A common monoclonal antibody that is used today as medicine is Basiliximab, this is in the class of immunosuppressants (MedlinePlus, 2012). This drug is given to people who have gone through a kidney transplant. Basiliximab is used to lower the body's natural immunity in the patient and prevent immediate rejection (Mayo Clinic, 2024). During a kidney transplant, or any organ transplant there is always a chance of rejection. Acute rejection occurs within the first few months after the transplant and this happens when the immune system attacks the organ because the body sees it as a foreign object (UVA Health, 2024). The other type of organ transplant rejection is chronic and this happens after a year of the transplant of any time after a year (UVA Health, 2024). Basiliximab prevents white blood cells from attacking the kidney, unfortunately the effect the medication has on white blood cells can lead to a reduction in the body's ability to fight infections (Mayo Clinic, 2024). This medication is injected into the vein and is commonly used with other medications. The medication is a powder that is mixed with water so it can be

injected intravenously; this is then given to the patient 2 hours before the transplant surgery and then 4 days after the surgery (MedlinePlus, 2012).

The class of antibody is IgG1 (DrugBank, 2005).

This antibody binds to the alpha subunit of the interleukin-2 (IL-2) receptor on activated T lymphocytes (Artero et al., 2008). The alpha chain of a T lymphocyte IL-2 receptor is just one of three subunits. The IL-2 mediated activation of lymphocytes is an important pathway in the immune response that is involved in allograft rejection (DrugBank, 2005). By targeting and eliminating the cells that have the alpha chain (which is also known as CD25) will block downstream events that lead to organ rejection, this happens without damaging cells that are near but not involved in the rejection process (Artero et al., 2008). By not damaging bystander cells

this can reduce the severe effects of over immunosuppression like infections and tumors. Basiliximab, which is a chimeric (formed from cells of two or more organisms) monoclonal antibody that has the entire region of the antibody that enables it to bind to a specific antigen and is 80% human, is been made from recombinant DNA techniques from mouse myeloma cell lines (Artero et al., 2008). Basiliximab provides effective saturating to its receptor cite 4-6 weeks after transplantation. There was found to be no benefit of suppressing the activated lymphocytes with the IL-2 alpha chain for longer than one month (Amolet et al., 1995).

IgG1



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