Methods Human RASF were stimulated in vitro with adiponectin and analysed for changes in gene expression by Affymetrix oligonucleotide microarrays and protein arrays. Real-time PCR was used to confirm gene expression (mRNA levels) and immunoassays were used to quantify secreted proteins. Media from adiponectin-stimulated RASF were analysed for their chemoattractive potential using a two-chamber migration system.

Results Stimulation of RASF with adiponectin led to an induction of different genes and proteins including cytokines (eg, protein: IL-6, 45-fold; mRNA: IL-11, 24-fold), chemokines (eg, mRNA: CXCL11, 174-fold; protein: MCP-1, 16-fold), proinflammatory molecules (eg, mRNA: PEG2, 20-fold), growth factors (eg, mRNA: FGF10, 5-fold), adipokines (eg, protein: PBEF1, 6-fold), genes involved in bone metabolism (mRNA: eg, stanniocalcin 1, 20-fold), and matrix-remodeling proteins (eg, protein: pro-MMP-1, 15-fold). Adiponectin induced mRNA/protein expression in both RASF and osteoarthritis synovial fibroblasts (OASF), but the effect on RASF was generally stronger. Adiponectin isoforms had noticeably different potencies for inducing changes in gene and protein expression in RASF. The least potent isoform was the trimeric isoform, while the most potent isoform was either high-molecular weight/middle-molecular weight - enriched adiponectin or globular adiponectin, depending on the parameter of change. Media from adiponectin-stimulated RASF significantly increased the migration of RASF on average by 68%.

Conclusions Adiponectin strongly affects RASF-dependent inflammation and matrix degradation. The chemoattractive effect shown for RASF potentially contributes to recruitment of additional RASF to the invasion zone. The different potencies observed for the individual adiponectin isoforms imply that targeting specific isoforms or inhibiting the specific receptor binding of isoforms may be of use in therapeutic approaches.

A68 ADIPONECTIN ISOFORMS DIFFERENTIALLY AFFECT GENE EXPRESSION OF RHEUMATOID ARTHRITIS SYNOVIAL FIBROBLASTS

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Background and objectives Adipokines are not only produced by adipose tissue. They also play an important role in rheumatoid arthritis (RA), which is associated with increased levels of adipokines in serum, synovial fluid and hyperplastic synovial tissue. We therefore analysed the effects of the adipokine adiponectin and its individual isoforms on the gene expression of RA synovial fibroblasts (RASF).