

TEST: Chromosome analysis, unstimulated peripheral blood

DESCRIPTION: 24 hour unstimulated culture of peripheral blood 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. 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 peripheral blood 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

Usually bone marrow is the specimen of choice for hematologic neoplastic disorders. However, patients with chronic myelogenous leukemia or acute leukemias often have an adequate number of spontaneously dividing cells the peripheral blood for cytogenetic analysis. In these cases there is usually a high WBC count with a significant percentage of blasts and/or other immature leukocytes. For chronic lymphocytic leukemia peripheral blood is the recommended specimen.

SPECIMEN REQUIREMENTS: 5-10 cc peripheral blood in a sodium heparin tube. Invert several times to mix anticoagulant with blood. Culture of clotted blood often does not result in spontaneously dividing cells which are necessary for cytogenetic analysis. Other anticoagulants such as lithium heparin or EDTA may be harmful to the viability of the cells. Specimen may be refrigerated. **Specimen must not be frozen.** Label with patient's name and medical record number. Send to CompGene at room temperature as soon as possible after collection. 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 fluorescent in situ hybridization (FISH) analysis

CPT CODES: 88230 - blood culture for chromosome analysis  
88262 - chromosome analysis, hematologic disorders  
88291 - cytogenetic interpretation and report

88271 - fluorescence in situ hybridization probes  
88275 - fluorescence in situ hybridization 100-300 cells