

**P040** Peroxiredoxin-II in plasma and synovial fluid in rheumatoid arthritis

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Rheumatoid arthritis (RA) is a systemic autoimmune disease affecting synovial joints. Reactive oxygen and nitrogen species in the RA joint create an environment of oxidative stress – an important hallmark of the condition. Peroxiredoxins (Prdxs) are a ubiquitous family of antioxidant enzymes, and function as part of the thioredoxin-thioredoxin reductase-sulfiredoxin antioxidant system. Although little is known about Prdx2 expression in RA, the concentrations of thioredoxin and thioredoxin reductase are elevated in the RA joint, which raises the possibility that Prdx2 may also have altered levels.

Prdx2 was detected by Western-blotting in plasma and synovial fluid samples from RA patients (n=9). As determined by sandwich ELISA and Bradford-assay, there was a significant increase in the amount of Prdx2 per mg total protein of RA synovial fluid compared to RA plasma. Moreover, the ratio of synovial fluid to plasma concentrations of Prdx2 was higher than expected based on the molecular weight of the protein (22kDa) suggesting that Prdx2 may be produced locally in the joint where it may act as a regulator of oxidative stress. Future work will ascertain if the extra-cellular Prdx2 is redox active and has any antioxidant role, and furthermore, if it carries any post-translational modifications.