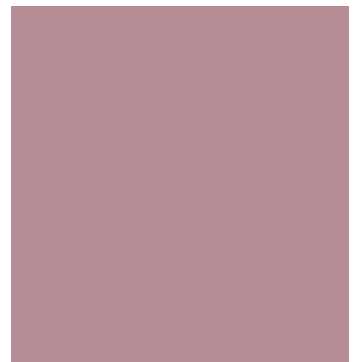
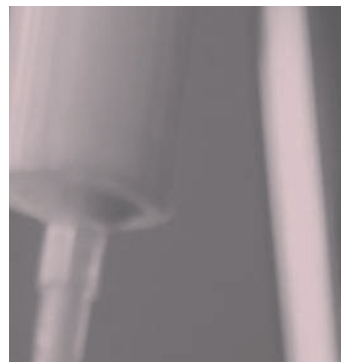
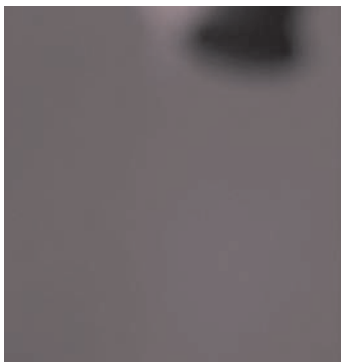
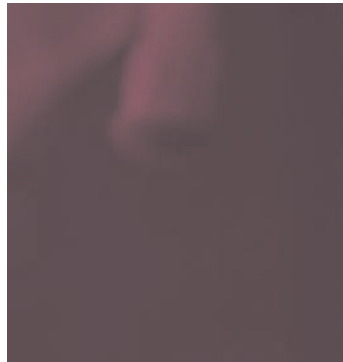
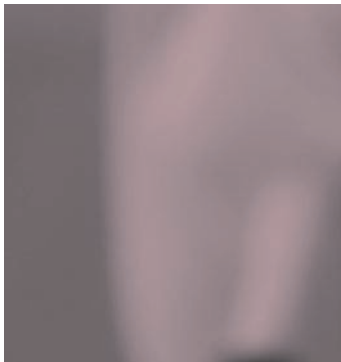
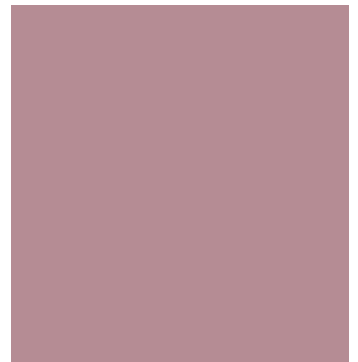
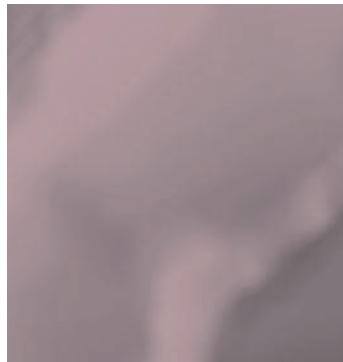
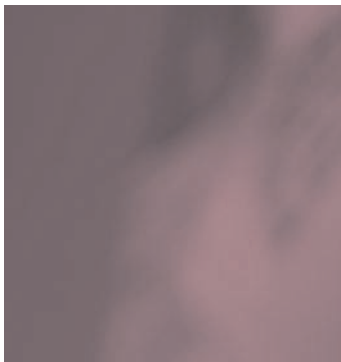


# BEST BUY DRUGS

Treating the Symptoms of Rheumatoid Arthritis:

## The Biologics

Comparing Effectiveness, Safety, Side Effects, and Price



# Our Recommendations

Injectable drugs referred to as biologic DMARDs (Disease-Modifying Antirheumatic Drugs)--or simply, biologics--are used to treat rheumatoid arthritis, a chronic condition in which the immune system, which normally fights infection, attacks the lining of the joints, causing swelling, stiffness and pain. If left untreated, it can lead to irreversible joint damage.

More than 1.3 million adults in the United States suffer from rheumatoid arthritis. It is most common in women, and in people after the age of 40, though it may occur at any age.

The biologics do not cure rheumatoid arthritis, but they do alleviate symptoms and may help prevent further joint damage. However, they can cause serious side effects and should not be used until after you have tried other therapies.

If you have been newly diagnosed with rheumatoid arthritis, studies show that other, less costly and safer medications work just as well as biologics, so you should try these first. These include ibuprofen (Advil, Motrin, and generics), naproxen (Aleve, Naprosyn, and generics), corticosteroids such as prednisone, and nonbiologic DMARDs, including hydroxychloroquine (Plaquenil), sulfasalazine (Azulfidine), minocycline (Dynacin, Minocin), and methotrexate (Rheumatrex). You should also follow an exercise program because studies show such programs improve function in people with rheumatoid arthritis.

If those therapies fail to provide you with enough symptom relief, then it may be time to try a biologic. Between 40 to 70 percent of people who have not benefitted from other rheumatoid arthritis medications experience some measure of relief from biologics.

Nine different biologics are available to treat the symptoms of rheumatoid arthritis, but they are not a cure for it. None are available as generics, so they are all very expensive, with some costing more than \$2,800 per week. Taking into account the evidence for effectiveness and safety, as well as cost, if you need a biologic drug to treat your rheumatoid arthritis, we have chosen the following as *Consumer Reports Health Best Buy Drugs*:

- Adalimumab (Humira)
- Etanercept (Enbrel)
- Abatacept (Orencia)

Studies show that these three medications are as effective or better than the other biologics for relieving rheumatoid arthritis symptoms. They also have better side effect profiles than some of the other biologics.

The side effects profile is a very important factor in choosing a biologic. The vast majority of people (up to 97 percent) treated with these medications experience at least one side effect, which can range from mild to serious to life-threatening. The potentially life threatening side effects include infections such as tuberculosis, cancer, serious damage of blood cells, and allergic reactions and convulsion following the infusion of a biologic.

*This report was published in June 2010.*

# Welcome

More than 1.3 million adults suffer from rheumatoid arthritis in the United States. The disease generally develops in people between 30 and 55 years of age, though it's most common after age 40. And, for reasons that remain unclear, women develop it more often than men. In some cases, rheumatoid arthritis can also affect children or older adults. If it is not adequately treated, it will often lead to joint destruction, disability, and a reduced quality of life.

This report is based on a comprehensive expert analysis of the medical evidence on biologic Disease-modifying Antirheumatic Drugs (DMARDs) – also referred to simply as biologics – to treat rheumatoid arthritis. It is part of a Consumers Union and *Consumer Reports* project to help you find safe, effective medicines that give you the most value for your health-care dollar. To learn more about the project and other drugs we've evaluated, visit [www.ConsumerReportsHealth.org/BestBuyDrugs](http://www.ConsumerReportsHealth.org/BestBuyDrugs).

The biologics are a relatively new type of medicine for treating rheumatoid arthritis. The first of these biologics, infliximab (Remicade), became available in 1998. Nine biologics are available for the treatment of rheumatoid arthritis. The seven we evaluate in this report are:

**Table 1: Generic and brand names of biologics**

Generic Name	Brand Name
Abatacept	Orencia
Adalimumab	Humira
Anakinra	Kineret
Certolizumab	Cimzia
Etanercept	Enbrel
Infliximab	Remicade
Rituximab	Rituxan

Two other biologics, golimumab (Simponi) and tocilizumab (Actemera), were not included in our analysis. They were approved only recently by the Food and Drug Administration and were not covered by the analysis done by the Oregon Health & Science University's Drug Effectiveness Review Project, which forms the basis of our evaluation. Actemra and Simponi are new drugs and they carry all the serious risks associated with the other biologics, so we advise avoiding them until there is more experience with these drugs and more is known about their side effect profiles.

None of the seven biologics we evaluate are available as a generic, and their future availability as generics is uncertain because the FDA has not yet established a process for approving generic biologics, or biosimilars.

Biologics are seen as a significant advance over other drugs used to treat rheumatoid arthritis – for example, methotrexate (Rheumatrex, Trexall), leflunomide (Arava), hydroxychloroquine (Plaquenil), sulfasalazine (Azulfidine) and minocycline (Dynacin, Minocin) – which are often referred to as conventional or nonbiologic DMARDs. But that said, biologics should only be used if conventional DMARDs do not work for you, either because they do not provide enough symptom relief or they are causing you intolerable side effects. Other treatments for rheumatoid arthritis often used with biologics include pain relievers or nonsteroidal anti-inflammatory drugs (NSAIDs) – for example, ibuprofen (Advil, Motrin, generic) and naproxen (Aleve and generic) – and corticosteroids, such as prednisone. This report does not evaluate the conventional DMARDs or other rheumatoid arthritis treatments or compare them with biologics.

This report focuses specifically on the use of biologics used to treat rheumatoid arthritis, though it is worth noting that some of the biologics have multiple uses and are also approved for treating other diseases such as ankylosing spondylitis, Crohn's disease, psoriasis, and ulcerative colitis.



## What Are Biologics and Who Needs Them?

Biologics work by interfering directly with the human body's immune system, the protective mechanism that fights bacteria and viruses, kills sick cells, and generally helps you stay healthy.

Sometimes, for unknown reasons, the immune system turns against the body and attacks it. This process is called *autoimmunity*. Rheumatoid arthritis is one of many different autoimmune diseases. In rheumatoid arthritis, the immune system attacks tissue inside the joints, causing inflammation, pain, joint damage, and ultimately joint destruction. By blocking certain components of the immune system, biologics help stop or reduce the inflammation caused by the misdirected attack.

Rheumatoid arthritis is characterized by pain, swelling and inflammation of the joints. It most commonly starts in the small joints of the hands and feet. Eventually all joints can be affected. Your joints can feel stiff, particularly in the morning.

### Your doctor should *not* prescribe a biologic if:

- Your rheumatoid arthritis is not active (i.e., your arthritis is in remission)
- You have not tried standard treatments (i.e. NSAIDs or conventional DMARDs) first
- You are pregnant or breastfeeding
- You have an infection
- You have previously had severe reactions to biologics

### Your doctor may decide not to prescribe a biologic if:

- You have had tuberculosis in the past
- You have had other repeated infections
- You have had cancer
- You have or had a serious heart condition
- You have lung fibrosis

Symptoms often come and go, and are often accompanied by fever or feeling tired or unwell. As the disease progresses, sufferers can experience severe joint damage and fatigue, making it difficult for them to complete everyday tasks. Flare-ups of rheumatoid arthritis are often unpredictable and difficult to manage. Pain, stiffness, and swelling are worse on some days and easier to bear on others.

The exact cause of rheumatoid arthritis is unknown. Some studies show that rheumatoid arthritis may run in families, suggesting a genetic component, yet having a family member who suffers from rheumatoid arthritis does not necessarily mean that you will also develop the disease.

Rheumatoid arthritis can be difficult to diagnose because many other conditions can cause joint stiffness, pain, swelling, and inflammation.

Your doctor will ask you about your symptoms and run a series of tests to confirm the diagnosis. One common test is a blood test to detect blood “markers” for inflammation; one is a marker called rheumatoid factor. This is an antibody that eight out of 10 people with rheumatoid arthritis carry in their blood. Rheumatoid factor, however, can also be found in one out of 20 people without rheumatoid arthritis, so this test cannot confirm rheumatoid arthritis. Another common test analyzes X-ray pictures of your hands to identify joint damage.

Which medication your doctor will consider depends on the severity of your rheumatoid arthritis, the results of blood tests and X-ray pictures, the length of time that you have been experiencing symptoms, the rate of progression of your symptoms, and other medical problems that you may have. People who are newly diagnosed with rheumatoid arthritis will most likely be started on a pain reliever, corticosteroid or conventional DMARD, with biologics reserved for second-line therapy if those treatments are not effective.

All rheumatoid arthritis medications can relieve pain and some may slow the progression of joint damage, but they do not cure the disease. As we

**Table 2: Biologics, mode of administration, and administration intervals**

Generic Name	Brand Name	Administration	Must be repeated
Abatacept	Orencia	Intravenous	Every 4 weeks
Adalimumab	Humira	Injection	Every other week
Anakinra	Kineret	Injection	Daily
Certolizumab	Cimzia	Intravenous	Every 4 weeks
Etanercept	Enbrel	Injection	Weekly or every other week
Infliximab	Remicade	Intravenous	Every 8 weeks
Rituximab	Rituxan	Intravenous	Two infusions separated by 2 weeks; repeat treatment after 24 weeks if new symptoms arise

previously noted, commonly prescribed medications include pain relievers such as ibuprofen (Advil, Motrin, and generics), naproxen (Aleve, Naprosyn, and generics), and steroids such as prednisone and methylprednisolone (Medrol), which reduce inflammation and pain and slow joint damage. In addition, your doctor might also prescribe one of the conventional DMARDs, which can help limit joint damage. Studies show that for many people, these drugs work just as well as biologics, at a much lower cost, and are safer.

Exercise can also help. Studies show that exercise programs improve the function of people with rheumatoid arthritis. These programs are typically recommended as a complement to, not a replacement for, medications.

If your symptoms continue to progress despite participation in an exercise program and the use of other rheumatoid arthritis medications such as the conventional DMARDs or if you experience intolerable side effects from these drugs, your doctor may suggest a biologic. But you should be aware that these are strong medications that can cause serious side effects and should be used with caution.

All of the biologics are given by injection. Some of them have to be administered into a vein in your arm (intravenously), while others must be injected under the skin (subcutaneously), like insulin injections for diabetes. How often you have to take a biologic will depend on which drug you have been prescribed. You should discuss with your doctor whether or not you feel comfortable injecting yourself or whether you prefer an intravenous drip at your doctor's office. Table 2, above, summarizes how individual biologics are given and how often.

## Choosing a Biologic – Our *Best Buy* Picks

If other rheumatoid arthritis medications, such as the conventional, or non-biologic DMARDs, have not provided you with sufficient relief from your rheumatoid arthritis symptoms, then you should consider a biologic. There are no generic versions of any of the biologics, so all of them are very expensive. These drugs cannot cure rheumatoid arthritis, but they have been shown to help relieve symptoms in about 40 to 70 percent of people who use them. The main difference between these medications comes down to their safety profile or the side effects they cause.

The available evidence indicates all of the biologics are similarly effective—with one exception: anakinra (Kineret) appears to be less effective than the others, and is less commonly used to treat rheumatoid arthritis. It also has the highest rate of injection site reactions.

That leaves six remaining biologics. There is more evidence overall on three—adalimumab (Humira), etanercept (Enbrel) and infliximab (Remicade). Some of the best evidence about the effectiveness of these biologics comes from a large trial that directly compared the medications against each other. This study—known as the DREAM trial—compared adalimumab (Humira) against etanercept (Enbrel) in people who were not helped by taking conventional DMARDs. Both drugs were equally effective in treating rheumatoid arthritis. Also, similar numbers of people stopped taking each drug due to side effects, suggesting both drugs have similar side effects profiles.

The DREAM trial also compared Humira against infliximab (Remicade). Humira was more effective than Remicade and had a lower rate of people dropping out due to side effects.

Several additional studies showed etanercept (Enbrel) to be more effective than Remicade. However, when all the available studies are analyzed together, Humira, Enbrel, and Remicade are about as equally effective.

One study found that abatacept (Orencia) improves symptoms in people who had not gotten adequate

relief from Enbrel or Remicade. And a study known as ATTEST found Orencia to be more effective after one year of treatment than Remicade in people who had not gotten adequate symptom relief from methotrexate. Orencia also had a lower rate of infections, serious infections, serious adverse events and infusion reactions than Remicade. In addition, more people in the study discontinued treatment with Remicade.

There is little evidence on the effectiveness of the two remaining biologics—rituximab (Rituxan) and certolizumab (Cimzia). There are no trials that have compared them head-to-head and there are no studies that could be used to compare either of them against the other biologics.



**Table 3. Effectiveness and Tolerability of Biologics**

Generic Name	Brand Name	Response to Treatment <sup>1</sup>	Discontinuation because of side effects <sup>2</sup>	Comments / Special Notes
Abatacept	Orencia	26% - 40%	3% - 7%	Low rate of infusion reactions
Adalimumab	Humira	24% - 97%	5% - 9%	None
Anakinra	Kineret	19% - 50%	Not reported	May be less effective than some other biologics Highest rate of injection site reactions
Certolizumab	Cimzia	24% - 41%	1% - 7%	None
Etanercept	Enbrel	47% - 100%	3% - 57%	None
Infliximab	Remicade	27% - 75%	2% - 20%	Higher rate of infections than Orencia and Enbrel
Rituximab	Rituxan	18% - 49%	1% - 6%	Highest rate of infusion reactions <sup>3</sup>

1. Response is defined as an at-least 50 percent improvement of rheumatoid arthritis symptoms.

2. Average discontinuation rates due to adverse events seen in studies.

3. 77 percent of people treated with rituximab had a reaction after the first infusion.

Side effects are an important consideration with this group of biologics. The vast majority of people (up to 97 percent) treated with these medications experience at least one side effect, which can range from mild to serious to life-threatening. The mild side effects associated with these medications include:

- Nausea
- Headaches
- Diarrhea
- Injection site reactions
- Abdominal pain
- Respiratory infection
- Urinary tract infections

Serious side effects include:

- Allergic reactions
- Serious infections
- Cancer
- Liver damage
- Damage of blood cells

Potentially life threatening side effects include infections such as tuberculosis, cancer, serious damage of blood cells, and allergic reactions and convulsion following the infusion of a biologic. All of the biologics carry warnings on their labeling about serious side effects, particularly serious infections.

You should not take two or more biologics in combination. Studies show that when two or more biologics are taken at the same time, there is a substantially higher rate of serious adverse events than taking one of the drugs alone. Specific combinations that have been shown to have more adverse events include Kineret with Enbrel, and Orencia with Enbrel.

Rituxan appears to have a higher potential for infusion reactions than other biologics. Because of this, it is often reserved as a second-line therapy that is used if other biologics do not provide enough symptom relief. In addition, Rituxan has



been linked to an increased risk of serious viral infections of the brain. Due to these safety concerns, we recommend avoiding Rituxan, unless other biologics have not worked for you.








Remicade has been shown to have a high rate of serious side effects and is also not one of the top picks. One trial found that compared to Orenzia, Remicade had higher rates of serious adverse events (18.2 percent compared with 9.6 percent) and serious infections (8.5 percent compared with 1.9 percent).

Table 3 on page 8 presents a summary of the evidence regarding the effectiveness and the the per-

centage of study participants who stopped taking each biologic due to its side effects. The table also contains comments on noteworthy issues associated with each drug.

In addition to effectiveness and safety, choosing a biologic involves several other factors, including the frequency of use, how the drug is given, and the length of time the treatment is effective. Also, because of the significant cost of these drugs, how much your insurance will provide coverage and how much you will pay out-of-pocket, will all factor into deciding which biologic therapy may be best for your situation.

**Table 4: Biologics Cost Comparison**

Generic Name and Dose	Brand Name	Frequency of Use	Average Monthly Cost <sup>1</sup>
 Abatacept 10 mg/kg <sup>2</sup>	Orenzia	Every 4 weeks	\$1,860
 Adalimumab 40 mg, injectable kit	Humira	Every other week	\$2,022
 Adalimumab 40 mg, pen injector	Humira	Every other week	\$2,034
Anakinra 100 mg, disposable syringes	Kineret	Daily	\$1,205
Certolizumab 400 mg, injectable kit	Cimzia	Once a month	\$915
Certolizumab 400 mg, prefilled syringe	Cimzia	Once a month	\$933
 Etanercept 25 mg, prefilled syringe	Enbrel	Twice a week	\$2,648
 Etanercept 50 mg, prefilled syringe	Enbrel	Once a week	\$2,784
 Etanercept 25 mg, injectable kit	Enbrel	Twice a week	\$2,113
 Etanercept 50 mg, pen injector	Enbrel	Once a week	\$2,126
Infliximab 5 mg/kg <sup>2</sup>	Remicade	Every 8 weeks <sup>3</sup>	\$2,034 <sup>4</sup>
Rituximab 1,000 mg	Rituxan	Every 24 weeks <sup>3</sup>	\$1,122 <sup>4</sup>

1 Prices are derived from national average retail costs for April 2010, rounded to the nearest dollar. Information is derived by *Consumer Reports Health Best Buy Drugs* from data provided by Wolters Kluwer Pharma Solutions. Wolters Kluwer is not involved in our analysis or recommendations.

2 Calculated price is based on an assumed body weight of 75 kg (165 pounds).

3 Refers to an average interval; number of infusions required varies among people.

4 A typical course requires closer intervals in the beginning. Average costs during the first year of treatment, therefore, may be substantially higher.

## Important Considerations for Choosing a Biologic

Considerations	Details
<b>Effectiveness</b>	25 to 50 percent of people who take biologics can expect to experience at least a 50 percent improvement in the number of swollen or tender joints. Except for Kineret, which appears less effective than the others, the remaining biologics appear to be equally effective.
<b>Safety</b>	97 percent of patients experience some side effects. All biologics carry risk of serious side effects, including infections and cancer. Rituximab (Rituxan) appears to have higher rate of certain adverse effects.
<b>Cost</b>	\$1,649 to \$2,835 (based on average monthly cost if paying out-of-pocket)
<b>Insurance coverage</b>	Find out if your chosen treatment will be covered by your insurance. The range of coverage, co-pays and so on will likely ultimately determine your biologic choice.
<b>Availability of product/ staff/facilities to administer</b>	Your health care providers might be more familiar with specific biologics; some products might be more available, and facilities to administer some products might be more easily accessible.
<b>Need to switch (Failure with another therapy)</b>	Roughly 40 percent of people are not helped by the first treatment they receive, and might have to be switched to another biologic. How you respond to a first biologic will determine decisions about how to choose the second or third biologic.
<b>Frequency of administration</b>	These drugs are given with varying frequencies, such as daily, weekly, monthly, bi-monthly or twice per year. This may affect your choice of biologic.
<b>Route of administration</b>	Self injection, physician injection or intravenous infusion (See Table 2, on page 6)
<b>Harm related to route of administration</b>	Infusion reactions can be common and severe. Injection site reactions (e.g. rash, itching, or pain) are also common.

# Overview of Effectiveness and Safety of Biologics

This report is based on an analysis of the clinical evidence on the effectiveness and safety of biologic therapies for rheumatoid arthritis done by the Drug Effectiveness Review Project (DERP). In this analysis, a total of 3,451 studies and research articles dealing with any use of biologic drugs were identified and screened. All were published between 1990 and 2009. From these, the analysis focused on 88 studies that specifically focused on biologics to treat people with rheumatoid arthritis, which included 20 controlled clinical trials, 23 studies that performed an analysis of multiple other studies, 34 observational studies, and 11 studies of other design. An additional 255 articles were reviewed for general background information pertinent to biologic chemistry, biology, and clinical use. Balancing the effects between benefit and harm is particularly challenging because there is a lack of long-term data on the safety of biologics.

## How Effective are Biologics?

For many people who have not responded to standard rheumatoid arthritis treatment (conventional DMARDs, for example), the biologics can be effective treatments. However, people's responses vary—some experience a vast improvement in their symptoms and function, while others may experience little or no improvement at all. It is important to note that the studies involving biologics have involved people who had failed on other rheumatoid arthritis medications, so we strongly recommend trying conventional DMARDs and other medications first before going to a biologic.

The effectiveness and benefits of biologics are primarily assessed on three criteria:

- People's response to treatment, often characterized by at least 50 percent improvement in rheumatoid arthritis symptoms on a rheumatoid arthritis rating scale
- Whether there is slowing of the progression of the disease and prevention of joint damage
- Whether there are improvements in people's quality of life and function

Response to treatment is based on how people rate their pain, stiffness, and other symptoms. On average, between 25 and 50 percent of people who do not respond to conventional DMARDs and switch to a biologic can expect to experience at least a 50 percent improvement in their symptoms as compared to those who continue to take conventional DMARDs. Roughly 40 percent of people will fail to respond to any particular treatment, and will likely require a switch to another biologic. As we have previously noted, however, two biologics should never be taken at the same time, because this significantly increases the chance of adverse effects, but with little improvement in symptoms.

Studies show that all of the biologics are similarly effective, except for anakinra (Kineret), which appears to be less effective than the others. Two other disadvantages of this drug are that it must be taken daily and it has the highest rate of injection site reactions. If you are currently on anakinra and do not respond well to this drug, talk with your doctor about switching to one of our *Best Buy* selections.

If you are on infliximab (Remicade), you may require a dose adjustment after a few months of treatment. About 30 percent of patients need to adjust their treatment to larger doses to maintain the response. Larger doses for all biologics increase the risk of side effects.

Longer and more extensive studies have been conducted on some biologics more than on others. Most studies of biologics are relatively short, lasting between three to 12 months and only two studies have compared biologics directly to each other in terms of effectiveness and safety. The limited time frame does not allow an assessment of long-term response or safety in a chronic, progressive disease. As mentioned above, biologics cannot cure rheumatoid arthritis, but they may help slow the progression, alleviate the symptoms, and may prevent joint damage.

While marketing campaigns often tout the benefits of starting biologics early during the course of dis-

ease, studies in people with early rheumatoid arthritis have not shown any clear benefits of biologics over conventional DMARD treatment. People responded to both treatments equally well, but conventional DMARDs are vastly cheaper than biologics and should be the first line of treatment in people with newly diagnosed rheumatoid arthritis. Additionally, the bulk of evidence underlying the effectiveness and safety of the biologics is based on studies involving people in whom conventional DMARDs were ineffective. In other words, these drugs should only be used if you do not get adequate symptom relief from other therapies, including exercise, over-the-counter and prescription pain relieving drugs, and conventional DMARDs like methotrexate.

### How Safe are the Biologics?

As discussed earlier, the vast majority of people (90 percent) who use biologics for rheumatoid arthritis will experience at least one side effect. Most of these are minor. Because biologics target the defense system of your body, minor infections such as respiratory infections or urinary tract infections are common. In addition, nausea, diarrhea, and abdominal pain also occur frequently. Depending on the drug, side effects related to drug administration are common. For biologics that are injected subcutaneously (adalimumab, anakinra, certolizumab, and etanercept), injection site reactions such as rash, itching, and pain are common. Anakinra appears to cause more injection-site reactions than the other biologics.

Reactions to the intravenous infusion of a biologic (abatacept, infliximab, and rituximab) are also common, and can be more severe. Such infusion reactions include dizziness, chills, itching, headaches, and fever. In about 1 percent of patients, infusion reactions can be severe and can mimic a severe allergic reaction or lead to convulsions. Deaths have also been reported following infusions of biologics. Rituximab appears to have a higher risk for such reactions than other biologic drugs.

Long-term risks of biologics are also a concern. These may include severe infections, particularly tuberculosis and fungal infections. Other infections have been reported, and some have resulted in

death. All biologics carry on their labeling warnings about the increased risk of infections.

Biologics are also associated with an increased risk for certain cancers, particularly cancers involving lymph nodes and bone marrow and skin cancers.

Other adverse effects include worsening or triggering congestive heart failure, liver damage, and neurologic disorders. Long-term adverse effects have yet to be thoroughly studied and identified.

To reduce the risk of side effects, let your doctor know if you have:

- chronic obstructive pulmonary disease
- congestive heart failure
- diabetes
- an infection or history of infections
- tuberculosis or a positive skin test for tuberculosis
- viral hepatitis

Also notify your doctor if you have been around an individual with chicken pox, shingles, or tuberculosis or if you are scheduled to receive a vaccine or have surgery.

The risk of biologics to unborn babies is unknown. Women of child-bearing age must use contraception while on biologics. If you are planning to become pregnant, talk to your doctor about when to stop contraception and biologics.

### Drug Interactions

Biologics are often prescribed together with other medications such as methotrexate, pain medications, or corticosteroids, and do not seem to interact with most drugs. But it's important to note that there is little research on how the biologics interact with other drugs. Biologics, however, should never be taken together with other biologics, as this can increase the risk of severe adverse effects.

Because biologics affect your immune system, it is recommended that you should not be immunized with 'live' vaccines such as the yellow fever vaccine while you are on biologic therapy. In certain situations, however, a live vaccine may be neces-

sary (for example, rubella immunization in women of childbearing age). You should discuss the possible risks and benefits of immunizations with your doctor. Other vaccines such as flu vaccines are safe, and can be administered with biologic medications. But read the package insert of the biologic you are taking and also discuss with your doctor any vaccines you plan to take.

### **Age, Race, and Gender Differences**

People older than 65 and various ethnic groups have been under-represented in most studies of targeted immune modulators. Still, the existing evidence does not indicate that any targeted immune modulator is more or less effective in older patients, people of any particular race or gender, or in patients who have other diseases.



## Talking With Your Doctor

It's important for you to know that the information we present here is not meant to substitute for a doctor's judgment. However, we hope it will help you and your doctor arrive at a decision about which biologic therapy and dose is best for you, if one is warranted at all, and which gives you the most value for your health-care dollar.

People are often reluctant to discuss the cost of medicines with their doctor, and studies have found that doctors do not routinely take price into account when prescribing medicines. So bring up the issue of cost: Your doctor may just assume that it is not a factor for you.

Many people (including physicians) think that newer drugs are better. While that's a natural assumption to make, it may not always be true. Studies have found that older medicines are as good as, and in some cases better than, newer medicines. Think of them as "tried and true," particularly when it comes to their safety record. Newer drugs have not yet met the test of time, and unexpected problems may emerge once they hit the market.

Of course, some newer prescription drugs are indeed more effective and safer. Talk with your doctor about the pluses and minuses of newer vs. older medicines.

Another important issue to discuss with your doctor is keeping a record of the drugs you are taking. There are several reasons for this:

- First, if you see several doctors, each may not be aware of medicines the others have prescribed.
- Second, since people differ in their response to medications, it is very common for doctors today to prescribe several medicines before finding one that works well or best.
- Third, many people take several prescription medications, nonprescription drugs, and dietary supplements at the same time. They can interact in ways that can either reduce the benefit you get from one or more of the drugs, and in ways that may be dangerous.
- Fourth, the names of prescription drugs—both generic and brand—are often hard to pronounce and remember.

For all these reasons, it's important to keep a written list of all the drugs and supplements you are taking, and to periodically review this list with your doctors.

Additionally, it is important to always be sure that you understand the dose of the medicine being prescribed for you. Your doctor should tell you this information. When you fill a prescription at the pharmacy, or if you receive it by mail, you should check to see that the dose match the amounts recommended by your physician.

## How We Picked the *Best Buy* Drugs

Our evaluation is based in part on an independent scientific review of the studies and research literature on biologic therapies conducted by a team of physicians and researchers at the Oregon Health & Science University Evidence-Based Practice Center. This analysis reviewed more than 88 studies, that included 20 controlled clinical trials, 23 studies that performed a cross-cutting analysis of multiple other studies, 34 observational studies, and 11 studies of other design. This effort was conducted as part of the Drug Effectiveness Review Project, or DERP. DERP is a first-of-its-kind, 11-state initiative created to evaluate the comparative effectiveness and safety of hundreds of prescription drugs.

A synopsis of DERP's analysis of the biologic drugs forms the basis for this report. An additional literature search was conducted to capture the most recent published studies available evaluating biologic therapies for rheumatoid arthritis. A consultant to *Consumer Reports Health Best Buy Drugs* is also a member of the Oregon-based research team, which has no financial interest in any pharmaceutical company or product. The full DERP review of the biologic drugs to treat rheumatoid arthritis is available at <http://derp.ohsu.edu/about/final-document-display.cfm>. (Note that this is a long and technical document written for physicians and other medical researchers.)

The monthly costs we cite were obtained from Wolters Kluwer Pharma Solutions, a health-care information company that tracks the sales of prescription drugs in the U.S. Prices for a drug can vary quite widely. All the prices in this report are national averages based on sales in retail outlets only. They reflect the cash price paid for a month's supply of each drug in April 2010.

Consumers Union and *Consumer Reports* selected the *Best Buy Drugs* using the following criteria. The drug had to:

- Be approved by the FDA to treat rheumatoid arthritis.
- Be as effective as or more effective than other biologics when prescribed appropriately according to FDA guidelines based on published randomized controlled trials.
- Have a safety record equal to or better than other biologics medicines when prescribed appropriately.

The *Consumers Reports Health Best Buy Drugs* methodology is described in more detail in the Methods section at [ConsumerReportsHealth.org/BestBuyDrugs](http://ConsumerReportsHealth.org/BestBuyDrugs).

## Sharing This Report

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## About Us

Consumers Union, publisher of *Consumer Reports* magazine, is an independent and nonprofit organization whose mission since 1936 has been to provide consumers with unbiased information on goods and services and to create a fair marketplace. Its Web site is [www.consumer.org](http://www.consumer.org). The magazine's Web site is [www.consumerreports.org](http://www.consumerreports.org).

*Consumer Reports Health Best Buy Drugs* is a public- education project administered by Consumers Union. It is partially grant funded. Principle current outside funding comes from the state Attorney General Consumer and Prescriber Education Grant Program, which is funded by the multistate settlement of consumer fraud claims regarding the marketing of the prescription drug Neurontin.

The Engelberg Foundation provided a major grant to fund the creation of the project from 2004 to 2007. Additional initial funding came from the National Library of Medicine, part of the National Institutes of Health. A more detailed explanation of the project is available at [ConsumerReportsHealth.org/BestBuyDrugs](http://ConsumerReportsHealth.org/BestBuyDrugs).

These materials are made possible by the state Attorney General Consumer and Prescriber Edu-

cation Grant Program, which is funded by the multistate settlement of consumer fraud claims regarding the marketing of the prescription drug Neurontin.

We followed a rigorous editorial process to ensure that the information in this report and on the *Consumer Reports Health Best Buy Drugs* Web site is accurate and describes generally accepted clinical practices. If we find, or are alerted to, an error, we will correct it as quickly as possible. But *Consumer Reports* and its authors, editors, publishers, licensers, and any suppliers cannot be responsible for medical errors or omissions, or any consequences from the use of the information on this site. Please refer to our user agreement at [ConsumerReportsHealth.org/BestBuyDrugs](http://ConsumerReportsHealth.org/BestBuyDrugs) for further information.

*Consumer Reports Health Best Buy Drugs* should not be viewed as a substitute for a consultation with a medical or health professional. This report and the information on [ConsumerReportsHealth.org/BestBuyDrugs](http://ConsumerReportsHealth.org/BestBuyDrugs) are provided to enhance your communication with your doctor rather than to replace it.



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