

Patient information factsheet

Immunotherapy

We've written this factsheet to give you information about immunotherapy as a cancer treatment. It explains what immunotherapy is, how it works and what the possible side effects are. We hope it will help to answer some of the questions you may have. If you have any further questions or concerns, please speak to your clinical nurse specialist or a member of your oncology team.

What is the immune system?

The immune system works to protect the body against infection, illness and disease. It can also protect us from the development of cancer. It is made up of the lymph glands, spleen and white blood cells.

Usually your immune system can spot and destroy faulty cells in your body, and stop cancer from developing. However, a cancer might develop when:

- the immune system recognises cancer cells but it is not strong enough to destroy them
- the cancer cells produce signals that stop the immune system from attacking them
- the cancer cells hide or escape from the immune system

What is immunotherapy?

Immunotherapy is a drug treatment for some types of cancer. Immunotherapy uses your immune system to fight cancer. It works by helping your immune system to recognise and attack cancer cells.

You might have immunotherapy on its own or with other cancer treatments.

There are different types of immunotherapy, including:

- monoclonal antibodies (MABs)
- checkpoint inhibitors
- cytokines
- cancer vaccines
- CAR T-cell therapy

Each one uses the immune system in a different way. This factsheet contains information about monoclonal antibodies (MABs) and checkpoint inhibitors, as these are the types of treatment we will usually offer you.

What are monoclonal antibodies (MABs)?

Some MABs are a type of immunotherapy. They work by triggering the immune system and helping it to attack cancer cells. Some MABs work in a more targeted way. For example, they can block signals that tell cancer cells to divide.

How do MABs work?

MABs work by recognising and finding specific proteins on cells. Some types of MABs work on cancer cells and others target proteins on cells of the immune system. MABs work in different ways depending on the protein they are targeting.

MABs can:

- trigger the immune system to attack and kill cancer cells (for example, trastuzumab and cetuximab)
- act on cells of the immune system to help the immune system attack cancer cells (these are referred to as the 'checkpoint inhibitors' and include ipilimumab, nivolumab and pembrolizumab)

What are checkpoint inhibitors?

Checkpoint inhibitors are a type of immunotherapy drug. They work by blocking certain proteins that stop the immune system from attacking cancer cells.

How do checkpoint inhibitors work?

Our immune system protects us from disease by attacking bacteria and viruses. One main type of immune cell that does this is called a T-cell. T-cells have proteins on them that turn on an immune response (become active) and other proteins that turn it off (become inactive). These are called checkpoint proteins.

When the checkpoint proteins are active, T-cells can attack and destroy other cells, such as cancer cells. However, if T-cells are active for too long, or if they react to things they shouldn't, they can start to destroy healthy cells and tissues. This is why T-cells also have other checkpoint proteins to tell them when to switch off and not to attack.

Some cancer cells make high levels of proteins that can switch off T-cells and stop the immune system from attacking and destroying the cancer cells.

Checkpoint inhibitors are drugs designed to block checkpoint proteins from receiving signals from cancer cell proteins. By blocking these signals, the checkpoint inhibitors stop the T-cells from being switched off and allow them to find and attack the cancer cells.

Which immunotherapy treatment is the right one for me?

Your doctor will advise which immunotherapy treatment is the most suitable one for you. They will base their decision on the factors below:

- the type of cancer you have (additional blood tests may be needed)
- the stage of your cancer
- whether you have already had certain treatments

Your doctor may offer you checkpoint inhibitors as part of a clinical trial.

How will immunotherapy be given?

We will usually give the treatment to you through a drip into your bloodstream and/or as a subcutaneous (under the skin) injection.

Immunotherapy is given in cycles. For example, you may have treatment every week, or every two or three weeks. A cycle is the time between one round of treatment and the next.

After each round of treatment, you will have a break to allow your body to recover. Most immunotherapy treatments can be administered in your own home after the second cycle. Your consultant or nurse will discuss this option with you.

Are there any side effects?

Immunotherapy boosts all immune cells, not just the ones that target cancer and this can cause some side effects, including:

- breathlessness and a dry cough
- loss of appetite (occasionally feeling or being sick)
- abdominal (tummy) pains
- diarrhoea
- tiredness (fatigue)
- dry, itchy skin or a skin rash
- disruption to the normal working of the liver, kidneys and hormone-making glands (such as the thyroid)

You are likely to have worse side effects if you have more than one immunotherapy drug treatment, or a combination of immunotherapy and chemotherapy together.

Some of these side effects, such as diarrhoea, can be serious if not treated quickly. We will talk you through the possible side effects so you know what to look out for. If you experience any of these side effects or your symptoms get worse, contact our acute oncology 24-hour emergency phone line immediately on **023 8120 1345**, so we can treat your symptoms as soon as possible. We will provide you with a list of telephone numbers to call for help, advice or support in between your appointments. Depending on the severity of your side effects, we may have to delay your treatment by a week or so. If this is the case, we will discuss this with you.

Other side effects may be permanent and may require long-term hormone replacement treatment.

We will need to take regular blood tests during your immunotherapy treatment to monitor your condition.

What happens if I experience any side effects?

If you experience any side effects from the treatment, you must contact our acute oncology 24-hour emergency phone line immediately on **023 8120 1345**, so we can treat your symptoms as soon as possible. We may give you oral steroids if necessary. If your symptoms get worse, we will admit you to hospital for treatment with intravenous steroids (given via a drip) or other immunosuppressive therapy. Evidence suggests that treatment with intravenous steroids or stronger immunosuppressive drugs (for more severe side effects) will not affect how your cancer responds to immunotherapy treatment.

On rare occasions, we may have to stop immunotherapy treatment completely. Evidence suggests that even if we have to permanently stop your immunotherapy treatment, this will not necessarily compromise how your cancer continues to respond. This is because your immune system will continue to recognise and destroy cancer cells for a short while after your treatment stops.

Are there any side effects of taking steroids?

Common side effects

You may experience different side effects if you are having steroids with other medicines.

However, the most common side effects include:

- an increased risk of infection
- changes in your blood sugar levels
- swollen hands and feet
- mood changes
- sleeping problems
- indigestion or heartburn
- increased appetite and weight gain

Rare side effects

These side effects are rare (affecting less than one in 100 people):

- weaker bones
- eye problems
- high blood pressure
- changes to your face (Cushing's syndrome)
- muscle wasting

If you experience any of these side effects from taking steroids, tell your doctor or nurse so they can help you to manage them. Your nurse will give you a contact number to ring if you have any questions or problems.

Contact our acute oncology 24-hour emergency phone line immediately on **023 8120 1345** if you experience any severe side effects or if you show signs of having an infection, such as having a temperature above 38°C.

How should I take my steroid treatment?

Take your medicine as instructed by your doctor or nurse. They will explain how much to take and how often.

Do not stop taking your medicine without talking to your doctor or nurse. You will need to reduce your dose gradually. Stopping suddenly can cause your adrenal gland, which makes important hormones for the body, to stop working and may make you unwell.

How will I know if I am responding to immunotherapy?

We will book you in for regular scans or x-rays to monitor how your cancer is responding to the treatment.

Immunotherapy doesn't work for everyone. However, most people find that immunotherapy helps to shrink their cancer or stops it from growing any bigger.

Medication

Please make your doctor aware of any medications or herbal remedies you are taking.

You will be able to collect your prescription from the outpatient pharmacy at the main entrance of Southampton General Hospital.

Before starting treatment

We will send you an appointment letter in the post for a consultation before starting you on any treatment. We may also ask you to have a blood test.

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Starting treatment

On the day of your immunotherapy appointment, you should:

- bring snacks and entertainment with you
- not drive (especially after your first treatment), as you may have a bad reaction to the medication
- ensure you have received or collected any medication we have prescribed you to go home with
- get your car parking validated at Hamwic House for £2 (this can be claimed back by completing a travel form from Hamwic House, which can then be taken to Travelwise for reimbursement)

If you are worried about anything, please remember you can talk to us. We are all here to help.

Contact us

If you have any uncontrolled symptoms or if you feel unwell, please contact our acute oncology 24-hour emergency phone line on: **023 8120 1345**.

If you would like to book or rearrange an appointment, please call: **023 8120 6494**.

Useful links

www.cancerresearchuk.org/about-cancer/cancer-in-general/treatment/immunotherapy

www.macmillan.org.uk/cancer-information-and-support/treatments-and-drugs/immunotherapy

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