

Adigun Musibau Adeleke Nitric oxide: A key player in immune system

Adigun Musibau Adeleke

The Federal Polytechnic Offa, Nigeria

The immune system is a network of biological processes that protects an organism from diseases. It detects and responds to a wide variety of pathogens, from viruses to parasitic worms, as well as cancer cells and objects such as wood splinters, distinguishing them from the organisms own healthy tissue. Nitric Oxide (NO) is important as a toxic defence molecule against infectious organisms. NO is an intercellular messenger that has been recognized as one of the most versatile players in the immune system which regulates the functional activity, growth and death of many immune and inflammatory cell types including macrophages, T lymphocytes, antigen-presenting cells, mast cells, neutrophils and NK cells. NO is a readily diffusible gas that

has been established as a universal messenger, capable of mediating cell-cell communication throughout the body. It is involved in the pathogenesis and control of tumors, infectious diseases, chronic degenerative diseases and autoimmune processes. Due to NO variety of reaction partners (DNA, proteins, prosthetic groups, low-molecular weight thiols, reactive oxygen intermediates), its widespread production (by three different NO synthases (NOS) and the fact that its activity is mainly modified by its concentration, NO continues to surprise and perplex immunologists. Therefore, there is no simple, uniform pattern of the function of NO in the immune system.

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