Excessive TNF-α production in RA

Synovial fibroblasts

CTGF

unknown ligand

Precursor cells

Diff. to osteoclasts

Osteoclasts

Increased bone resorption

Condrocytes

CTGF

integrin αVβ3

unknown ligand

Condrocytes

Impaired regeneration of cartilage

Articular destruction (damage of bone and cartilage)