

Monitoring CML Treatment Response: Importance of Routine Testing

Monitor your milestones with these three tests

There are several different tests you will need to have to monitor your CML response throughout your Ph+ CML journey, and they are taken at different times. The most frequent amount of testing occurs in your first year of treatment, and may become less frequent thereafter. Of course, everyone's journey is different and your physician will evaluate which tests at what frequency are best for you, but here is a general schedule of what you can expect in your first two years of Ph+ CML treatment:

Complete Blood Count (CBC)	Cytogenetic Test	Standardized PCR Test
A simple blood test that counts the number of white blood cells, red blood cells, and platelets and should be conducted every 15 days until complete hematologic response (CHR) is achieved, then every three months.	A test of the blood or bone marrow that reveals the organization of chromosomes. This helps assist doctors to identify the Philadelphia chromosome and should be conducted at three months, six months and 12 months until complete cytogenetic response (CCyR; BCR-ABL $\leq 1\%$) is achieved, then every 12 months.	A very sensitive test using peripheral blood or bone marrow cells that measures the number of cells that have the BCR-ABL gene (the key cause of CML), and should be conducted every three months until major molecular response (MMR) is achieved, then every six months.

Understanding Standardized PCR testing

Routine monitoring of the level of leukemic cells in the body (at a frequency of every three months) is a critical component of Ph+ CML management, using some or all of the laboratory tests available. As Ph+ CML treatment has advanced, so has monitoring of BCR-ABL protein levels. Greater reductions in BCR-ABL require more precise and sensitive monitoring techniques.

Deeper levels of response to CML treatment are measured by the International Scale Real-time Quantitative Polymerase Chain Reaction (IS RQ-PCR) is the most sensitive and accurate test that can be used to identify Ph+ CML in the blood or bone marrow. The fewer leukemia cells a patient has, the deeper the level of response to treatment, and the harder it is to detect the amount of BCR-ABL that still remains.

PCR is the most sensitive and accurate test that can be used to identify Ph+ CML in the blood or bone marrow. PCR can find 1 cell with the BCR-ABL gene out of 1 million normal cells, and it can be done on either blood (requiring only a simple blood draw) or bone marrow cells.

PCR is also used to monitor the achievement of treatment milestones over time. One of the best indications of how well you are responding to your CML treatment is through standardized PCR testing. CML treatment guidelines stress the importance of routine monitoring to help improve disease management. Routine monitoring with international scale, standardized PCR, to



measure the level of BCR-ABL and observe the trend in PCR response values over time, may influence a healthcare professional's treatment decisions, such as the need to change therapy.

What makes a standardized PCR test different from other PCR tests?

Not all PCR tests are the same. Ask your doctor about getting a standardized PCR test.

- PCR testing can detect very small amounts of BCR-ABL that other test cannot. (For example, it can detect one cancer cell among 1 million normal ones.)
- The PCR test only requires blood work, which is often less painful than bone marrow testing.
- The test results can reveal whether CML patients' current treatment plan is working as expected, or if a change should be considered by the patient and the doctor.
- Because the results of a PCR test are standardized on the International Scale, it is a reliable way to measure if patients are reaching important treatment goals, such as major molecular response (MMR; BCR-ABL $\leq 0.1\%$).