

Research Interests – Prof. Dr. Takeshi Tsubata

Antibody is a crucial effector molecule in immunity. Upon infection, the immune system produces antibodies that specifically bind to microbes. Antibody-bound microbes are inactivated and removed from the host. On the other hand, antibodies cause diseases such as autoimmune diseases and allergy. Antibodies that bind to self-components and those that bind to non-microbial substances such as food and pollen cause autoimmune diseases and allergy, respectively.

My research interest is to elucidate the mechanisms that restrict antibody production solely to microbes in the normal immune system, because understanding of such mechanisms appears to be important to elucidate pathophysiology of immunological diseases and to develop novel therapy for these diseases. I, together with many collaborators, identified the molecules which regulate the fate of B lymphocytes, the immune cells that produce antibodies, whether they produce antibodies or not, and demonstrated that these molecules are essential parts of the mechanisms that inhibit antibody production to self-components and restrict antibody production to microbes. Also, we developed the chemical compounds that target such mechanisms, and are now developing a new therapy for autoimmune diseases by using these compounds.