Xpert®
BCR-ABL
Monitor

Now Aligned to the World Health Organization's BCR-ABL Standards with Every Lot

Including International Scale Conversion

Xpert® BCR-ABL Monitor

Simplified, Standardized, rapid testing
for improved CML patient management.

CE IVD In Vitro Diagnostic Medical Device

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Cepheid®
A better way.

"Cepheid's Xpert® BCR-ABL Monitor test is a powerful tool for monitoring patients being treated for Chronic Myelogenous Leukemia. The unsurpassed sensitivity of the GeneXpert® System enables clinicians to process molecular tests in their own facilities instead of sending patient samples to a central lab and waiting for results. A patient's local clinician can now monitor minimal disease levels very quickly — the key to appropriately managing patients who may be at risk for relapse."

Dr Ellie Nacheva, MD PhD FRCPath
Head of Lab – Leukemia Cytogenetics,
Royal Free and University College School of Medicine

The Need

Current Guidelines:

Current practice guidelines from Europe Against Cancer and National Comprehensive Cancer Network (NCCN) for management of patients with CML call for use of quantitative Reverse Transcription Polymerase Chain Reaction (RT-PCR) assays during the initial workup of patients with chronic phase CML, in monitoring for minimal residual disease, and in identifying patients who may be at a high risk for relapse[2,3].

RT-PCR:

RT-PCR has been shown to be an accurate and highly sensitive method for detection of the BCR-ABL fusion gene[3-14], and is more sensitive than Fluorescence In Situ Hybridization (FISH) or cytogenetics[3].

An additional advantage of quantitative PCR versus FISH and cytogenetics is the high correlation of PCR results obtained from bone marrow and peripheral blood samples[2,3]. Therefore, PCR may potentially reduce the bone marrow aspirations currently required in patients with CML.

International Standardization:

The clinical utility of monitoring BCR-ABL mRNA levels has become standard of care in aiding physicians in managing their CML patients. Therefore, it is essential that variation between and within laboratories remain low.

The Solution

Xpert BCR-ABL Monitor:

Xpert BCR-ABL is a real-time RT-PCR (Reverse Transcription Polymerase Chain Reaction) test intended as an aid in the monitoring of the p210 BCR-ABL translocation in peripheral blood lymphocytes (PBL) of patients with chronic myelogenous leukemia (CML). This revolutionary test offers unique features not available in current testing methods, including: minimal hands-on time while delivering answers in less than 2 hours.

The GeneXpert System:

The GeneXpert is the only system to combine sample preparation with real time PCR amplification and detection for fully integrated and automated nucleic acid analysis. The system purifies, concentrates, detects, and identifies targeted nucleic acid sequences in less than 2 hours. The GeneXpert System requires minimal hands on time. For BCR-ABL, after a short sample preparation step users simply add selected reagents and the prepared sample to the cartridge and the GeneXpert System does the rest.

GeneXpert BCR-ABL/ABL Monitor Test (IS)

Xpert BCR-ABL/ABL test reports results to the International Scale by using an assay-specific conversion factor determined by comparison to an IS reference assay. Reporting to the International scale gives reliable and consistent results allowing physicians to better manage their patients and facilitating assessment of a major molecular response (MMR=3 log reduction from the IS baseline).

"This fully automated cartridge-based assay for quantification of BCR-ABL1 transcripts will assuredly benefit CML patients treated by a tyrosine kinase inhibitor."

Dr Jean-Michel Cayuela, PharmD, PhD
Head of Department of Molecular Diagnostics in Oncohematology
Saint-Louis Hospital, Paris

Reproducible

Provide the best patient management decisions.

Table 1: Assay Precision

Sample	Avg% BCR-ABL/ABL	% BCR-ABL/ABL Std. Dev.
Negative BCR-ABL	< 0.000157%	-
Low BCR-ABL	0.00430%	0.00477%
Moderate BCR-ABL	0.954%	0.397%
High BCR-ABL	12.24%	5.03%

Precision was evaluated in a three-site, blinded, comparative study using four specimens with varying concentrations of BCR-ABL. A total of 240 specimens were included in the study. Study specimens consisted of four sample levels : negative, and one of each of low, moderate, high BCR-ABL RNA levels. These specimens were prepared using whole blood from healthy donors with different levels of K562 RNA. Each value represents 60 specimens run over five days at three evaluation sites with multiple operators.

Reliable Results reported to International Scale

Determination and validation of an assay-specific conversion factor was completed for the Xpert® BCR-ABL Monitor Assay by consensus methodology.[1] The conversion factor was determined from patients analyzed by both the BCR-ABL Monitor Assay and an IS reference assay from the IRIS* study. The mean results were compared and systematic bias determined over the dynamic range of the assays using multiple lots of reagents. From this data a IS conversion factor (0.47) was calculated from the mean bias of both methods. Validation of the conversion factor was done by determining the residual bias in more than 70 additional samples using both assays.

** International Randomized Study of Interferon vs STI571*

Sensitive & Quantitative

Provide the best patient management decisions.

Table 2: Assay Performance

Test Results	Number of CML Samples
Negative by both methods	14
Negative by the laboratory-developed method but low positive by the GeneXpert	2
Low positive by both methods	8
High positive by both methods	15

The performance of the assay was tested at two sites using collection of 39 samples from patients with CML. Both sites also ran their laboratory-developed assay for comparison. The data were grouped into three categories:

- Negative (<0.01% BCR-ABL detected)
- Low positive (0.01% to 0.05% BCR-ABL detected)
- Positive (>0.05% BCR-ABL detected)

Including International Scale Conversion
Xpert® BCR-ABL Monitor

Figure 2A: Not detected at detection limit

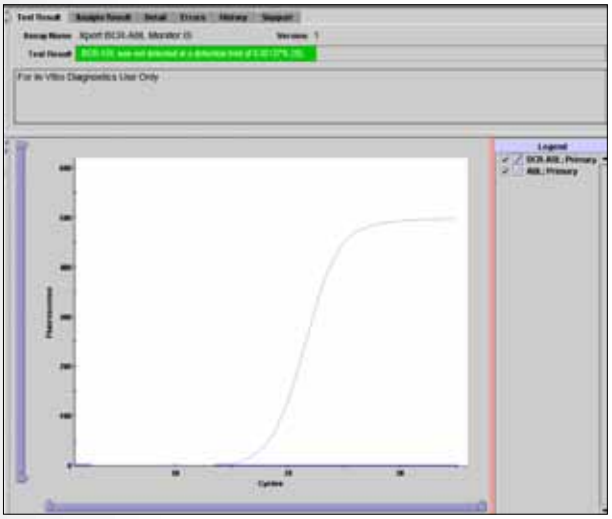
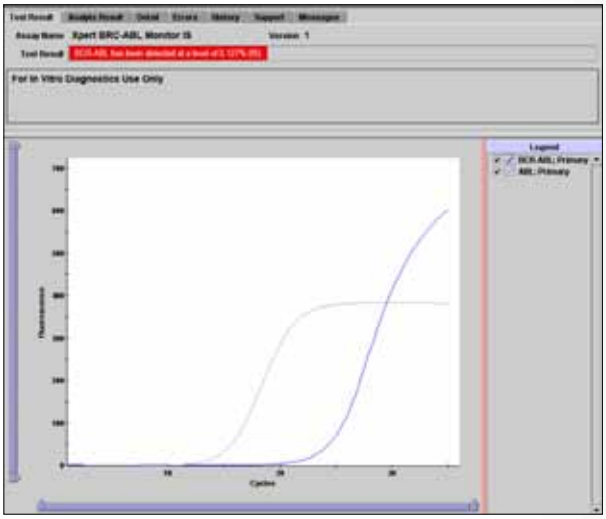


Figure 2B: Positive Result above detection limit



GeneXpert Dx System – Detailed View Results window, both a not detected and positive result. The delta CT value is used in conjunction with a lot specific PCR efficiency value and an assay-specific conversion factor provided to calculate the percent BCR-ABL/ABL to International Scale (%IS).

ORDERING INFORMATION

Xpert BCR-ABL Monitor kit (10 Cartridges with reagents) . . . . . .**Catalog No. BCR-100N-10**

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