



Molecular Diagnostic Laboratory
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Bone Marrow Transplant Engraftment Studies

Short tandem repeat (STR) polymorphic DNA markers used to distinguish patient from donor.

Indications for Molecular Testing

- Allogeneic, HLA-matched hematopoietic stem cell transplantation (BMT) related or non-related donor. Donor and recipient specific DNA fragment patterns are utilized to distinguish the origins of each cell population.

Testing Methodology

Short tandem repeat (STR) polymorphic DNA markers are amplified by polymerase chain reaction (PCR) using the Promega PowerPlex 16 HS System, labeled with fluorescent markers and used to distinguish patient and donor cells as different on a Capillary Electrophoresis Fluorescence Detection instrument.

STR markers used in analysis include: D3S1358, TH01, D21S11, D18S51, Penta E, D5S818, D13S317, D7S820, D16S539, CSF1PO, Penta D, Amelogenin, vWA, D8S1179, TPOX, and FGA. (PCR is utilized pursuant to a license agreement with Roche Molecular Systems, Inc.)

Interpretation of DNA analysis

Short Tandem Repeat (STR) analysis is performed for bone marrow transplant patients and donors prior to transplant to determine identification markers to distinguish between patient and donor (STR Comprehensive testing). STR analysis is also performed for patients post-transplant to monitor engraftment over time (STR Identity testing) and to determine engraftment levels in myeloid and lymphoid cells (STR Enrichment testing).

Amelogenin distinguishes X and Y chromosomes and may be used when the patient and donor are not of the same gender. Enriched subpopulations of hematopoietic cells (E.g. T lymphocytes and myeloid cells) may also be assayed. Please call lab for details 314-454-8685.

Specimen Requirements

Peripheral Blood--1 lavender-top (EDTA) tube. Invert several times to mix blood.

Bone Marrow--Place 1-2 mL of anticoagulated bone marrow in a lavender-top (EDTA) tube. Invert several times to mix bone marrow. Do not freeze, forward promptly at ambient temperature.

Buccal swab, **cord blood**, and **frozen tissue** may substitute for pre-transplant samples, call lab for details 314-454-8685.

Molecular Diagnostic Laboratory
Barnes-Jewish Hospital, Institute of Health
Mail Stop 90-28-344
425 South Euclid Avenue, Room 5970
St. Louis, MO 63110

Clinical information must be provided with specimen referral in order to correctly interpret test results.

Current Pricing

Contact Laboratory Customer Service for current pricing 314-362-1470.

CPT code for STR comprehensive (Pre-testing): 81265

CPT code for STR Identity testing (Post testing): 81267

CPT code for STR enrichment: 81268

Au WY, Chan EC, Lie AKW, Liang R, Leung AYH, Ma SK, Kwong YL. Poor engraftment after allogeneic bone marrow transplantation: role of chimerism analysis in treatment and outcome. Ann Hematol 2003; 82:410-415