

IgG antibodies are the primary mediators of protective humoral immunity against pathogens and have been used therapeutically for over a century. They were first used as antitoxins for the treatment of infectious diseases in the preantibiotic era. Today, hyperimmune sera from human donors recovering from infection with specific viruses, such as hepatitis B, cytomegalovirus, and varicella zoster, are used to provide protective immunity to susceptible populations. Moreover, tumor specific antibodies have been successfully used in human cancer therapy. Besides these protective activities, IgG autoantibodies are the principal mediators of autoimmune diseases such as immune thrombocytopenia (ITP), autoimmune hemolytic anemia (AHA), and systemic lupus erythematosus (SLE). In addition to this pro-inflammatory activity antibodies also are known to have an anti-inflammatory activity. If infused at high doses, IgG can effectively suppress autoimmune mediated inflammation (IVIg therapy). Recent evidence suggests that both the pro- and anti-inflammatory activity of IgG is regulated by the sugar side chain that is attached to the CH2-domain of all IgG subclasses. Subtle variations in the composition of this sugar moiety will either enhance or decrease the pro-inflammatory activity. The presentation will discuss which factors influence these opposing effects of IgG and how we can use this knowledge to enhance the therapeutic efficacy of immunoglobulins.