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Summary Article: **Benacerraf, Baruj**

From *The Hutchinson Unabridged Encyclopedia with Atlas and Weather Guide*

Venezuelan-born US immunologist. He was awarded a Nobel Prize for Physiology or Medicine in 1980, together with Jean Dausset and George D Snell, for their discovery of immune response genes and the major histocompatibility complex (MHC), the gene complex involved in the immune response. They studied a gene region within one chromosome, which influences the immune system in various ways. The MHC is of great medical and biological significance because of the part it plays in the rejection of transplants made between incompatible individuals.

Immune response The action of immune cells to defend the body from potentially harmful substances depends upon their ability to recognize unusual molecules (antigens) on the surface of invading cells, such as bacteria. These antigens are then engulfed by macrophages (a type of white blood cell) and small fragments of antigen are presented on its surface in association with proteins encoded by the MHC. This process is called **antigen presentation** and is crucial for lymphocyte (a type of white blood cell) activation, and the production of antibodies to the antigen. In rare cases, however, a foreign protein will have no peptides with a suitable motif for binding to any of the MHC molecules encoded by an individual.

Life Benacerraf was born in Caracas, but his family moved to New York in 1940, and Benacerraf was educated at Columbia University, New York, and the Medical College of Virginia, Richmond. He became a naturalized US citizen in 1943, and during World War II served with the US Army Medical Corps in Europe. In 1948 he began research in immunology at the Neurological Institute, Columbia University. In 1949 he moved to the Brossais Hospital in Paris, France, returning to the USA in 1956 as assistant professor of pathology at New York University School of Medicine. In 1968 he became director of the Laboratory of Immunology of the National Institute of Allergy and Infectious Disease in Bethesda, Maryland, and in 1970 he was appointed to the chair of pathology at the Harvard Medical School in Boston, Massachusetts.

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