Cytokine Production by Synovial Fibroblast using the Fibronectin Fragment (FN-f) In Vitro Model of Osteoarthritis

Osteoarthritis (OA) progression is characterized by a disruption in homeostasis that drives the degradation of cartilage’s extra-cellular matrix (ECM) and promotes an increase in matrix fragments. Cartilage degradation is primarily due to the overproduction of secreted matrix metalloproteinases (MMPs) by chondrocytes, however synoviocytes also contribute to this activity by releasing OA mediators that exacerbate joint destruction. The cross-talk between synovial cells and chondrocytes could be crucial, due to further secretion of key cytokines that intensify catabolic signaling and activity in both cell populations. Indeed, synovial fibroblasts have been hypothesized to express cytokines and MMPs in response to ECM protein fragments found in the cartilage and synovium of human OA. We test this hypothesis by measuring the production of MMPs and IL-6 in synovial fibroblasts in comparison to chondrocytes, using a fibronectin fragment (FN-f) in vitro model.