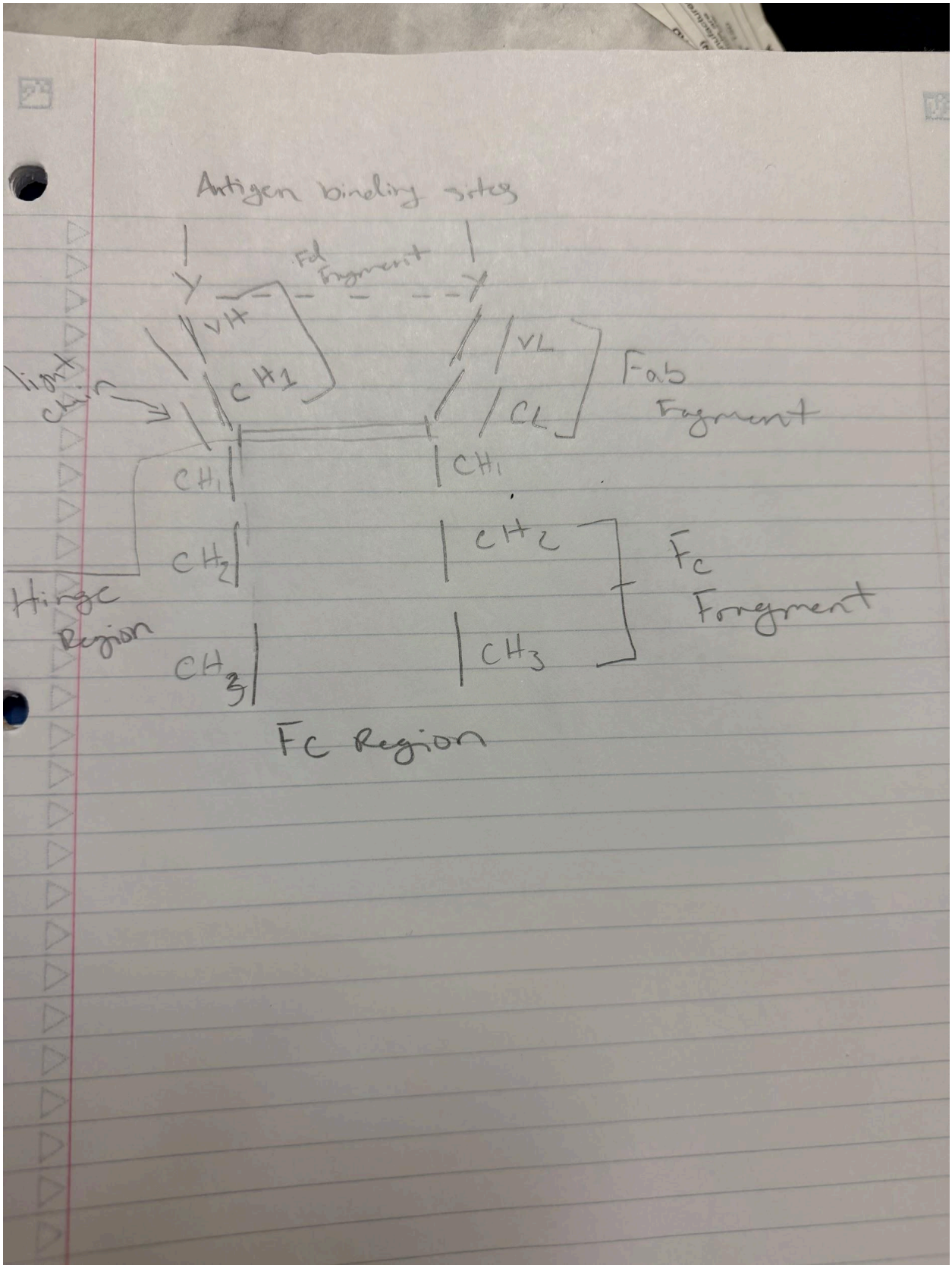
My monoclonal antibody is Crizaalizumab, also commonly known as Adakveo. Adakveo treats Sickle Cell Anemia. Sickle Cell Anemia is an autosomal recessive blood disorder caused by a mutation in the hemoglobin gene that leads to the production of abnormal hemoglobin known as HbS. This mutation causes red blood cells to become rigid and crescent-shaped rather than flexible and round. These sickled cells can block small blood vessels, reducing oxygen delivery to tissues and causing episodes of severe pain known as vaso-occlusive crises (VOCs). Sickle cell disease affects millions of people worldwide and is most common among individuals of African, Mediterranean, Middle Eastern, and South Asian ancestry. Complications can include chronic pain, stroke, organ damage, anemia, and increased risk of infections. One biologic drug used to help manage this condition is the monoclonal antibody crizanlizumab. This drug is designed to reduce the frequency of painful vaso-occlusive crises in patients with sickle cell disease aged 16 years and older.

Crizanlizumab works by targeting P-selectin, a cell adhesion molecule expressed on the surface of activated endothelial cells and platelets. In sickle cell disease, P-selectin plays an important role in the development of vaso-occlusion. When blood vessels become inflamed, P-selectin promotes the adhesion of sickled red blood cells, white blood cells, and platelets to the inner lining of blood vessels. This cellular sticking slows blood flow and contributes to the formation of blockages in small vessels, which reduces oxygen delivery to tissues and leads to the painful vaso-occlusive crises characteristic of sickle cell disease. Crizanlizumab binds specifically to P-selectin and blocks its interaction with circulating blood cells, preventing them from sticking to vessel walls and to each other. By inhibiting this adhesion process, the drug helps maintain smoother blood flow through the microvasculature and decreases the likelihood of vessel blockage. Clinical studies have shown that patients receiving crizanlizumab experience a significant reduction in the number of vaso-occlusive crises per year compared with patients receiving a placebo. Although it does not cure sickle cell disease, this targeted therapy improves quality of life by reducing painful episodes and helping prevent long-term complications associated with repeated vascular obstruction and inflammation.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