B-Acute Lymphoblastic Leukemia (ALL) FISH

**Test Code:** 7010  
**Department:** Cytogenetics

**Test Synonyms:**  
B-ALL FISH

**CPT Code(s):**  
88271 x 8  
88275 x 8

**Background:**

B-Acute Lymphoblastic Leukemia (ALL) is a disorder of B lymphoblasts that accounts for the vast majority of children with acute leukemia and a fraction of adults with acute leukemia. B-ALL is broadly categorized as either having recurrent genetic abnormalities or not; recurrent genetic abnormalities include both balanced translocations and aneuploidy (Swerdlow et al. 2008). This FISH panel is designed to detect the most common, and/or prognostically-significant abnormalities in B-ALL (Swerdlow et al. 2008). FISH studies are useful adjuncts to complete chromosome studies, particularly when following an abnormal clone, assessing relapse and progression, or when material is inadequate for chromosomal analysis.

The B-ALL FISH panel includes:

1) ETV6/RUNX1 dual-fusion probe, to detect t(12;21); this translocation is often cryptic by chromosome analysis.
2) BCR/ABL + ASS dual-fusion probe, to detect t(9;22) and variants.
3) MLL break-apart probe, to detect MLL (11q23.3) rearrangement; the specific rearrangement partner chromosome is not interrogated by FISH.
4-6) CEP 4/CEP 10/ CEP 17 enumeration probes, to detect hyperdiploidy involving trisomies of chromosomes 4, 10, and 17.
7) E2A break-apart probe, to detect E2A (19p13.3) rearrangement.
8) IGH break-apart probe, to detect IGH (14q32) rearrangement; the specific rearrangement partner chromosome is not interrogated by FISH.

**Note:** Interphase FISH analysis is not intended to stand alone, but rather to provide supplemental information to routine cytogenetic studies.

**Methodology:**

Slides are prepared per standard protocols and 200 interphase cells are scored per probe.  
*Please note: it is our laboratory policy to analyze at least one metaphase cell from every hybridization, if possible, including both normal and abnormal cells, if both exist.

**Specimen Requirements:**

- **Bone Marrow:** Shortly before aspiration add 0.2 cc of Sodium Heparin (1,000 units/ml) to tube of transport medium (please contact lab to arrange for transport medium to be sent). Add at least 1 cc of bone marrow aspirate to the tube and suspend well. Allow no clots to form.
- **Peripheral blood:** May be used if bone marrow is inaspirable and blasts (.5%) are present. Send in Sodium Heparin tube.
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- **Bone core biopsy**: May also provide cells in cases where marrow is severely packed. Send in transport medium with Sodium Heparin.
- **Bone marrow smears**: Provide 10 slides

**A REQUISITION FORM MUST ACCOMPANY ALL SAMPLES. Please include detailed clinical information.**

**Test Performed (Days):**
Mon-Sat

**Turn Around Time:**
3 – 10 days
Contact Lab at 855-KDL-1LAB (535-1522) - Time varies depending on number of tests performed.

**Shipment Sensitivity Requirements:**
Keep specimen cold during transit, but do not ship on dry ice. Please use the cold pack provided in the KDL shipping kit. Ship the specimen overnight express, using the FedEx priority overnight label provided. The specimen must arrive at the lab no more than 24 hours after collection.

**References:**
Swerdlow et al. (Eds.): WHO Classification of Tumors of Haematopoietic and Lymphoid Tissues. IARC: Lyon 2008