Guselkumab

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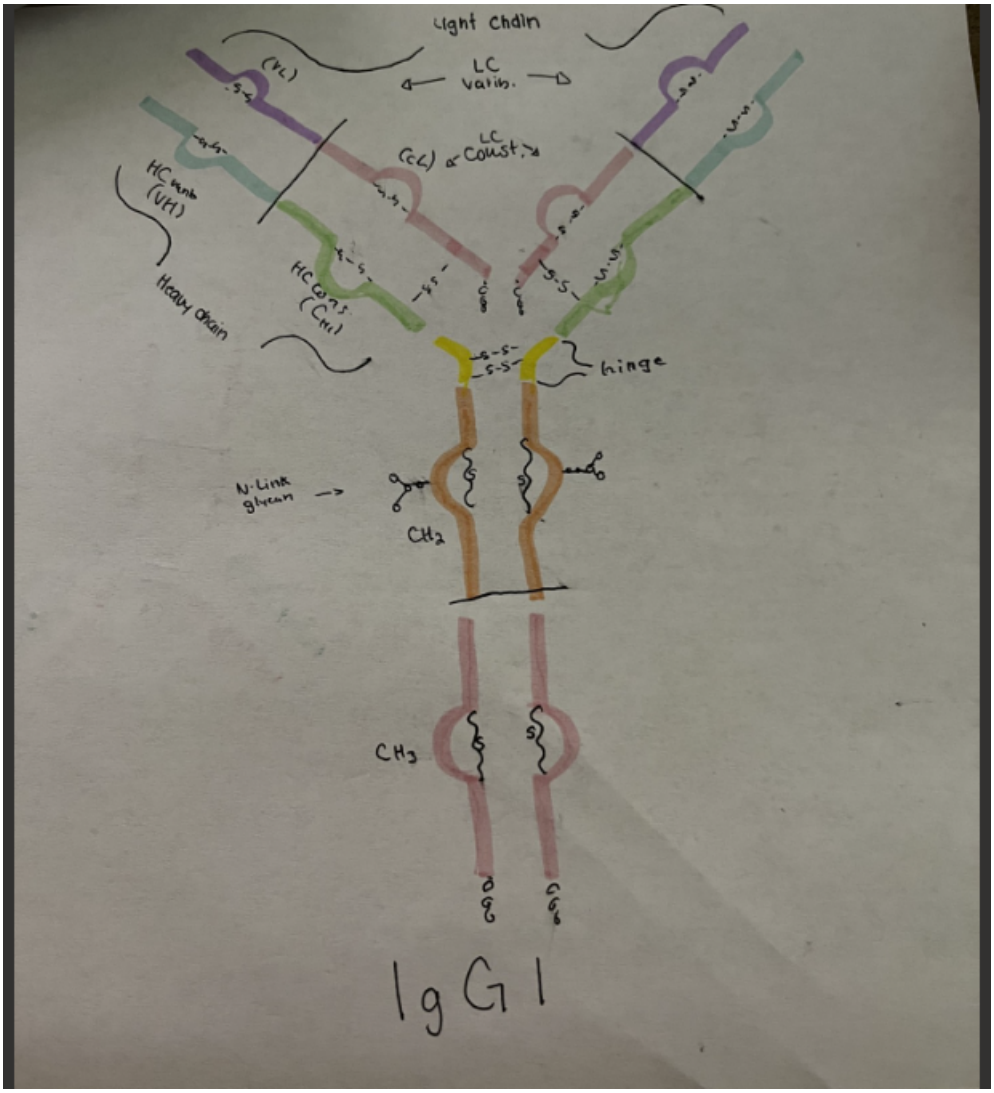
An example of a monoclonal antibody that is used in medicine today is guselkumab. Guselkumab is a drug owned and manufactured by Janssen Biotech Inc. and Johnson & Johnson. It is commercially known as Tremfya and is used to treat patients with auto immune disorders such as moderate to severe plaque psoriasis, active psoriatic arthritis, moderate to severe ulcerative colitis, and moderate to severe Crohn's disease.

The mechanism of actions in guselkumab is the human monoclonal IgG antibody. This antibody functions to create long term immunity, neutralization, and opsonization. In guselkumab, the function is to bind to the p19 subunit of interleukin 23 (IL-23) and inhibits interactions with IL-23 receptors. By inhibiting this interaction, guselkumab prevents the IL-23 receptor from producing normal proinflammatory cytokines and immune response (1).



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Moderate to Severe Plaque Psoriasis

Guselkumab was originally created and approved by the FDA in November 2017 for the treatment of moderate to severe plaque psoriasis. This disease is an autoimmune disorder where the body's immune system attacks the skin and sometimes joints. While this disease is

considered hereditary, there also seems to be an interaction between genetics and environmental factors (2). Treatments categorized as biologics, like guselkumab, have appeared to be the best treatment for plaque psoriasis, but this requires long term treatment studies to be fully determined (2)

The recommended dosage of guselkumab to treat severe plaque psoriasis in adults is 100mg in a subcutaneous injection. Adult patients are expected to wait 4 weeks after their first dose and then switch to every 8 weeks. Pediatric patients 6 years and older, who are also a minimum weight of 40 kg have the same documented dosage as adults. There is no limit to how long a patient can take this medication (1).

Active Psoriatic Arthritis

In July of 2020, guselkumab was approved as a treatment for active psoriatic arthritis. Active psoriatic arthritis is an autoimmune disorder where the immune system attacks the joints, and, like plaque psoriasis, the body's immune system attacks the skin. This disease has both genetic and environmental risk factors. Genetic risk factors are genetic susceptibility in the HLA gene, and variation in the genes involved in cell signaling. Patients with psoriasis, hyperlipidemia, and who are obese, also have a much higher risk in developing psoriatic arthritis (3).

The dosage of guselkumab in active psoriatic psoriasis is the same as the 100mg subcutaneous injection used by patients with plaque psoriasis. These patients also have the same injection schedule, where, after the first injection, patients wait 4 weeks, and then 8 weeks. Pediatric patients who are 6 years and older and weigh at least 40kg can take the same dosage

recommended by adults. There is not a set time limit for how long these patients can take this medication (1).

Moderate to Severe Ulcerative Colitis

Guselkumab was later approved for use on moderate to severe ulcerative colitis in September of 2024. Ulcerative colitis is an autoimmune disorder characterized by the immune system attacking the colon. Risk factors associated with Ulcerative colitis are genetics, environmental factors, luminal factors, and mucosal immune dysregulation (4).

Adults with moderate to severe ulcerative colitis are recommended to receive 200 mg of guselkumab via intravenous infusion for, at minimum, one hour for the first dose, then the fourth week, then every 8 weeks. If patients opt for subcutaneous injections, they will be given 400 mg of guselkumab. On week 12 and every four weeks after patients will be given 100-200mg of guselkumab. There is no limit to how long patients can take this medication (1).

Moderate to Severe Crohn's Disease

As of March 2025, Guselkumab was approved for treatment on Crohn's disease. Crohn's disease is an autoimmune disorder where the body's immune system attacks the gastrointestinal tract. The factors thought to contribute to this disease are the patient's microbiome, genetics, and environmental factors. The environmental factors contributing to Crohn's disease are often thought to be smoking, medications, and patient diet (5).

Patients with Crohn's disease have the same recommendations as patients with moderate to severe ulcerative colitis. Patients can expect to receive 200 mg of guselkumab via intravenous infusion for one hour or more for the first dose, then the fourth week, then every 8 weeks. If patients choose to use subcutaneous injections, they will be given 400 mg of guselkumab. On week 12 and every four weeks after patients will be given 100-200mg of guselkumab. There is not a time limit for how long patients can take this medication (1).

Side Effects

Patients who experience extreme or allergic side effects to guselkumab are recommended to immediately discontinue use if any of the following occur; dizziness, feinting, lightheadedness due to low blood pressure, swelling in the face, constricted breathing or throat tightening, tightness of the chest, itching, hives, rashes on the skin.

Works Cited:

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