

Baruj Benacerraf

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In 2021, eighty-one million people were diagnosed with hay fever, also commonly known as having allergic reactions to pollen (“Allergy Facts” n.d). People are constantly impacted by allergies yet rarely consider why their bodies react that way. Venezuelan-American Baruj Benacerraf played a great role in helping people understand the link between different reactions to substances and the role that genetics plays in the immune system. With his findings, Benacerraf revolutionized the field of immunology and truly impacted the understanding of the human body and its reactions to the environment.



Source: Karsh.org

Early Life

Baruj was born to his Jewish parents on October 29, 1920, in Caracas, Venezuela and lived out his childhood in Paris, France after moving with his family (AAI, n.d). After escaping the German invasion of Paris in 1937, Baruj moved to New York City in 1942 and earned his B.S. at Columbia University. He served in the U.S and met the love of his life soon after in 1943. In 1947, Benecerraf began his immunology fellowship at the Neurological Institute of Columbia University Medical Center (AAI, n.d). Later on, he was accepted to the Medical College of

Virginia in Richmond and earned his M.D. He continued to pursue his education, returning to train in immunochemistry at Columbia University (AAI, n.d).

Notable Roles

Throughout his life, Benacerraf held several notable positions, including Chair of the Harvard Medical School (HMS) Department of Pathology, President of the Dana-Farber Cancer Institute, and George Fabyan Professor of Comparative Pathology. In 1980, he received the Nobel Prize in Physiology for his work investigating immune response (IR) and the genes that control it. (Baruj Benacerraf, n.d.)

Accomplishments

Alongside his trainees, Benacerraf investigated the two main types of lymphocytes, white blood cells that aid in the immune system, and how they can recognize antigens, substances that cascade a response from the immune system. The two main types of lymphocytes are T and B cells, which work together to create antibodies and remove invasive antigens from the body.

Benacerraf specifically investigated the two types and how they are impacted by MHC molecules (genes that code for protein that detects foreign substances), formulating a layout for how MHC proteins impact immune responses (NCI, n.d.). Furthermore, Benacerraf is accredited with helping understand phagocytes, a type of immune cell that kills pathogens and removes decaying cells, and how antibodies identify and respond to pathogen-infected cells. One of Baruj Benacerraf's greatest achievements is the discovery of the Fc receptors, a protein that binds to the antibodies of invading pathogens (Baruj Benacerraf, n.d.). Additionally, he classified IgG antibodies, glycoproteins that help recognize and bind to antigens, based on their individual roles (Vaillant, 2023).

In 1968, Benacerraf completed his research on Immune Response genes, which eventually earned him the Nobel Prize in Physiology or Medicine. Additionally, during his time with the Dana-Farber Cancer Institute, Benacerraf transformed the organization into one of the top-ranking cancer research organizations (The Nobel Prize, n.d.).

Impact

As the Chair of the Department of Pathology at HMS, Benacerraf founded a graduate program in Immunology which has become the model for over 200 programs today. He has educated several immunologists who have played significant roles through their own achievements. Benacerraf was a generous person who hoped for the success of his trainees and the advancement of the scientific community. Baruj Benacerraf devoted his life to researching, educating, and revolutionizing the field of immunology, creating a legacy that can truly be honored today.

Works Cited

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