

Rituximab

Names	The generic drug name is rituximab (ri-TUK-si-mab). Rituxan® is a brand name. There may be other brand names for this medication.
How is it Given?	Rituximab is usually given by infusion into a vein (intravenous or IV injection). It must be given slowly and it may take several hours or more to receive your first dose. You may receive your medication more quickly during subsequent doses, depending on how you respond.
Why Am I Taking Rituximab?	This medication is used to treat some types of non-Hodgkin's lymphoma and chronic lymphocytic leukemia (CLL).
How Does it Work?	<p>Rituximab is a monoclonal antibody, a type of <i>targeted therapy</i>. When “foreign invaders”, which are called antigens, are detected, your body makes antibodies. Antibodies attach to antigens like a key fits in a lock, and destroy the antigens. This process is part of the body’s normal immune response that helps protect you from disease.</p> <p>For cancer therapies, certain proteins are made into antigens that look for, and attach to, a specific type of cell. Your antibodies will attack that antigen and the attached cell. Since monoclonal antibodies only target specific cells, they may cause less harm to healthy cells.</p> <p>Rituximab targets an antigen (CD 20) that is on both normal and cancerous B-cells, a type of white blood cell that plays a part in fighting infections. Stem cells (immature cells in your bone marrow) do not have CD 20, so they can mature and replace the B-cells destroyed by the rituximab.</p>
What Should I Tell My Doctor Before I Begin Rituximab?	<p>Tell your doctor if you:</p> <ul style="list-style-type: none">• have had an allergic reaction to rituximab, murines, or any medications• have any type of infection now, if you have ever had an infection that wouldn’t go away, or if you have an infection that comes and goes• have or have ever had an irregular heartbeat, chest pain, other heart problems, or lung problems

- have or have ever had chronic lymphocytic leukemia (CLL), mantle cell lymphoma, irregular heartbeat, or heart or lung disease
- have ever had any of these viruses: hepatitis, chicken pox/shingles (varicella-zoster), herpes, West Nile, parvovirus (fifth disease), or cytomegalovirus (CMV)
- have or have ever had kidney disease
- are taking adalimumab (Humira®); certolizumab (Cimzia®); cisplatin; etanercept (Enbrel®); golimumab (Simponi®); infliximab (Remicade®); medications for high blood pressure; medications for rheumatoid arthritis; or medications that suppress the immune system such as azathioprine (Azasan®, Imuran®), cyclosporine (Gengraf®, Neoral®, Sandimmune®), sirolimus (Rapamune®, Torisel®), or tacrolimus (Envarsus®, Prograf®)
- are pregnant or breastfeeding

This drug may interact with other medications or cause harmful side effects. Tell your doctor and pharmacist about all prescription or over-the-counter medications, vitamins, herbal or diet supplements that you are taking.

What Are Some Possible Side Effects?

- Flu-like symptoms: fever and chills
- Weakness, dizziness
- Stomach pain, heartburn, or nausea
- Headache
- Cold symptoms: runny nose or scratchy throat
- Diarrhea
- Muscle, joint, or back pain
- Flushing and/or night sweats

How Can I Manage These Side Effects?

- For flu-like symptoms, keep warm with blankets and drink plenty of liquids.
- Drink 2-3 quarts of fluids a day, especially water, unless your doctor has restricted your fluids. This is very important, especially for the first 2 days after chemo.
- Avoid driving and other activities that require alertness until you know how this medication will affect you.
- Ask your doctor about medication to help prevent or lessen fever, nausea, headache, diarrhea, or pain.

When Should I Call the Doctor?

Call your doctor immediately if you have:

- any sign of allergic reaction: itching or hives, swelling in your face or hands, swelling or tingling in your mouth, lips, tongue, or throat; chest tightness or pain, wheezing, trouble breathing or swallowing; dizziness, fainting; (heart) palpitations; fast or weak pulse; loss of consciousness; pale or bluish skin; or heavy sweating
- any sign of infection: fever of 100.5°F (38°C) or higher, chills, cough, sore throat, pain or burning upon urination; redness or tenderness along a vein, at an IV site, or at any other wound or skin irritation
- Shortness of breath
- Confusion

Call your doctor as soon as possible (within 1 day) if you have:

- Nausea, headache, muscle pain, or vomiting that is not relieved by prescribed medication
- Nausea or vomiting that prevents you from eating or drinking
- pain in or near your stomach
- rash or joint pain or soreness
- unusual bruising or bleeding: bleeding lasts more than 10-15 minutes or that causes dizziness; black or bloody stools; vomit that is bloody or that looks like coffee grounds; blood in your urine or phlegm /mucus, unusually heavy menstrual bleeding, spontaneous bleeding from your gums or nose, or superficial bleeding into the skin that appears as a rash of pinpoint-sized reddish-purple spots (petechiae)

What Else Should I Know About Rituximab?

- Rituximab may cause temporary low blood pressure. If you take medication for high blood pressure, check with your doctor if you should take your medication before the rituximab infusion.
- Check with your doctor before having any vaccinations, such as the flu shot.
- You may experience fever, shaking, chills, tiredness, headache, or nausea during treatment, especially with your first dose. Tell your nurse right away if you have any of these symptoms during your infusion.
- Do not get pregnant or father a child while you are taking rituximab. This drug may be harmful to a fetus. Anyone being treated with rituximab – man or woman - should use 2 forms of birth control during treatment and for 12 months afterwards.
- Do not breastfeed while you are receiving this medicine.
- If you have surgery, tell your doctor/dentist you are on rituximab.
- Be sure to keep all of your lab and doctor appointments.

- Rituximab has been linked to a few rare, but very serious, conditions. You should call your doctor immediately if you experience the symptoms described for any of these conditions:
 - *severe skin reactions*: painful skin sores or ulcers, peeling skin, blisters, or rash
 - *tumor lysis syndrome (TLS)*: any urinary changes like urinating less frequently or producing less urine. TLS can lead to kidney failure
 - *progressive multifocal leukoencephalopathy (PML)*: difficulty thinking clearly or walking, loss of strength, vision problems, or any unusual symptom that develops suddenly
 - *allergic reaction*: see symptoms under “When To Call the Doctor”
- If you would like more information about rituximab, talk to your doctor or pharmacist. .