

BCR-ABL1, Minor (p190) Quantitative

QUANTITATIVE DETECTION OF BCR-ABL1 mRNA WITH THE MINOR BREAKPOINT (p190)

Clinical Background

- The t(9;22)(q34;q11) breakpoint resulting in the p190 BCR-ABL1 fusion is found in a subset of cases of acute lymphoblastic leukemia and rarely in cases of chronic myelogenous leukemia (CML).²
 - Detection and monitoring of BCR-ABL1 p190 fusions by quantitative PCR (qPCR) can be used for diagnosis, prognosis, and ongoing therapeutic monitoring.
 - The p190 BCR-ABL1 fusion results from a translocation between BCR exon 1 and ABL1 exon 2 (e1a2). This test is specific for BCR-ABL1 p190 fusions.
- Samples that are negative by this test may still harbor BCR-ABL1 positive cells at levels below the limit of detection.
 - This test does not detect BCR-ABL1 mRNA with the major breakpoint (e13a2, e14a2; p210).

Indications for Ordering

The principal use for this test is monitoring the levels of BCR-ABL1 fusion mRNA in whole blood from patients with confirmed minor-breakpoint Ph+ leukemia.

Interpretation

- Results of this test are reported as follows:
 - Positive (normalized BCR-ABL1 copy number)
 - Weakly positive, non-quantifiable
 - Not detected

Limitations

- Results of this test must always be interpreted in the context of morphologic and other relevant data, and should not be used alone for a diagnosis of malignancy.

Methodology

- Total RNA is extracted and converted to random-primed cDNA.
- A fragment spanning the BCR-ABL1 minor fusion breakpoint and a normalization control fragment within the ABL1 cDNA is amplified by quantitative real-time PCR.
- Standard curves are generated with every run, and the normalized copy number (NCN) of BCR-ABL1/ABL1 is calculated.

References

1. Swerdlow SH, et al. 2008. *WHO classification of tumours of haematopoietic and lymphoid tissues*. Lyon, France: International Agency for Research, 439.
2. Verma D, et al. Chronic myeloid leukemia (CML) with p190 BCR-ABL: analysis of characteristics, outcomes and prognostic significance. *Blood* 2009;114(11):2232–5.

Test Information

2005016

BCR-ABL1 Minor (p190), Quantitative

For specific collection, transport, and testing information, refer to the ARUP website at www.aruplab.com.

For information on test selection, ordering, and interpretation, refer to ARUP Consult[®] at www.arupconsult.com.