

**UCLA DIAGNOSTIC MOLECULAR PATHOLOGY LABORATORY**  
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**Bone Marrow Transplant Engraftment Analysis**

**↑CPT**

BMT post-transplant: 83891; 84311; 83900 (x6); 83901 (x6); 83909 (x6); 83912

BMT post-transplant follow-up: 83890; 83900 (x6); 83901 (x6); 83909 (x6); 83912

Donor: 83891; 84311

Pretransplant recipient: 83891; 84311

**↑Related Information**

**↑Synonyms**

Bone Marrow Chimerism; Bone Marrow Engraftment Monitoring

**↑Test Includes**

Pretransplant, post-transplant, and donor specimen genotyping

**↑Laboratory**

Molecular Pathology

**↑Availability**

Monday-Friday, 0700-1700

**↑Turnaround Time**

3-14 days after receipt all of the pretransplant, donor and post-transplant specimens in the Laboratory

**↑Specimen**

Bone marrow, blood

**↑ Volume**

4 mL

**↑ Container**

Lavender top (EDTA) tube

**↑ Storage Instructions**

All specimens should be sent to the Laboratory immediately after collection, preferably by overnight delivery. Specimens should be kept at room temperature or refrigerated but not frozen.

**↑ Causes for Rejection**

Blood samples frozen and thawed will yield low quality DNA; specimens inadequately identified. Cases which do not include a donor specimen or a pretransplant recipient specimen are uninterpretable.

**↑ Reference Range**

Donor DNA present; recipient DNA presence excluded to a level of 5%. By observing donor and/or recipient-specific DNA patterns in the post-transplant specimen, engraftment, nonengraftment, or partial engraftment (mixed chimerisms) can be determined. In the case of a mixture, the relative proportions of donor and recipient DNA can be estimated semiquantitatively by comparing intensity of the donor and recipient DNA peaks.

**↑ Use**

A useful tool for determining whether or not a bone marrow transplant has engrafted is a PCR method comparing the DNA pattern from the recipient to that of the donor, and establishing a polymorphism to differentiate between the recipient and the donor DNA. By sampling the DNA from the recipient 10-30 days after transplant and comparing it to the donor, we are able to tell the degree of engraftment or nonengraftment.

**↑ Limitations**

Very rarely it may be difficult or impossible to detect a polymorphic difference between the donor and recipient DNA, especially in sibling transplants. Use of the PCR method will sometimes reveal trace amounts of recipient DNA post-transplant that are of uncertain clinical significance, perhaps representing bone marrow stromal cells.

## **↑ Methodology**

Polymerase Chain Reaction (PCR) analysis of polymorphic short tandem repeats to distinguish recipient from donor DNA

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