Reprogramming of synovial macrophage metabolism by synovial fibroblasts

Noritaka Saeki
Yuuki Imai

Video Byte

Keywords: Rheumatoid arthritis, synovial macrophage, synovial fibroblast, metabolic reprogramming, chronic inflammation, Cell Communication and Signaling

Posted Date: February 25th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-275957/v1>

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
[Read Full License](#)

Abstract

When you get sick or injured, inflammation acts as a biological defense system, but excessive inflammation – such as that present in autoimmune diseases such as rheumatoid arthritis (RA) – causes illness in itself. One major regulator of inflammation is immune cells called macrophages, which play diverse roles in a variety of tissues. In joint cavities, a specialized cell type called synovial macrophages (SM) work with synovial fibroblasts (SF) to maintain homeostasis. However, under inflammatory conditions such as RA, crosstalk between SM and SF remains unclear. A recent study used a mouse model of RA to examine interactions between SM and SF during RA. Using immunofluorescence microscopy, the researchers found that SM and SF were located in the synovial fluid around the joints, and sequencing revealed that medium from SF could cause metabolic reprogramming in SM, extending their viability and contributing to chronic inflammation. Although further studies are needed in vivo and in the clinic, the results suggest that SM/SF crosstalk may affect macrophage activity in RA, making this interaction an ideal target for RA treatment.