Complement activation is a part of the immune response that involves a group of proteins known as the complement system. The complement system is an important defense mechanism of the body that helps to identify and destroy foreign invaders such as bacteria, viruses, and other microorganisms.

Complement activation can occur through several pathways, including the classical pathway, the alternative pathway, and the lectin pathway. Each pathway involves different proteins and can be initiated by different triggers.

When the complement system is activated, it leads to a cascade of events that ultimately results in the formation of a membrane attack complex (MAC). The MAC is a pore-forming protein complex that can create holes in the membranes of invading microorganisms, causing them to lyse or burst.

In addition to its role in fighting infections, complement activation also plays a role in other physiological processes, such as inflammation, tissue repair, and clearance of immune complexes.

However, excessive or inappropriate complement activation can lead to tissue damage and contribute to the development of various autoimmune and inflammatory disorders. Therefore, the regulation of complement activation is tightly controlled to prevent damage to host tissues.