

## Targeted drugs for lymphoma

This page is about targeted drugs; find out what they are and find more information on the drugs that are relevant to you.

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## What are targeted drugs?

Targeted drugs are being used more and more for people with lymphoma.

There are lots of different names for targeted drugs. You might hear them called 'targeted therapies', 'biological therapies' or 'immunotherapies'.

Your whole body is made up of lots of different types of cells that do different jobs. **Lymphoma** develops when a type of white blood cell that fights infection (a lymphocyte) doesn't work properly and these abnormal cells start to build up in your body. Scientists are continually finding out more about the changes that cause cells to go out of control, resulting in lymphoma. This research helps them to find drugs that work on the abnormal cells.

Targeted treatments affect processes in cells. They work in different ways to stop cancer cells growing or dividing, to cause cancer cells to die or to use your own **immune system** to help your body get rid of cancer cells. Targeted drugs work on lymphoma cells more precisely than chemotherapy, reducing the effect of treatment on healthy cells. This aims to reduce the side effects of treatment, as well as making it more effective.

**Rituximab** was the first targeted immunotherapy drug used to treat lymphoma. There are now **biosimilars** to rituximab, which are new drugs designed to be essentially the same as rituximab and to work in the same way. Many other targeted drugs are now being used for people with lymphoma, some in routine use and many others in **clinical trials** (research studies that test medical treatments in people).

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## Who can have targeted drugs?

Before they can be used routinely, targeted drugs are tested in clinical trials to make sure they are safe and to see how effective they are at treating lymphoma. Clinical trials also help doctors find out who would benefit from the treatment and if the new treatment is better than the treatment that is usually used.

Some targeted drugs, like rituximab, are already used for lots of people with lymphoma. Others are used for a few people in specific situations, often for:

- people who have been treated before but need more treatment because their lymphoma has **relapsed** (come back)
- people who didn't respond well to their previous treatment (refractory lymphoma)
- people who can't have other standard treatments.

Some targeted drugs are starting to be used as a first treatment (first-line) for people with some types of lymphoma.

The following section summarises which drugs are currently **approved** for people with lymphoma in the UK. You might want to read only about the treatments for **the type of lymphoma** you have. We have more detailed information about many of these drugs.

Note that the drugs described on this page are newer treatments, so information about the possible **side effects**, including **late effects** (side effects that can occur months or years after treatment is finished), is still being gathered. Your team should discuss the most up-to-date information with you if you are going to be treated with any of these drugs.

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## What targeted drugs are approved for lymphoma?

Different types of targeted therapies work in different ways. You might hear them called by their drug name or their brand name (the pharmaceutical company's name for them, which is given in brackets in the list below).

Types of targeted therapies approved for use in people with lymphoma in Europe include:

- **antibody treatments**, for example **rituximab**, **ofatumumab** (Arzerra®) and **obinutuzumab** (Gazyvaro®)
- **combined treatments** that use antibodies to deliver chemotherapy or radiotherapy to lymphoma cells, for example **brentuximab vedotin** (Adcetris®) and **Zevalin**® (90Y-ibritumomab tiuxetan)

- drugs that block signals or the function of certain proteins within the lymphoma cells, which, depending how they work, can be grouped as:
  - **cell signal blockers**, for example **ibrutinib** (Imbruvica®), **idelalisib** (Zydelig®) and **temsirolimus** (Torisel®)
  - **proteasome inhibitors**, for example **bortezomib** (Velcade®)
  - **immunomodulators**, which change how your immune system works, for example **lenalidomide** (Revlimid®)
- **programmed cell death inducers**, which block proteins that keep lymphoma cells alive, for example **venetoclax** (Venclyxto™)
- **checkpoint inhibitors**, which allow the immune system to recognise and kill lymphoma cells, for example **nivolumab** (Opdivo®) and **pembrolizumab** (Keytruda®)
- **CAR T-cells**, where your own **T cells** (a type of white blood cell that fights infection) are genetically modified to help your immune system recognise and kill lymphoma cells, for example axicabtagene ciroleucel (Yescarta®) and tisagenlecleucel (Kymriah®).

The following alphabetical list shows what drugs are currently approved for different types of lymphoma.

If your type of lymphoma is not below, then there were no targeted drugs approved to treat your type of lymphoma at the time of writing. Visit our clinical trial database, [Lymphoma TrialsLink](#), to see if there are any trials researching targeted drugs for your type of lymphoma.

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### Chronic lymphocytic leukaemia (CLL)/small lymphocytic leukaemia (SLL)

- Ibrutinib
- Idelalisib
- Obinutuzumab
- Ofatumumab
- Rituximab
- Venetoclax

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### Cutaneous (skin) T-cell lymphoma

- Brentuximab vedotin

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### Diffuse large B-cell lymphoma

- CAR T-cell therapies: axicabtagene ciroleucel and tisagenlecleucel
  - Rituximab
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## Follicular lymphoma

- Idelalisib
  - Obinutuzumab
  - Rituximab
  - Zevalin
- 

## Hodgkin lymphoma (classical)

- Brentuximab vedotin
  - Nivolumab
  - Pembrolizumab
- 

## Primary mediastinal B cell lymphoma

- CAR T-cell therapy: axicabtagene clioleucel
  - Rituximab
- 

## Mantle cell lymphoma

- Bortezomib
  - Ibrutinib
  - Lenalidomide
  - Temsirolimus
- 

## Systemic anaplastic large cell lymphoma

- Brentuximab vedotin
- 

## Waldenström's macroglobulinaemia

- Ibrutinib
- 

# Lymphoma research and drugs in development

**Drug development** is a long process. New drugs have to undergo rigorous tests to demonstrate that their potential benefits outweigh their potential risks before they can be approved. Many of the drugs in clinical trials do not show enough benefit to undergo further testing.

There are many other ways to target lymphoma cells and scientists are developing and testing drugs that work in different ways to those already described. Updates from clinical trials feature regularly in our magazine, *Lymphoma Matters* and in our online **news**. You can find out more about clinical trials and search for a trial suitable for you at **Lymphoma TrialsLink**.

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## References

The full list of references is available on request. Please email [publications@lymphoma-action.org.uk](mailto:publications@lymphoma-action.org.uk) or call 01296 619409 if you would like a copy.

## Acknowledgements

- With thanks to Professor Peter Johnson (Professor of Medical Oncology, Cancer Research UK Centre, Southampton General Hospital) for reviewing this information.
- With thanks to Dr Eve Gallop-Evans, Consultant Clinical Oncologist, Velindre Hospital, Cardiff, for reviewing this information. Dr Gallop-Evans has received advisory board honoraria and travel support from pharmaceutical companies Roche and Takeda.
- We would like to thank the members of our Reader Panel who gave their time to review this information.

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Content last reviewed: October 2018

Next planned review: October 2021

LYMweb0096NewDrugs2018v9



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