

## Topic Page: [Jerne, Niels \(1911 - 1994\)](#)

Summary Article: **Jerne, Niels Kaj**

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

British-born Danish microbiologist and immunologist who was awarded a Nobel Prize for Physiology or Medicine in 1984, with Georges Köhler and César Milstein, for their work on immunity and their discovery of a technique for producing highly specific, monoclonal antibodies. Jerne profoundly influenced the development of modern immunology by establishing its cellular basis.

He developed the haemolytic plaque assay for visualizing antibody release by lymphocytes (white blood cells that are produced in the bone marrow) and proposed several important theories of how cells interact during an immune response.

Jerne's most important immunological theory is that of the **idiotypic network**, a regulatory interaction between lymphocytes that is produced when receptors on one lymphocyte recognize and bind the receptors on a second lymphocyte. He later described how some lymphocytes are manufactured in the thymus gland.

Jerne was born in London, and went to school in Holland, where he studied physics for two years at the University of Leiden, before moving to Copenhagen to study medicine. He was almost 40 by the time he completed his PhD in 1951, and his thesis on diphtheria antiserum was accompanied by a growing interest in antibodies and their enormous diversity within the same organism.

In 1956 he published his paper 'Natural Selection Theory of Antibody Formation' proposing that antibodies pre-exist in the body before the presence of the foreign substance, when the antibody with the best fit is selected. It was previously believed that antibodies were flexible, nonspecific molecules that adopted different shapes to wrap round foreign molecules.

As chief medical officer for the World Health Organization (WHO) 1956–62, Jerne built up a network of distinguished immunologists before returning to academic life in 1962 with a professorship in microbiology at Pittsburgh University. In 1969 he founded and built up the Basel Institute of Immunology of which he was also director until his retirement in 1980.

Jerne continued to theorize on the nature of antibodies and immunology, happy for others to take up his ideas and modify and develop them. 'I have hit the nail: others later have hit the nail on the head,' was how he himself summed up his contributions.

### quotations

Jerne, Niels Kaj

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Jerne, Niels Kaj. (2018). In Helicon (Ed.), *The Hutchinson unabridged encyclopedia with atlas and weather guide*. Abington, UK: Helicon. Retrieved from [https://search.credoreference.com/content/topic/jerne\\_niels\\_1911\\_1994](https://search.credoreference.com/content/topic/jerne_niels_1911_1994)

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## Chicago

"Jerne, Niels Kaj." In *The Hutchinson Unabridged Encyclopedia with Atlas and Weather Guide*, edited by Helicon. Helicon, 2018. [https://search.credoreference.com/content/topic/jerne\\_niels\\_1911\\_1994](https://search.credoreference.com/content/topic/jerne_niels_1911_1994)

## Harvard

Jerne, Niels Kaj. (2018). In Helicon (Ed.), *The Hutchinson unabridged encyclopedia with atlas and weather guide*. [Online]. Abington: Helicon. Available from: [https://search.credoreference.com/content/topic/jerne\\_niels\\_1911\\_1994](https://search.credoreference.com/content/topic/jerne_niels_1911_1994) [Accessed 17 October 2019].

## MLA

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