

SELF-INJECTED MEDICATIONS

NAME	TYPE OF MEDICATION	HOW ADMINISTERED AND SIDE EFFECTS
Avonex® (interferon beta-1a)	immune system modulator with antiviral properties	30 micrograms taken via weekly intramuscular injection; side effects include flu-like symptoms and headache, as well as blood count and liver test abnormalities; side effects are manageable and usually temporary
Betaseron® (interferon beta-1b)	immune system modulator with antiviral properties	250 micrograms taken via subcutaneous injection every other day; side effects include flu-like symptoms, headache, and injection-site reactions, as well as blood count and liver test abnormalities; side effects are manageable and usually temporary
Copaxone® (glatiramer acetate)	synthetic chain of four amino acids found in myelin; it is an immune system modulator that blocks attacks on myelin	20 (daily) or 40 (three times weekly) milligrams taken via subcutaneous injection; side effects include injection-site reaction as well as an occasional systemic reaction, usually lasting only a few minutes with no long-term effects
Extavia® (interferon beta-1b)	immune system modulator with antiviral properties	250 micrograms taken via subcutaneous injection every other day; side effects include flu-like symptoms, headache, and injection-site reactions, as well as blood count and liver test abnormalities; side effects are manageable and usually temporary
Generic Glatiramer Acetate Injection (glatiramer acetate)	synthetic chain of four amino acids found in myelin; it is an immune system modulator that blocks attacks on myelin	20 (daily) or 40 (three times weekly) milligrams taken via subcutaneous injection; side effects include injection-site reaction as well as an occasional systemic reaction, usually lasting only a few minutes with no long-term effects
Glatopa® (glatiramer acetate)	synthetic chain of four amino acids found in myelin; it is an immune system modulator that blocks attacks on myelin	20 (daily) or 40 (three times weekly) milligrams taken via subcutaneous injection; side effects include injection-site reaction as well as an occasional systemic reaction, usually lasting only a few minutes with no long-term effects
Plegridy® (interferon beta-1a)	immune system modulator with antiviral properties	125 micrograms taken via subcutaneous injection once every two weeks; side effects include flu-like symptoms, headache, and injection-site reactions, as well as blood count and liver test abnormalities; side effects are manageable and usually temporary
Rebif® (interferon beta-1a)	immune system modulator with antiviral properties	44 micrograms taken via subcutaneous injection three times weekly; side effects include flu-like symptoms, headache, and injection-site reactions, as well as blood count and liver test abnormalities; side effects are manageable and usually temporary

INFUSED MEDICATIONS

NAME	TYPE OF MEDICATION	HOW ADMINISTERED AND SIDE EFFECTS
Lemtrada® (alemtuzumab)	humanized monoclonal antibody that rapidly depletes or suppresses immune system cells (T and B cells), which can damage the myelin and nerves of the CNS	Five-day course of 12 mgs daily via intravenous (IV) infusion and followed one year later by a second three-day course; side effects include rash, itching, headache, fever, nasopharyngitis, nausea, diarrhea and vomiting, insomnia, numbness, dizziness, pain, and flushing; adverse events include infusion reactions, infection, autoimmune diseases, potentially severe bleeding disorder (ITP), and malignancies
Novantrone® (mitoxantrone)	antineoplastic agent; immune system modulator and suppressor	IV infusion once every three months (for two to three years); side effects include nausea, thinning hair, loss of menstrual periods, bladder infections, and mouth sores; seldom prescribed for MS due to the potential for heart damage and leukemia
Ocrevus™ (ocrelizumab)	humanized monoclonal antibody designed to selectively target CD20-positive B cells, a type of immune cell important to the MS-disease process.	600-milligram dose given via IV every six months; initial dose given in two 300-milligram doses; side effects include potentially serious infusion reactions, infections (respiratory and skin infections most common); adverse events include cancer and possibly PML*, a viral brain infection
Tysabri® (natalizumab)	humanized monoclonal antibody; inhibits adhesion molecules; thought to prevent damaging immune cells from crossing the blood-brain barrier	300 mg dose given via IV infusion every four weeks; side effects include headache, fatigue, depression, joint pain, abdominal discomfort, and infection; serious adverse events include infection (including pneumonia), and the potential for PML*, a viral brain infection

ORAL MEDICATIONS

NAME	TYPE OF MEDICATION	HOW ADMINISTERED AND SIDE EFFECTS
Aubagio® (teriflunomide)	immunomodulator affecting the production of T and B cells; may also inhibit nerve degeneration	7 or 14 milligram tablet taken orally, once per day; side effects include headache, elevated liver enzymes, thinning hair, diarrhea, nausea, neutropenia (a condition causing a reduction of certain white blood cells), and paresthesia (tingling, burning, and numbness); adverse events include severe liver injury and birth defects if pregnant
Gilenya® (fingolimod)	S1P-receptor modulator, which blocks potentially damaging T cells from leaving lymph nodes	0.5 milligram capsule taken orally once per day; side effects include headache, flu, cough, diarrhea, back pain, and abnormal liver tests; adverse events include transient heart-rate reduction and AV block, swelling behind the eye, and possibly PML*, a viral brain infection
Tecfidera® (dimethyl fumarate)	immunomodulator with anti-inflammatory properties; may have neuroprotective effects, potentially protecting the nerves and myelin covering	240-milligram tablet taken twice daily; side effects include flushing, gastrointestinal events, reduced white blood cell count, and elevated liver enzymes; adverse events include respiratory infection, chronic itching, rash, gastric-lining inflammation, and possibly PML*, a viral brain infection

**Progressive multifocal leukoencephalopathy (PML), a potentially fatal, viral infection of the brain, can develop in some individuals taking Tysabri. Risk factors include the presence of anti-JCV antibodies, taking Tysabri for two years or more, and prior immunosuppressant treatment. Currently, PML has occurred in a few patients taking Gilenya, Tecfidera, or Ocrevus; some of these cases are still under investigation.*