem Repeat (STR) loci

Test Highlights

- Involves polymerase chain reaction (PCR) of short tandem repeats, with analysis by either capillary electrophoresis or acrylamide gel electrophoresis to quantify the proportion of donor-recipient DNA in peripheral blood cells
- 16 autosomal STR markers were used to detect the donor/recipient chimerism
- Donor chimerism is reported as % of donor cells represented in recipient
- Report includes separate graphs for peripheral blood and bone marrow showing percent of donor chimerism for subsets over post-transplant sample collection

How does it help in **Patient Care?**

Performed for patients who have undergone **allogeneic hematopoietic stem cell transplantation**

Post-transplant therapies monitoring by detecting genetic differences between recipient and donor

To assess adverse clinical outcomes: failure of engraftment and increased risk of relapse

Differentiate donor cell populations in recipients who have received multiple transplants

Document presence of donor cells in post-transplant patient with residual disease or prior to donor lymphocyte infusion (DLI)

Post-Transplant Monitoring Using STR Analysis

Determine the relationship between two potentially related individuals for

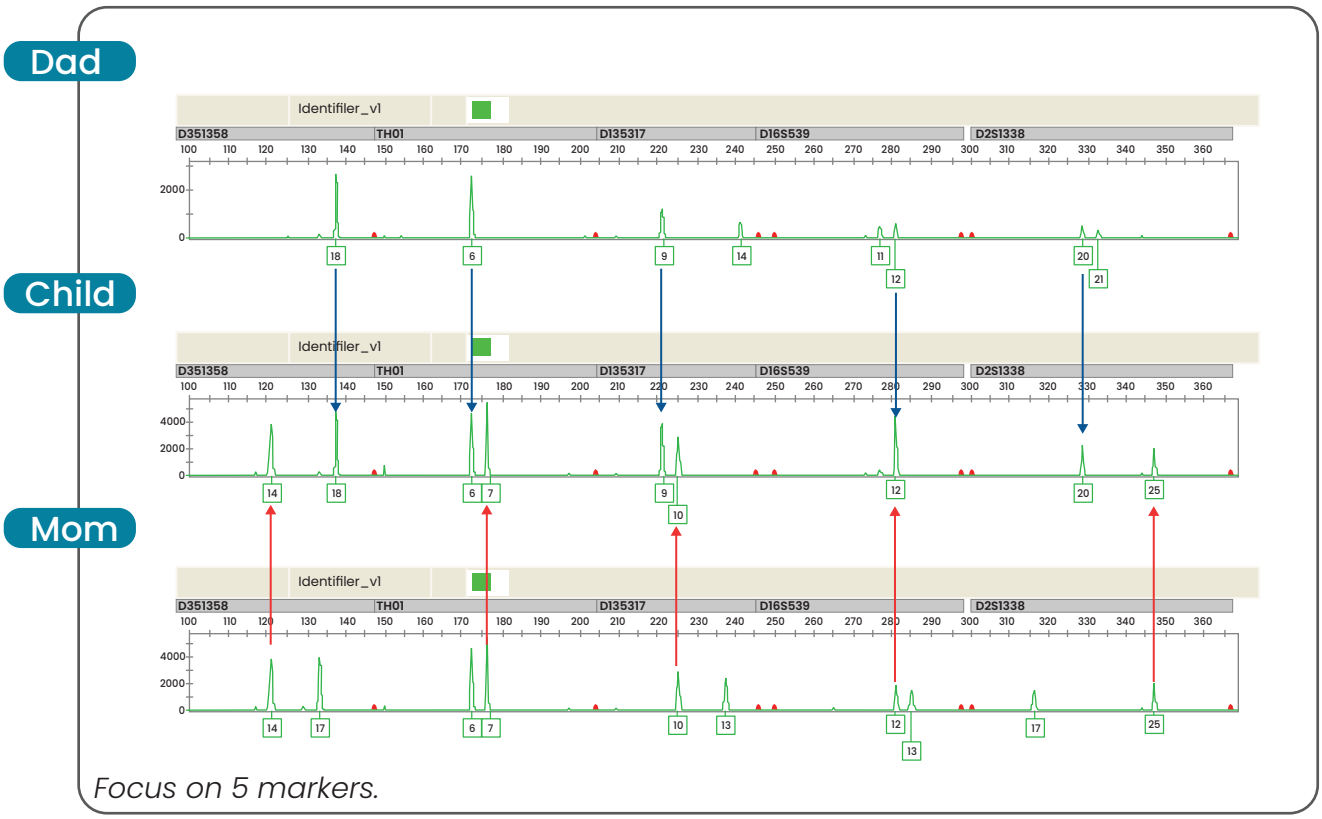
transplant by kinship analysis

Kinship Analysis

Kinship analysis is used to determine the biological relationship among genetically related persons, especially first-degree relationships.

16 Autosomal short tandem repeats (STR) are the genetic markers used for human identification in cases of kinship determination.

Obtaining DNA profile with capillary electrophoresis method is used to identify the genetically related person.



Focus on 5 markers.

Test ordering information

Test code	Test Name	Specimen type	Technique	TAT
GEN0723	Kinship Analysis	2ml peripheral blood in EDTA tube	STR/Fragment Analysis	Daily by 6:00 PM, Report 7 Days
C0130	Chimerism Monitoring Panel (Pre Transplant)	2ml peripheral blood in EDTA tube	STR/Fragment Analysis	
C0130a	Chimerism Monitoring Panel (Post Transplant)	2ml peripheral blood in EDTA tube	STR/Fragment Analysis	
T0055	T Cell (CD3+) Chimerism	2 ml Heparin Blood	Fragment Analysis STR	
B0061	Bcell (CD19+) chimerism	2 ml Heparin Blood	Fragment Analysis STR	
M0082	Myeloid cell chimerism	2 ml Heparin Blood	Fragment Analysis STR	
F0073	FISH for Sex chromosome mismatch XX/YY(Post BMT)	2-3 ml bone marrow/peripheral blood in sodium heparin (Green top) tube	FISH	5 Days

Chimerism Analysis Report

PRE-TRANSPLANT DETAILS

Patient Details

Name :	Ms. ID_DUMMY	Collected on :	00.00.0000
Age/Gender :	26 Years /F	Received on :	00.00.0000
Lab ID/CRM number :	20156254100	Diagnosis :	xxxxxxxxx
Specimen :	xxxxxxxx	Referring Clinician :	xxxxxxxxx
Sample quality/quantity :	xxxxxxxx 5ml		

Donor Details

Name :	Ms. ID_DUMMY	Sample quality/quantity :	xxxx 5ml
Age/Gender :	28 Years /F	Collected on :	00.00.0000
Lab ID/CRM number :	20156254540	Received on :	00.00.0000
Specimen :	xxxxxxxx	Report Date :	00.00.0000

POST -TRANSPLANT DETAILS

Name : xxxxxxxxxxxxxxxx | Transplant Date : 00.00.0000 | Lab ID/CRM number : 00024545001

Collected on : 00.00.0000 | Specimen : xxxxxxxxxxxx | Received on : 00.00.0000

RESULT

Donor Chimerism : XXXXXXXXXXXX

Recipient Chimerism : XXXXXXXXXXXX

INTERPRETATION

97% donor chimerism was observed in post-transplant sample of (PATIENT NAME)

BACKGROUND

This program is for laboratories that monitor engraftment chimerism in patients who have undergone allogeneic hematopoietic stem cell (progenitor cell) transplantation. Analysis of engraftment chimerism is helpful in assessing 2 separate adverse clinical outcomes: failure of engraftment and increased risk of relapse. The standard methodology involves polymerase chain reaction (PCR) of short tandem repeats, with analysis by either capillary electrophoresis or acrylamide gel electrophoresis to quantify the proportion of donor-recipient DNA in peripheral blood cells

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