



## Rituximab (Rituxan and MabThera)

### Description

Rituximab (*Rituxan* and *MabThera*) is a drug used to treat rheumatoid arthritis that has not improved with other types of medications, as well as certain forms of vasculitis. It works by turning off a part of the immune system that is not working properly in autoimmune diseases.

### Fast Facts:

- Rituximab is used to treat rheumatoid arthritis (RA) that has not gotten better with other types of treatments. For this indication, it is usually given as two intravenous infusions, the second one fifteen days after the first. This can be repeated six months later.
- Rituximab can be used to treat certain severe forms of vasculitis, including Granulomatosis with Polyangiitis (Wegener's) and Microscopic Polyangiitis (MPA). For this indication, it is usually given as an intravenous infusion once weekly for 4 weeks.

### Uses

Rituximab is used in combination with methotrexate to treat RA that has not responded to one or more types of treatment, including anti-tumor necrosis factor (TNF) blockers. Rituximab also is used to treat certain types of vasculitis (an inflammatory condition affecting blood vessels), such as granulomatosis with polyangiitis or MPA. Occasionally rituximab is used to treat other immune problems, including autoimmune blood disorders, lupus, and inflammatory muscle diseases. Rituximab also is used in the treatment of some blood disorders, including chronic lymphocytic leukemia and non-Hodgkin's lymphoma.



### How It Works

Rituximab targets a protein on B cells, which are part of the immune system (the body's defense against infections and other harmful substances). B cells produce antibodies, proteins that allow the body to remove infectious or other dangerous particles. B cells also produce chemicals that help other parts of the immune system do their jobs. However, people with rheumatoid arthritis and vasculitis make B cells that do not work the way they should. These abnormal B cells do not interact properly with other parts of the immune system and can attack a person's own body even if there is no infection (which is called an autoimmune response). The autoimmune response can result in a number of different symptoms, including inflammation of the joints (arthritis), with symptoms of joint pain, swelling and stiffness. The autoimmune response can also affect blood vessels and cause inflammation, resulting in multiple problems in many parts of the body, including the skin, sinuses, lungs, and kidney. By temporarily removing the harmful B cells, rituximab can help control the arthritis, and can help control inflammation of blood vessels.

### Dosing

Rituximab is given as an intravenous infusion (IV or "drip") into a vein. The infusion usually takes 2-4 hours, although occasionally it can take longer. A course of rituximab for rheumatoid arthritis usually consists of two 1000-milligram doses given 15 days apart. To treat vasculitis, a smaller dose is given once a week for 4 weeks in a row.

### Time to Effect

The effects of rituximab begin about 6 weeks after the infusions. Usually by the third month, the full effect occurs, and can last up to 9 months.

### Side Effects

Sometimes patients' blood pressure can drop during the treatment. Those who take medication to lower their blood pressure may have to stop it before the infusion.

Some patients feel mild side effects during or up to 24 hours after receiving rituximab. These usually occur with the first infusion, and can include mild throat tightening, flu-like symptoms, rash, itchiness, dizziness and back pain. These symptoms can be reduced by receiving a steroid injection before the infusion, along with acetaminophen (*Tylenol*) and diphenhydramine (*Benadryl*). The infusion is sometimes stopped for a short while and then restarted at a slower rate if the symptoms get better. Rarely, patients will have more serious symptoms, such as wheezing, mouth or throat swelling, trouble breathing or chest pain. Patients who experience these symptoms should tell their health care providers immediately; patients may receive stronger medications to treat those symptoms.



Other side effects around the time of the infusion can include headache, cough, nausea, stomach upset, sweating, nervousness, muscle stiffness, and numbness. Patients can take mild pain medications, such as acetaminophen, for them, but should call their doctors if the symptoms are severe or get worse.

In the months after the treatment, some people may notice more frequent infections, such as colds or sinusitis. Usually, these are not severe. There are a few rare but serious side effects from rituximab. These include severe skin reactions and mouth sores. There also have been several cases of a viral infection of the brain called progressive multifocal leukoencephalopathy (PML). Patients who experience vision changes, loss of balance, difficulty walking or confusion should contact their doctors immediately.

#### Points to Remember:

- Rituximab is an infusion medication used to treat rheumatoid arthritis that has not gotten better with other treatments, as well as certain forms of vasculitis.
- Patients often have a few side effects during the infusion; these are usually mild and get better with later treatments.
- Patients who develop a serious infection, rash, dizziness, blurry vision, or confusion should contact their doctors immediately, even if it has been many weeks after the infusion.

#### Drug Interactions

Biologic drugs [including etanercept (*Enbrel*), adalimumab (*Humira*), infliximab (*Remicade*), certolizumab (*Cimzia*), golimumab (*Simponi*), abatacept (*Orencia*), tocilizumab (*Actemra*)] may increase the risk of serious infections and medication side effects. Blood pressure medications may increase the risk of low blood pressure during the infusion.

#### Information to Discuss With Other Health Care Providers

- Tell your doctor if you have lung or heart problems, or have ever had any major infections (especially hepatitis).
- Tell your health care providers about all medications you are currently taking, including over-the-counter medications, supplements, and herbal therapies. Also, tell them about all allergic reactions you have had to medications.
- If you are a woman who can get pregnant, it is important to use reliable birth control before treatment and for 12 months afterward.
- Since vaccines are not as effective for several months after receiving rituximab, you should ideally receive necessary ones before starting treatment or between courses.



### For More Information

Your doctor may have more information sheets on this medication. The American College of Rheumatology has compiled this list to give you a starting point for your own additional research. The ACR does not endorse or maintain these websites, and is not responsible for any information or claims provided on them. It is always best to talk with your rheumatologist for more information and before making any decisions about your care.

#### Medline Plus

[www.nlm.nih.gov/medlineplus/druginfo/meds/a607038.html](http://www.nlm.nih.gov/medlineplus/druginfo/meds/a607038.html)

#### ACR Patient Fact Sheet - Granulomatosis with Polyangiitis (Wegener's)

[www.rheumatology.org/practice/clinical/patients/diseases\\_and\\_conditions/wegeners.asp](http://www.rheumatology.org/practice/clinical/patients/diseases_and_conditions/wegeners.asp)

#### U.S. Food and Drug Administration approves Rituxan to treat Wegener's Granulomatosis and Microscopic Polyangiitis

[www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm251946.htm](http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm251946.htm)

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Written by S. Monrad, MD and reviewed by the American College of Rheumatology Communications and Marketing Committee.

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