KOSMOS Vol. 66, 4, 623–634, 2017

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BEYOND RELEASE OF NEUTROPHIL EXTRACELLULAR TRAPS (NETS) BY NEUTROPHILS: ON COLLATERAL CONSEQUENCES OF THEIR RELEASE AND IMPAIRED REMOVAL

Summary

Neutrophil extracellular traps (NET) represent a recently discovered mechanism by which neutrophils can efficiently fight pathogens. Upon activation, neutrophils release decondensed extracellular DNA decorated with histones and granular proteins. These three-dimensional structures can trap pathogens, limit their spread and sometimes kill them. Despite their beneficial effects, NETs are also involved in pathogenesis of various autoimmune diseases, such as rheumatoid arthritis, psoriasis or systemic lupus erythematosus, and also contribute to organ damage during sepsis. So far, little is known on how NETs are removed from vasculature and tissues, and by which cells. Limited available studies indicate that macrophages might remove NETs, but these results were obtained *in vitro*. Thus it remains unknown how this process occurs in a complex milieu of the body. Due to the pathological aspect of NET formation, a challenge for the near future will be development of pharmacological agents capable of NET removal.

Key words: macrophages, NET, neutrophil, sepsis, tissues damage