

TEST: Chromosome analysis, bone marrow

DESCRIPTION: 24 hour unstimulated culture of bone marrow cells to produce metaphase cells for Giemsa-banded chromosome analysis. Depending upon the amount of sample and the clinical situation, other cultures may also be set up. For acute leukemias an over night unstimulated culture is also set up. A 3 day pokeweed stimulated culture is also set up for chronic B-cell malignancies and a 3 day PHA stimulated culture is set up chronic T-cell malignancies. Cytogenetic examination includes detailed analysis of 20 cells and preparation of at least 3 karyograms. Often fluorescence in situ hybridization (FISH) analysis of interphase bone marrow cells is also performed to look for evidence of specific cancer gene rearrangements.

INDICATIONS:

- any suspected hematologic malignancy
- chronic myelogenous leukemia and other myeloproliferative disorders
- myelodysplastic syndrome
- acute myelogenous leukemia
- acute lymphocytic leukemia
- chronic lymphocytic leukemia and other chronic lymphoproliferative disorders
- lymphoma
- follow-up after chemotherapy / radiation therapy / bone marrow transplantation

SPECIMEN REQUIREMENTS:  $\geq 2$  cc bone marrow in a sodium heparin tube or 2 cc bone marrow with 0.3 cc sodium heparin in a red-top tube. Smaller sample volumes will be accepted but might not produce enough mitotic cells for a full cytogenetic study of 20 cells. If bone marrow cannot be aspirated occasionally a bone core specimen will produce mitotic cells. Invert collection tube several times to mix bone marrow with anticoagulant. Culture of clotted marrow often does not result in spontaneously dividing cells necessary for cytogenetic analysis. Other anticoagulants such as lithium heparin or EDTA may be detrimental to the preparation of metaphase cells. Specimen may be refrigerated. **Specimen must not be frozen.** Label tube with patient's name and medical record number. Send to CompGene at room temperature as soon as possible. Include a copy of a recent peripheral blood CBC with differential and indicate the suspected hematologic diagnosis on the Requisition for Chromosome Analysis form.

REFERENCE VALUE: 46,XX[20] or 46,XY[20]

TURN AROUND TIME: 1-7 days (usually 2 or 3 days) for chromosome analysis  
1 -2 days for fluorescence in situ hybridization (FISH) analysis

CPT CODES: 88237 - chromosome analysis, tissue culture for bone marrow  
88262 - chromosome analysis, hematologic disorders  
88291 - cytogenetic interpretation and report  
  
88271 - fluorescence in situ hybridization probes  
88275 - fluorescence in situ hybridization 100-300 cells