

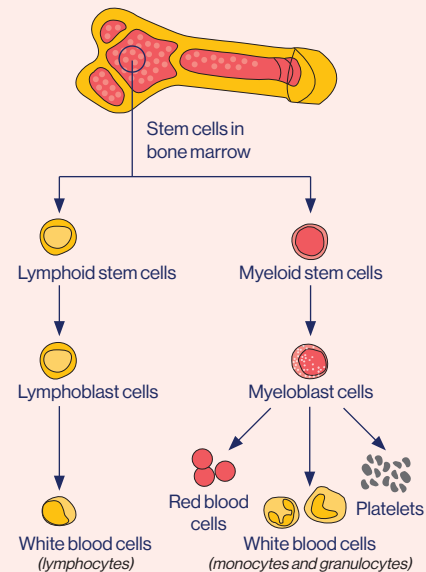
Navigating Chronic Myeloid Leukaemia (CML)

Where do blood cancers originate?

Blood cancer is a type of cancer that affects the blood cells and arises in the bone marrow, lymphatic system, or blood!

Leukaemia, lymphoma and myeloma are some of the most common types of blood cancers.¹

Blood cell production²



What is CML?

Chronic Myeloid Leukaemia

Chronic

CML is a chronic, slow-growing type of leukaemia that develops and progresses over a long period of time.^{3,4}

Myeloid

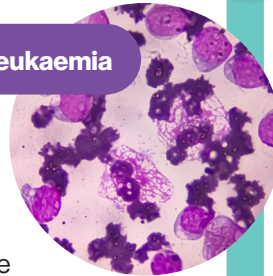
In CML, the myeloid cell line in the bone marrow grows and divides abnormally.⁴

Leukaemia

Leukaemia is a type of blood cancer that affects the blood and bone marrow, characterised by the uncontrolled production of abnormal white blood cells called granulocytes.^{3,4}

There are **three phases** of CML:³

- Chronic phase (by far the most common)
- Accelerated phase
- Blast phase (also called blast crisis)

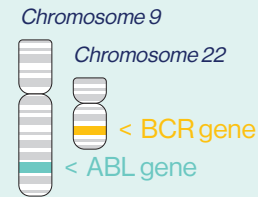


What is Ph+ CML?

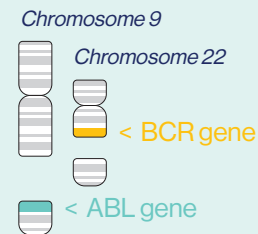
~95% of CML cases are classified as Ph+ CML.^{5,6}

CML is caused by a genetic mutation called the Philadelphia (Ph) chromosome – a rearrangement in the genetic material between chromosomes 9 and 22.³ The region where chromosome 9 joins chromosome 22 creates a new gene, called *BCR-ABL*.³

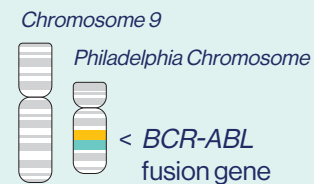
Normal Chromosomes



Chromosomes Break



Chromosomes Change



How is CML diagnosed?

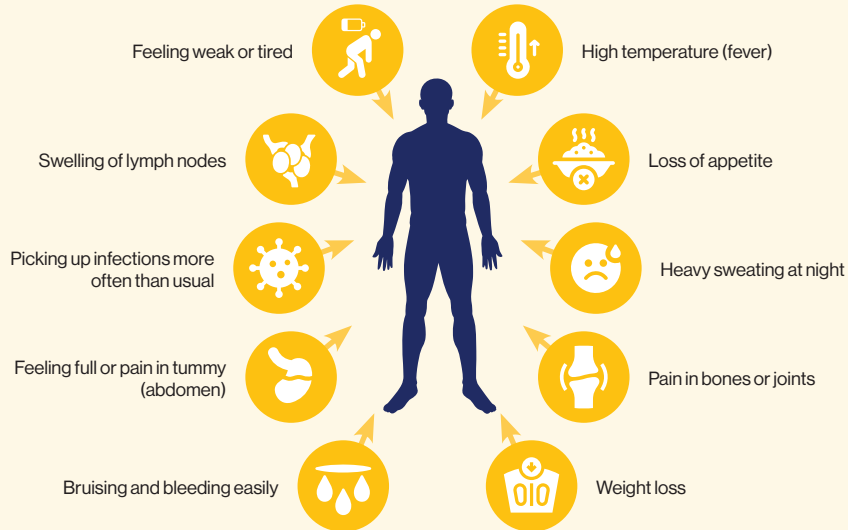
Blood tests, molecular testing, and chromosome analysis are used for diagnosis.¹⁰

- In the early stage of CML, most people feel fine, and the condition is usually picked up by a routine full blood count showing too many white blood cells.⁶
- The diagnostic marker is the presence of the Philadelphia chromosome (Ph+).⁷
- A polymerase chain reaction (PCR) test will confirm the level of CML that is detectable in the body.⁸ It is used as a disease monitoring tool which is usually performed every 3 months to begin with.^{6,8,9}
- Imaging studies such as an ultrasound of the abdomen may confirm the presence of liver and spleen enlargement, especially at diagnosis.^{2,3,8}

- Complete blood count (CBC)¹⁰
- Bone marrow aspiration and biopsy⁸
- Cytogenetic analysis⁸
- Fluorescent *in situ* hybridization (FISH)⁸
- Polymerase chain reaction (PCR)⁸

What are the symptoms of CML?

Symptoms can be similar to those caused by other illnesses and tend to be mild at first and get worse slowly.¹¹ They can include:¹¹



What is the treatment for CML?

Every CML patient requires a multidisciplinary individualised treatment approach comprising both psychosocial support and medical treatment^{6,12}

Treatment aims to control CML long-term, achieve remission, and prevent progression to advanced phases²

There are several kinds of treatment for CML:³

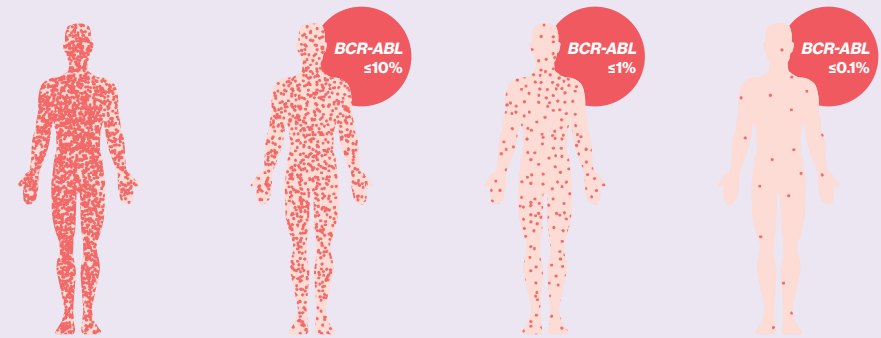
- Targeted therapy medicines**, the most common treatment for CML, block the abnormal tyrosine kinase protein from the Philadelphia chromosome and have transformed its treatment and prognosis^{3,10}
- Chemotherapy**, which uses cytotoxic agents to kill or slow leukaemia cells, is rarely used in CML and mainly given in advanced phases^{2,3}
- Supportive care** controls symptoms of CML, like blood transfusion for anaemia (only if needed)³
- Stem cell transplantation**, rarely used in CML, may be offered in advanced phases when targeted therapy or chemotherapy no longer work^{2,3}

The treatment team will explain the treatments, their benefits and possible side effects³

What are the treatment milestones in CML?

There are three types of treatment responses when judging the effectiveness of CML treatment¹³

- 1. Molecular response:** A molecular response is a measurement of how much of the gene *BCR-ABL* is detected in the blood or bone marrow
- 2. Cytogenetic response:** A cytogenetic response is a measurement of the number of cells in bone marrow that have the Philadelphia chromosome
- 3. Haematologic response:** A haematologic response is a measurement of abnormal cells the blood that have returned to normal



AT DIAGNOSIS¹³

The level of *BCR-ABL* gene in the body is different for every patient at diagnosis, as measured on the International Scale (IS)

EARLY MOLECULAR RESPONSE (EMR)¹³

An early molecular means that the level of *BCR-ABL* gene in the blood is $\leq 10\%$ when measured on the IS

COMPLETE CYTOGENETIC RESPONSE (CCyR)¹³

A complete cytogenetic response means that the level of *BCR-ABL* gene in the blood is equivalent to $\leq 1\%$ when measured on the IS

MAJOR MOLECULAR RESPONSE (MMR)¹³

An MMR (or molecular response of 3.0) means that the level of *BCR-ABL* gene in the blood is $\leq 0.1\%$ when measured on the IS

What factors may affect disease response to CML treatment?

Compliance

Poor adherence is a significant contributor to treatment failure and loss of response to therapy⁶

Drug-drug interactions

Drug interactions between targeted therapies and other medicines can make treatment less effective and increase side effects in CML patients¹⁴

Dietary interactions

Effective CML management requires dietary considerations to maximise treatment outcomes¹⁶ Certain foods, like grapefruit and high-fat meals, potentially altering drug absorption and levels, increasing side effects or reducing efficacy^{15,16}

Drug resistance

The development of resistance to the treatments can occur, which may require a change in therapy^{4,10,17}

Ph+ CML, Philadelphia chromosome-positive chronic myeloid leukaemia;

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