

MEDICAL PHARMACIES PHARMACY CARE NEWS

Information for Residents and their Families

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Understanding Biologics

You may have heard about biologics (also called biologic drugs or biologicals) and wondered what they are. Biologics have gotten a lot of media coverage over the last few years, and they are generally referred to as a brand new class of drugs that will revolutionize the way we treat a wide range of chronic diseases. It's true that they are providing healthcare professionals with new options for treating diseases, but they are hardly new. In fact, the first biologic was insulin, which was discovered right here in Canada in 1921—nearly a century ago!

How Are Biologics Used?

Biologics are used to prevent, diagnose, and treat diseases. Vaccines are a common example of biologics that prevent illnesses. The allergenic extracts used in allergy shots help both to diagnose and to treat allergies. Biologics treat a wide variety of diseases; some are serious medical conditions for which no other therapies are available.

In the same way the discovery of insulin provided new hope to people with diabetes, the newer biologics are helping people with rheumatoid arthritis, psoriatic arthritis, psoriasis, multiple sclerosis, ulcerative colitis, Crohn's disease, and even some types of cancer.

The table below lists some biologics and the conditions they treat.

Biologics	Conditions It Treats
Avonex® (interferon beta-1a)	multiple sclerosis
Betaseron® (interferon beta-1b)	multiple sclerosis
Cimzia® (certolizumab)	ankylosing spondylitis, psoriatic arthritis, rheumatoid arthritis
Enbrel® (etanercept)	ankylosing spondylitis, psoriatic arthritis, rheumatoid arthritis
Extavia® (interferon beta-1b)	multiple sclerosis
Forteo® (teriparatide)	osteoporosis
Humira® (adalimumab)	ankylosing spondylitis, Crohn's disease, psoriatic arthritis, rheumatoid arthritis, ulcerative colitis
Insulin	diabetes
Prolia® (denosumab)	osteoporosis
Rebif® (interferon beta-1a)	multiple sclerosis
Remicade® (infliximab)	ankylosing spondylitis, Crohn's disease, plaque psoriasis, psoriatic arthritis, rheumatoid arthritis, ulcerative colitis
Simponi® (golimumab)	ankylosing spondylitis, psoriatic arthritis, rheumatoid arthritis, ulcerative colitis
Stelara® (ustekinumab)	psoriatic arthritis

What Makes Biologics Different?



To understand what makes biologics special, it is helpful to understand how regular drugs are made. Creating a new drug is like creating a new recipe. You take some chemical A, mix in some chemical B, and maybe add a few other chemicals. Then you process the mixture, and the resulting creation is a whole new chemical compound. That's not the case with biologics.

While the most important component of a regular drug is the list of ingredients that it is made from, the most important factor in a biologic is the process that makes it.

As the name implies, biologics are derived in some way from living organisms—human cells, animal cells, or microorganisms. That means they are more complicated to make, because they are more sensitive to environmental factors, such as temperature.

Because biologics are derived from living cells, they have to be kept alive and functioning throughout the manufacturing process and must still be alive and functioning when the person takes the medication. That means biologics require special handling—for example, they must be kept refrigerated from the time they are made, while they are being transported from the laboratory, right up until the time they are used. That's why only certain pharmacies are able to dispense biologics.

Some biologics are given by injection. How often the injections are needed depends on the particular medication. In general, the injections can be as frequent as once a day or as seldom as only once every two weeks. If you are taking a biologic, your pharmacist will explain anything about the medicine that you need to know.

Are Generic Biologics Available?

When a generic version of an existing drug reaches the market, it essentially uses the same recipe that was used to create the original drug, and it is packed up and shipped out just as any other product would be. It isn't that simple to make a generic version of a biologic, because of the complex process necessary to create these medications and the special handling requirements needed to keep them effective while they are getting from where they are made to the patients who will use them.

To make the distinction clear, they aren't even called generic drugs; they are identified by the terms subsequent entry biologics (SEB) or biosimilars. The patents for about half of the biologics currently on the market are close to expiring, and that means there may be a lot of new biosimilars coming to market in the next few years.

If you have any questions about biologics—or about any of your other medicines—your pharmacist will be happy to answer them.

