

What is myeloma

Myeloma, also known as multiple myeloma, is a type of blood cancer arising from plasma cells, which are normally found in the bone marrow.

Bone marrow is the spongy material found in the centre of larger bones in the body (see Figure 1). As well as being home to plasma cells, the bone marrow is the centre of blood cell production (red blood cells, white blood cells and platelets).

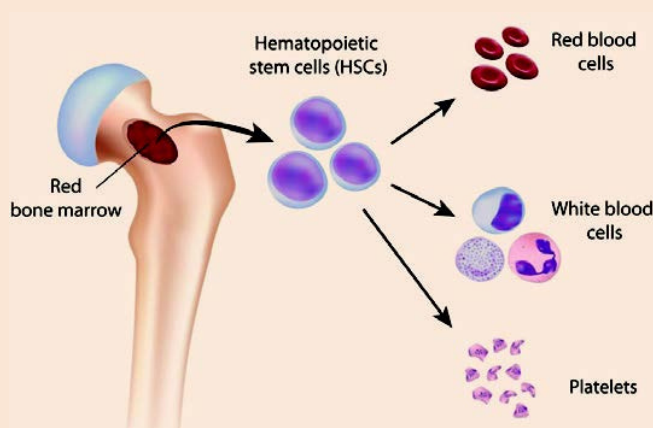


Figure 1. Bone marrow produces red cells, white cells and platelets

Plasma cells form part of our immune system and produce various antibodies (also called immunoglobulins) to help fight infection. In myeloma, cancerous plasma cells produce only one type of immunoglobulin, and this is referred to as the monoclonal (M) protein, or paraprotein. It is often through the measurement of this paraprotein in the blood that myeloma is diagnosed and monitored.

Each immunoglobulin is made up of a specific structure containing two heavy chains and two light chains (see Figure 2).

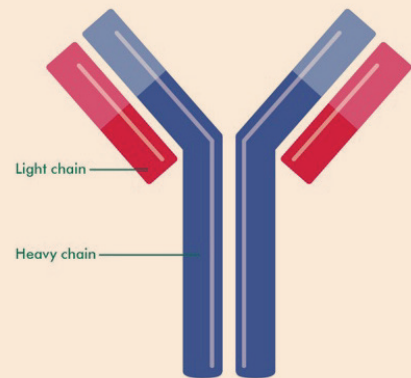


Figure 2. Immunoglobulin

There are five possible types of heavy chains denoted by the letters G, A, D, E and M.

There are two possible types of light chains denoted by the Greek letters, Kappa (κ) and Lambda (λ).

Different types and subtypes of myeloma are based on the type of paraprotein produced by the myeloma cell, e.g. IgG Kappa or IgG Lambda myeloma. In some cases only abnormal light chains are produced – this is called **light chain myeloma**. In very few cases, there will be very little or no paraprotein to measure. This is called **non-secretory myeloma**.

Myeloma is often described as being a very individual disease; both in terms of the way those affected experience symptoms and in the way they respond to treatment, all of which can vary greatly. Some of this variation is due to the different types and subtypes of myeloma.

In some cases, myeloma cells may collect in the bone or tissue forming what's known as a plasmacytoma. This can occur in addition to other features of myeloma or on its own which is referred to as a solitary plasmacytoma.

What are the symptoms of myeloma?

There are many signs and symptoms of myeloma. Often, these symptoms are mistaken for other illnesses for some time before a diagnosis is made. Some of the more common signs and symptoms of myeloma are:

- pain from bone fracture
- recurrent infections
- low red blood cells (anaemia)
- persistent fatigue
- increased calcium
- reduced kidney function
- altered sensation (peripheral neuropathy)

How is myeloma diagnosed and monitored?

Blood and urine tests

The paraprotein is detected and monitored using blood and urine tests. A reduction in the paraprotein level indicates that the myeloma is responding to treatment. Your doctor will also regularly monitor your full blood count (haemoglobin, white blood cells and platelets), kidney function, and electrolytes to make sure the presence of the paraprotein or side effects of treatment aren't causing imbalances elsewhere in the body.

Bone marrow aspirate and trephine

Because myeloma cells are located in the bone marrow, it is necessary to look inside the bone marrow to confirm the diagnosis of myeloma. It can also be used to confirm when myeloma has

returned and needs new treatment. This procedure involves putting a needle into the pelvic bone under local anaesthetic and removing a sample of bone marrow that will be examined under a microscope. This is to measure the percentage of myeloma cells and to test for genetic mutations. This information can then assist in making decisions about treatment.

Scans

Myeloma cells can collect in the bones (plasmacytomas) leading to pain and fractures. In some cases, plasmacytomas can occur outside the skeleton in the organs or other soft tissues. As a result, it is necessary to use scanning techniques such as CT scans or MRI to check for any affected areas at diagnosis, and at other times during the course of the disease, where required.

How is myeloma treated?

While there is currently no cure for myeloma, there are many treatment options available to control the disease. The treatment regimens often include a combination of different medicines designed to achieve maximum response. These might include:

- a myeloma-specific targeted therapy;
- chemotherapy; and
- steroids

These medicines can be either intravenous (given into a vein), subcutaneous (given under the skin) or taken as a tablet. In some cases, a stem cell transplant using your own stem cells or CAR T cell therapy can be used to treat myeloma. You may also be offered a clinical trial as a treatment option. Speak with your doctor about the best treatment options for you.



A diagnosis of myeloma can cause confusion and concern. Myeloma Australia is here to help you. You can speak with one of our Myeloma Support Nurses through an interpreter on our 1800 MYELOMA Telephone Support Line. To arrange a time to call please contact on 1800 693 566 or nurses@myeloma.org.au

The information in this fact sheet is not intended to replace medical care or the advice of a physician. A doctor should always be consulted regarding diagnosis and treatment.

REFERENCE: Myeloma Australia (2022) What is myeloma. Available at: <https://myeloma.org.au/what-is-myeloma/> (Accessed 08/02/2023)