



Research corner

Gene mutations responsible for the inflammatory behaviour of key immune cells in FMF: an FMF-specific effect

Source: [Stoler I. et al, DOI: 10.3389/fimmu.2020.00716](#)

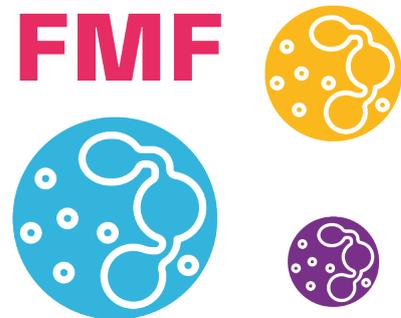
It is known that neutrophils play an essential role in the acute inflammatory attacks experienced by FMF patients. The study further sheds light on interesting features brought by gene mutation to this type of immune cell.

Are neutrophils playing an active role in FMF-related inflammation?

Familial Mediterranean fever (FMF) is caused by mutations within the MEFV gene. Disease severity depends on the type of mutation. However, not much is known about the underlying mechanisms yet. Neutrophils are white blood cells from the immune system. They are thought to play an important role in the initiation and perpetuation of inflammatory processes in FMF, but little is known about the specific characteristics of these cells in FMF patients.

Neutrophils from FMF patients seem to mediate inflammation depending on the genetic profile

In order to better understand, scientists first collected neutrophils from participants with different mutation profiles, then they measured the production of inflammatory mediators and the activation levels of these isolated neutrophils. They found that neutrophils from FMF patients were spontaneously releasing higher amounts of inflammatory mediators (e.g., IL-18, S100A12, caspase-1) compared to normal controls. The neutrophils were also more spontaneously activated (the cells are more reactive and aggressive). The intensity of these effects is dependent upon the genetic profile (so called gene-dose effect). Said differently, neutrophils from FMF patients are more aggressive and will release more inflammatory mediators compared to neutrophils from other patients with a different genetic profile (including both healthy individuals and patients suffering from other inflammatory diseases). This observation thus reflects a somewhat FMF-specific effect.



Could neutrophils be a good biomarker of FMF-related inflammation?

Understanding the exact underlying mechanisms may provide a promising way towards a better diagnosis and treatment of FMF.