Monitoring response to treatment in CML

Response to treatment for chronic myeloid leukaemia (CML) is usually measured using a blood test called PCR. This measures your molecular response. Find out what molecular response is and what the results mean.

Summary

- You have regular blood tests during and after your treatment to monitor how well your CML is responding.
- The most sensitive test measures the level of the *BCR-ABL1* gene in your blood. This is called your molecular response. It is measured using a test called PCR.
- Your haematology team will use the results of your PCR tests to check your response to treatment.
- The results can be difficult to understand. Ask your haematology team to explain if you're not sure what they mean.

Download our factsheet on understanding molecular response in CML

How is CML treatment monitored?

During and after treatment for chronic myeloid leukaemia (CML), you have regular blood tests to monitor your response. These tests:

- Check if your blood cell counts have returned to normal levels. This is done using a test called a full blood count. It is sometimes called your haematological response.
- Measure the amount of the *BCR-ABL1* gene in your blood. This is done using a test called PCR. It is called your molecular response.

You also have regular appointments to check how you are feeling. This includes any symptoms or side effects you're getting and any emotional or mental health concerns you have.

> **If you have any serious or worrying symptoms, you do not have to wait for your next appointment. Your haematology team should give you details of who to**

> **contact. This may be a Clinical Nurse Specialist (CNS), if one is available in your area.**

Back to top

What is molecular response?

Molecular response (MR) is the amount of *BCR-ABL1* gene in your blood. It is a good indicator of how much leukaemia is left in your body. It is measured using a test called PCR. This test is very sensitive so it can detect extremely low levels of leukaemia in your body.

Back to top

What do molecular response results mean?

The results of your PCR tests are written as a percentage or as an MR number. They can be difficult to understand.

- MR1: Less than 1 in 10 white blood cells (10%) has the *BCR-ABL1* gene. If your treatment is working well, you should reach MR1 within 3 months of starting treatment.

- MR2: Less than 1 in 100 white blood cells (1%) has the *BCR-ABL1* gene. If your treatment is working well, you should reach MR2 within 6 months of starting treatment.
- MR3: Less than 1 in 1,000 white blood cells (0.1%) has the *BCR-ABL1* gene. This is sometimes called a **major molecular response** (MMR). If your treatment is working well, you should reach MR3 within 12 months of starting treatment.
- MR4: Less than 1 in 10,000 white blood cells (0.01%) has the *BCR-ABL1* gene. This is sometimes called a **deep molecular response** (DMR). If you reach and maintain a deep molecular response, you might eventually be able to stop treatment.
- MR5: Less than 1 in 100,000 white blood cells (0.001%) has the *BCR-ABL1* gene. This is also called a **deep molecular response** (DMR). If you reach and maintain a deep molecular response, you might eventually be able to stop treatment.
- Levels below MR5 cannot usually be detected. This is called a **complete molecular response**.

If you're not sure what your results mean, ask your haematology team to explain.

Back to top

Why is molecular response important?

Your molecular response can be used to detect any difficulties in treatment early on. It is also an essential part of safe monitoring if you can stop treatment.

- Some people can have a slower response to treatment and may not necessarily reach MR3 after 12 months. If you do not reach these milestones, your haematology team will talk to you about your options. They might suggest changing your treatment. This may allow you to reach a deeper response.
- If you respond to treatment at first but your level of *BCR-ABL1* starts to go back up, your haematology team will talk to you about your treatment options. They may suggest increasing your dose or changing to a different treatment.

Back to top

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Need support?

You are not alone. We're here for you whether you have a diagnosis yourself or know someone who has. If you'd like advice, support, or a listening ear, call our freephone helpline on 08088 010 444 or send a WhatsApp message to 07500 068 065.

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