

# A18 FORMATION OF GOUTY TOPHI IS INITIATED BY EXTRANUCLEAR DNA

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**Background and objectives** Analysis of gouty tophi initiated by injection of MSU (monosodium urate) crystals intraperitoneally in mice and patients suffering from gout.

**Materials and methods** Human PMN (polymorphonuclear cells) were incubated with MSU crystals and analysed by fluorescence microscopy (DAPI). Moreover, mice were treated intraperitoneally with MSU crystals resulting in generation of gouty tophi. Paraffin sections of the tophi were analysed by nuclear staining and immunohistology. Furthermore, synovial fluids and tophi of patients with acute gouty attacks were analysed.

**Results** In the in vitro assays we found the formation of extracellular DNA induced by MSU crystals. Next we analysed the gouty tophi generated intraperitoneally in mice and again detected extranuclear DNA and histones. Last we investigated material of gouty patients and observed the formation of extranuclear DNA in the synovial fluid and in tophous material.

**Conclusions** We conclude that the extranuclear DNA has been ejected by the neutrophils in order to trap the inflammation inducing crystals. A similar mechanism is employed by neutrophils in the defense against massive bacterial or fungal infection, where the extranuclear DNA helps for immobilisation and inactivation of pathogenic microorganisms. Further investigations are required to elucidate whether the extranuclear DNA is ameliorating or precipitating inflammation and pathology in gout.