

## Immunology: A Vital Role in Today's Science

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### INTRODUCTION

Immunology, the study of the immune system and is a crucial branch of biological and medical sciences. It protects our body from different infections through various lines of defense. When the immune system is not functioning normally, it leads to many diseases like autoimmunity, cancer, and allergy. Immunology is a broad area of biomedical sciences. Since the 18th century, our knowledge of immunology has grown considerably as Dr. Jenner developed a vaccine for smallpox. Immunology along, with many multiple areas of biomedical science, deals with various chronic diseases such as allergies, cancer, diabetes, and asthma.

An immunologist is a clinician or a scientist who specializes in immunology. Many immunologists work at laboratories (academia or private), focusing on research. Clinical immunologists are clinicians who work on the diagnosis and management of diseases of the immune system. They also deal with the immune system in health and disease. Immunologist work in diverse clinical specialties ranging from allergy to cancer.

### DISCUSSION

The immune system protects us from many bacterial and viral invaders by recognizing and destroying the potentially cancerous cells. In some cases, our immune system identifies body cells or harmless food substances as targets leading to allergy and autoimmune diseases. The immune system does not have much effect on maintaining health, such as controlling weight gain in obesity or influencing the outcome of heart diseases.

The vaccine is one of the significant advancements in public health in recent history. In recent developments, CAR-T treatment is used to treat advanced cancers, where the T cells are removed from the patient's body, and better cells that are specific to the tumor are given. These weapons are called chimeric antigen receptors (CAR).

The study of immunology is crucial to animal and human health and for its survival. In recent times it has led to some healthcare advances including, cancer immunotherapy and vaccination. Many new treatments for infectious diseases such as Ebola and influenza, various cancers, and many autoimmune conditions

are in the development process. The immune system is very complex and needs to study.

In recent studies, researchers are working to cure cancer rather than slowing the process of cancer. They are trying to train the immune cells to be cancer killers. All the treatments that are currently working on now aim to eliminate cancers not just slow them down or change their natural course. Anti-PD-1-based (checkpoint inhibitors) treatments are currently used now in oncology. These inhibitors work only on some patients.

In current cell therapies, they are using patients' cells into cancer killers by modifying them to increase their ability to target tumors. After modification in the laboratory, the cells are infused back into the patient. Tumor-infiltrating lymphocytes are used in this process. This approach can eliminate cancer. This method is also effective where the checkpoint inhibitors are not working.

### CONCLUSION

Another innovative research in immunology is the transplantation of a pig kidney into a person. The waiting time for kidney transplantation is for several years due to the shortage of organs. In this scenario, we can take organs from nonhuman animals. Now research is going in that direction where xeno-transplant organs are viable.

### REFERENCES

1. Gretz JE, Kaldjian EP, Anderson AO, Shaw S. Sophisticated strategies for information encounter in the lymph node: the reticular network as a conduit of soluble information and a highway for cell traffic. *J Immunol.* 1996; 157(2):495-499.
2. Flynn JL, Chan J. Immunology of tuberculosis. *Annu Rev Immunol.* 2001; 19(1):93-129.
3. Torrelles JB, Schlesinger LS. Integrating lung physiology, immunology, and tuberculosis. *Trends Microbiol.* 2017; 25(8):688-697.
4. Tsuyuguchi I. Clinical immunology of tuberculosis. *Kekkaku (Tuberculosis).* 1990; 65(9):591-601.
5. Dannenberg AM. Pathogenesis of pulmonary tuberculosis. *Am J Respir Crit Care Med.* 1982; 125(32):25-30.

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