

# 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"><li>• have had an allergic reaction to rituximab, murines, or any medications</li><li>• 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</li><li>• have ever had any of these viruses: hepatitis, chicken pox/shingles (varicella-zoster), herpes, West Nile, parvovirus (fifth disease), or cytomegalovirus (CMV)</li></ul>

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- 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?

- Fever and chills
- Weakness, dizziness
- Stomach pain, heartburn, or nausea
- Headache
- Cold symptoms: runny nose, scratchy throat, cough
- Diarrhea
- Muscle, joint, or back pain
- Flushing and/or night sweats
- Birth defects

#### How Can I Manage These Side Effects?

- 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.
- For flu-like symptoms, keep warm with blankets and drink plenty of liquids.
- Avoid crowds and people who are ill. Wash your hands well – and often. Do not receive any kind of immunization or vaccination without your doctor's approval.
- Avoid driving and other activities that require alertness until you know how this medication will affect you.
- To help prevent nausea, avoid fried, spicy, and fatty foods on the days you receive chemo and for 2-3 days afterwards. Eating small, frequent meals may help. If you have nausea, try foods and drinks that are bland - ginger ale, dry crackers, and toast.
- Diarrhea: Loperamide (Imodium®) is available over the counter. You can take 2 tablets after the first episode of diarrhea, followed by 1 tablet (2mg) after each loose stool as needed. Do not take more than 8 tablets (16mg) in a 24-hour period.

- Ask your doctor before taking any medicines or products for any side effect.
- Do not get pregnant or father a child while you are taking rituximab. This drug may be harmful to a fetus. Both man and women should use effective birth control during treatment and for 12 months after treatment ends. Barrier methods such as condoms and diaphragms are recommended.
- Do not breastfeed while you are receiving this medicine.
- 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 Should I Call the Doctor”

#### When Should I Call the Doctor?

**Call 911 or go to the nearest hospital emergency department if you have life-threatening symptoms such as** signs of severe allergic reaction: Swelling or tingling in your face, tongue, mouth, or throat; chest tightness; wheezing; trouble breathing or swallowing; dizziness, shortness of breath; heart palpitations; or hives.

Please let us know if you go to the emergency room or are admitted to the hospital

#### **Call your doctor immediately if you have:**

- any sign of infection: **Fever of 100.4°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
- painful sores or ulcers on the skin, lips, or mouth; blisters; rash; or peeling skin

#### **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 or 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.
- If you have surgery, tell your doctor/dentist you are on rituximab.
- Be sure to keep all of your lab and doctor appointments.
- If you would like more information about rituximab, talk to your doctor or pharmacist. .