

"NEUTROPHIL EXTRACELLULAR TRAP" (NET)

NETosis is a novel mechanism of innate immunity, which is employed by neutrophils, eosinophils and mast cells. The term "NETosis" comes from "neutrophil extracellular trap" (NET). The NET's loop is composed of chromatin fibers with a diameter of 15–17 nm by which neutrophils, eosinophils, and mast cells catch up and immobilize microbes, whereas there is no essential damage to the host cells. Furthermore, NET formation develops very rapidly and does not lead to the death of the neutrophils. After that, NETs inactivate pathogens by means of antimicrobial proteins such as neutrophil elastase, cathepsin G, and histones, which have a high affinity for DNA. NETs may be cleaned away by macrophages that engulf and degrade them.

However, high-resolution scanning electron microscopy has demonstrated that NETs also contain globular protein domains with diameters of 25 nm. They aggregate into more massive threads with a diameter of 50 nm and greater that allow them to promote the formation of blood clots.

Recent investigations suggest that NETs may play an essential role in both defense against infections and the pathogenesis of thrombotic disorders. Some researchers study the participation of NETs in the pathogenesis of autoimmune diseases.