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100 years in Immunology and its Future Prospect

Discovery and development of vaccines and antibiotics have overcome infectious diseases caused by viruses and bacteria and contributed to the prolongation of our life expectancy to more than eighty years. However, infectious diseases are still one of the most important matters of life and death. New viruses and bacteria such as HIV appear and no effective vaccines against such viruses or even malaria are available.

Human being cannot survive only a single day without the immune system. For these two or three decades, Immunology has tremendously developed and we now know the details of the immune system; all components, which constitute the system and the way how they interact and regulate the total systems. Immunology as a natural science started at the end of the 19th century, when two German and Japanese scientists, Emil von Behring and Shibasaburo Kitasato discovered the antibodies against tetatanus and diphtheria toxins in 1890.

The first Nobel prize was awarded to Dr. Behring for his discovery of the antibody in 1901. Since then, intimate collaborations have been conducted between the two countries, which have contributed very much to the progress of the modern Immunology. In this lecture, I will follow the history of the Immunology and interpret the recent progress on the immune regulation and manipulation of immunological diseases including allergy and autoimmune diseases such as rheumatoid arthritis.