What is Tysabri®?
Antibodies are proteins made by the body to attack particular targets, like bacteria or viruses. Antibodies are shaped like the letter “Y” with the two tips of the “Y” both capable of binding to a target. Tysabri® is an antibody directed against a protein called α4-integrin. This antibody was originally created in mice, but mouse antibodies cannot be given to humans for very long because the human body recognizes the mouse antibody as foreign. Tysabri® was made by genetically replacing most of the mouse antibody with a human framework, leaving the molecule about 95% human and 5% mouse. The remaining mouse portion is located on the tip of the antibody where it binds to its target. This engineered gene is placed into a mouse cell culture line for manufacture.

In this drawing of an antibody, the gray area is human and the black area is mouse. The black area binds to α4-integrin. There are several members of the α4-integrin family, and Tysabri® is directed against two of them: α4β1 and α4β7. α4β1 is also known as very late antigen 4 (VLA-4) or CD49d-CD29. The α4-integrins are found on all white blood cells, with the exception of neutrophils (which fight bacteria).

White blood cells circulate around the body in the bloodstream. To attack a target, they must leave the bloodstream and get out into the tissues. As they near the location where they are to leave the bloodstream, proteins on the surface of the white blood cell (some of which are the integrins) stick to proteins on the blood vessel wall (one of which is named VCAM). The two proteins stick to each other like the two sides of Velcro, stopping the white blood cell and allowing it to move out of the blood vessel. If this did not occur, the white blood cell would flow right past its target and be unable to exit the bloodstream. Tysabri blocks these proteins, trapping the white blood cell in the bloodstream.

White blood cells able to exit bloodstream and enter tissues on left. This is blocked by Tysabri on the right.
Tysabri® slows the course of multiple sclerosis when used regularly over long periods of time. It does not improve existing symptoms and is not used to treat acute MS attacks.

Starting on Tysabri®.
To obtain Tysabri®, patients must enroll in the Tysabri® Outreach: Unified Commitment to Health (TOUCH) program. This federally mandated program assures that patients are informed about the medication, and that they are tracked for side effects. After completion, the TOUCH form is faxed to the TOUCH Prescribing Program. This program, operated by Biogen Idec (the manufacturer of Tysabri®), will start the process of obtaining the medication. The MS Center staff will assist with completion of these forms and getting insurance approval. It takes about 10-14 days to get insurance approval.

After insurance approval, you will be contacted to come to the Center for your Tysabri® infusion.

How should Tysabri® be taken?
Tysabri® is given by intravenous infusion in our Ambulatory Care Unit on the First Hill Campus. It takes one hour to infuse the medication. Patients are monitored for an additional hour after the infusion.
Frequency: Once every 28 days (4 weeks).

Laboratory tests are not required to monitor Tysabri®.
MRI scans are done periodically while patients are on Tysabri®.

What if a dose is missed?
Contact the Ambulatory Care Unit to arrange the next dose as soon as you can.

What are the common side effects?
- Progressive Multifocal Leukoencephalopathy (PML) is the most serious side effect that can occur with Tysabri®. PML is a viral infection that is potentially fatal. It occurs in approximately 1:1000 people receiving Tysabri®. For more information on the risk of PML is available on a separate page on our website.
- Infections: There is a slight increase in infections (3.2% in those treated with Tysabri® versus 2.6% in those on placebo). As with all MS patients, this was primarily pneumonia and urinary tract infections.
- Urticaria (hives) was seen in 2% of patients and occurs within two hours of the infusion. Tysabri® should not be used again in those who experience urticaria.
- Flushing, in contrast to urticaria, does not need to be treated and is not a contraindication to continued use of Tysabri®
• Anaphylaxis was seen in 0.8% of patients receiving Tysabri®. This results in shortness of breath and wheezing. It occurs within two hours of the infusion.
• Liver injury. Liver injury is a very rare side effect. Blood tests to monitor for this are not believed to be helpful and are not recommended. Jaundice, where the eyes or skin turn yellow, should be reported to your doctor immediately.

Company Support:
MS Active Source - 1-800-456-2255  www.MSActiveSource.com
Insurance billing codes: J2323, CPT 96413 and +96415