Understanding Lymphoma and Chronic Lymphocytic Leukemia (CLL)

Biosimilar Therapies

Lymphoma Research Foundation

One type of treatment patients with lymphoma may receive is called a biologic therapy. Unlike most drugs, biologic therapies are produced in living organisms.[1,2] The U.S. Food and Drug Administration (FDA) is the federal body responsible for closely monitoring and regulating drug manufacturing processes to protect public health, including the complicated process of producing biologics.[2]

What Is a Biosimilar?

A biosimilar is a biologic therapy that is modeled after an existing biologic therapy, or reference product, that has already been approved by the FDA. A biosimilar is expected to be just as effective as its reference product, but due to the complexities of making medications from natural sources, the two are not exactly the same. Manufacturers of biosimilars must show that minor differences in their chemical makeup do not change the safety and effectiveness of the biosimilar compared to the reference product.[2] Biosimilars should not be confused with generic drugs, which are chemically identical to the original branded drug after which they are modeled. The manufacturer of a generic drug must show that it is equivalent to the branded drug after which it is modeled.

FDA Review and Approval Process

Gaining FDA approval for a biologic product is a complicated process. To ensure the safety and effectiveness of these therapies, they are first tested in vitro (outside the body), and sometimes in animals. A decision is then made as to whether drug testing can continue on to clinical trials with human participants. Results from many clinical trials must be presented to the FDA before a drug can receive approval. Although the process for approval of a biosimilar product is strict and time-consuming, it can often be made faster by comparing data with results from earlier clinical trials for its reference product. Because fewer lengthy and expensive clinical trials are required, the cost of treatment may be reduced.[3]

Biosimilars in Lymphoma

Biosimilars approved in the United States include therapies that stimulate or suppress the immune system, treat cancer, or lessen side effects of cancer treatments.[4]

Several biosimilars have been developed to treat patients with many types of cancer. Filgrastim-sndz (Zarxio) and filgrastim-aafi (Nivestym) are biosimilar therapies used for speeding up the recovery of white blood cell counts that have been depleted as a result of chemotherapy.[5] Pegfilgrastim-jmdb (Fulphila) and pegfilgrastim-bmez (Ziextenzo) are longer-acting versions of filgrastim that also speed up recovery of blood counts and could be used to decrease the chance of infection that is associated with some anti-cancer drugs.[6] In the same way, epoetin alfa-epbx (Retacrit) is a biosimilar that is occasionally used to treat anemia following chemotherapy.[7]

Rituximab (Rituxan) is an FDA-approved biologic therapy widely used for treating patients with B-cell non-Hodgkin lymphomas (NHLs) and chronic lymphocytic leukemia/small lymphocytic lymphoma (CLL/SLL).[8]

[1] https://www.cancer.gov/publications/dictionaries/cancer-terms/def/biological-therapy
[2] https://www.fda.gov/media/108557/download
[3] https://www.cancercenter.com/community/blog/2018/12/whats-the-difference-biosimilar-and-generic-drugs; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6075809/
[4] https://www.fda.gov/drugs/biosimilars/biosimilar-product-information
[5] Filgrastim-sndz PI Indications and Usage
[6] Pegfilgrastim-jmdb pi Indications and Usage
[7] Epoetin alfa-epbx PI Indications and Usage
[8] https://www.nccn.org/professionals/physician_gls/pdf/cll.pdf; Rituxan PI Indications and Usage

Patients interested in learning more about rituximab should view the *Immunotherapy* fact sheet on the Lymphoma Research Foundation's website at **www.lymphoma.org/publications**. Rituximab-abbs (Truxima) and rituximab-pvvr (Ruxience) are rituximab biosimilars that are approved by the FDA as single agents for refractory (disease does not respond to treatment) or relapsed (disease returns after treatment) low-grade or follicular B-cell NHL, and in combination with chemotherapy for previously untreated low-grade B-cell lymphomas.[9] Rituximab-pvvr is also approved as part of a chemotherapy regimen for previously untreated diffuse large B-cell lymphoma (DLBCL) and CLL, and relapsed/refractory CLL. Rituximab-abbs or rituximab-pvvr may be substituted for rituximab, either as initial treatment or as subsequent treatment in relapsed/refractory disease.

Treatments Under Investigation

Clinical trials are underway with biosimilar therapies such as IBI301 for NHL and DLBCL, ABP 798 for NHL, RTXM83 for DLBCL, CT-P10 for follicular lymphoma (FL), and DRL_RI for FL.[10]

Questions to Ask Your Lymphoma Treatment Team

It is important to understand the benefits, risks, side effects, and cost differences of treatment options. Below are some questions that patients can ask their doctor when discussing treatment options.11

- What subtype of lymphoma do I have?
- What treatment options are available for my particular subtype?
- Is biologic therapy an option?
- Is a biosimilar treatment or therapy available for my lymphoma, and is there a cost difference compared to other treatment options?
- What are the risks and side effects of a biosimilar treatment? Are they the same as the other treatments, and are there any activities, foods, or other medications that I should avoid while taking this treatment?
- Will my insurance cover the cost of a biosimilar treatment?What will my out-of-pocket costs be? How do the out-of-pocket costs compare to other treatment options?

Glossary of Terms

Biologic therapies: Medicinal compounds produced in living cells by using biologic processes with modern technology

Clinical trials: Research studies to test the safety and effectiveness of drugs in people

FDA: The U.S. Food and Drug Administration is the federal body responsible for closely monitoring and regulating drug and biologic therapy manufacturing processes to protect public health

Highly similar therapy: A biosimilar product containing minor differences in chemical make-up compared with a reference product that does not alter clinical effectiveness or safety

Interchangeable therapy: A biosimilar product that can be used interchangeably with a reference product. Slight differences in its chemical make-up compared to the reference product are not expected to alter clinical effectiveness or safety

Relapse: Disease returns after treatment and/or a period of improvement

Refractory: Disease does not respond to treatment (meaning that the cancer cells continue to grow), or the response to treatment does not last very long

Lymphoma Care Plan

Keeping your information in one location can help you feel more organized and in control. This also makes it easier to find information pertaining to your care and saves valuable time. The Foundation's Lymphoma Care Plan document organizes information on your health care team, treatment regimen, and follow-up care. You can also keep track of health screenings and any symptoms you experience to discuss with your health care provider during future appointments. The Lymphoma Care Plan document can be accessed by visiting **lymphoma.org/publications**.

Patient Education Programs

The Foundation also offers a variety of educational activities, including live meetings and webinars for individuals looking to learn directly from lymphoma experts. These programs provide the lymphoma community with important information about the diagnosis and treatment of lymphoma, as well as information about clinical trials, research advances and how to manage/cope with the disease. These programs are designed to meet the needs of a lymphoma patient from the point of diagnosis through long-term survivorship. To view our schedule of upcoming programs, please visit **lymphoma.org/programs**.

Helpline

The Foundation's Helpline staff are available to answer your general questions about lymphoma and treatment information, as well as provide individual support and referrals to you and your loved ones. Callers may request the services of a language interpreter. The Foundation also offers a one-to-one peer support program called the Lymphoma Support Network and clinical trials information through our Clinical Trials Information Service. For more information about any of these resources, visit our website at **lymphoma.org**, or contact the Helpline at **(800) 500-9976** or **helpline@lymphoma.org**.

Para información en Español, por favor visite **lymphoma.org/es**. (For Information in Spanish please visit **lymphoma.org/es**).

Focus on Lymphoma Mobile App

Focus on Lymphoma is the first app to provide patients and their care partners with tailored content based on lymphoma subtype, and actionable tools to better manage diagnosis and treatment. Comprehensive lymphoma management, conveniently in one secure and easy-to-navigate app, no matter where you are on the care continuum. Get the right information, first, with resources from the entire Lymphoma Research Foundation content library, use unique tracking and reminder tools, and connect with a community of specialists and patients. To learn more about this resource, visit our website at **lymphoma.org/mobileapp**, or contact the Foundation's Helpline at **(800) 500-9976** or **helpline@lymphoma.org**.

[9] Rituximab-abbs PI Indications and Usage; rituximab-pvvr PI Indications and Usage
[10] https://clinicaltrials.gov/ct2/results?cond=lymphoma&term=biosimilar&cntry=&state=&city=&dist= Page lists several clinical trials for rituximab biosimilars 11 NHL Booklet p.48 Patient Tip box (Questions to Ask Before Treatment Begins)

Lymphoma Research Foundation

Research. Community. Cure.

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