

Synovial fluid proteome in ankylosing spondylitis

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Background/Aims: When peripheral arthritis in ankylosing spondylitis (AS) develops early in the disease course it is a predictor of more aggressive disease. The purpose of this study was to identify those proteins relatively more abundant in the synovial fluid (SF) of patients suffering from AS and osteoarthritis (OA) using mass spectrometry. **Methods:** Approximately 2 ml of the synovial fluid samples were aspirated from the affected knees of 5 AS and 5 OA patients. We identified differentially expressed protein (DEP) in SF of AS and OA, and analyzed cellular component and biological process using DAVID software and protein-protein interaction network model. **Results:** The analysis led to the identification of 1105 DEPs in 10 samples. Out of the 1105 DEPs, 36 were found to be up-regulated and 36 were down-regulated in AS synovial fluid ≥ 2 -fold when compared to OA. Up-regulated DEPs were MMP3, QSOX1, HEL-S-37, SERPIND1, PFN1, PGAM1, and CPN1. Down-regulated DEPs were SERPINA1, A2M, APOA1, HP, IGL, HEL-S-153w, IGHM, and DKK3. Up-regulated biological process was mainly complement activation, classical pathway, lymphocyte mediated immunity, and acute inflammatory response. Down-regulated biological process was defense response, acute inflammatory response. Cellular components presented extracellular region. **Conclusions:** Mass spectroscopy based proteomics could identify many proteins in synovial fluid of AS and OA patients. Further investigations are needed to replicate these DEPs in western blot analysis or enzyme-linked immunosorbent assay.

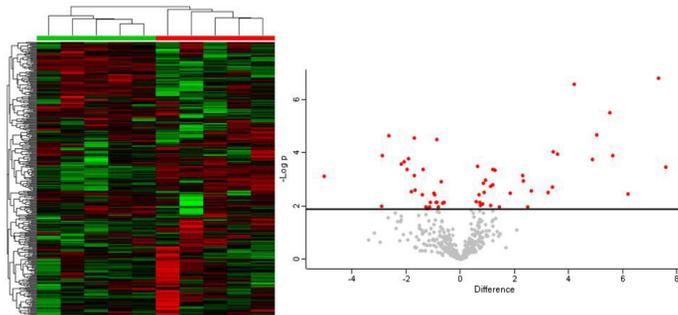


Figure 1. Heat maps with hierarchical clustering (10 samples)
Number of DEPs = Up-regulation (36 proteins), Down-regulation (36 proteins)
▶ Volcano plot (t-difference p value < 0.05 → red dot)

Table 1 Differentially expressed protein lists

| Down-regulated DEP (AS/OA) | | Up-regulated DEP (AS/OA) | |
|----------------------------|--------------------|--------------------------|--------------------|
| Gene Name | Fold change (Log2) | Gene Name | Fold change (Log2) |
| SERPINA1 | 7.33 | MMP3 | -2.91 |
| A2M | 6.19 | QSOX1 | -2.88 |
| APOA1 | 5.63 | HEL-S-37 | -2.67 |
| HP | 4.89 | SERPIND1 | -2.64 |
| IGL@ | 4.20 | PFN1 | -2.41 |
| HEL-S-153w | 3.60 | MMP3 | -2.33 |
| IGHM | 3.39 | PGAM1 | -2.22 |
| DKK3 | 3.24 | CPN1 | -2.19 |
| IGHG3 | 2.49 | ACTG1 | -2.18 |
| HEL111 | 2.32 | VCL | -2.18 |
| IGFBP2 | 2.30 | CPN2 | -2.07 |
| CDSL | 1.84 | C8B | -1.92 |
| XLKD1 | 1.44 | C9 | -1.80 |
| RAC1 | 1.31 | C8G | -1.71 |
| HABP2 | 1.27 | C8A | -1.69 |
| IGF1 | 1.21 | ITIH3 | -1.68 |
| HEL-S-62p | 1.20 | HEL-S-92n | -1.53 |
| SPARCL1 | 1.20 | APOF | -1.41 |

Serum uric acid level is not associated with osteoarthritis in Korean population

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Background/Aims: There is an ongoing debate regarding the relationship between uric acid and osteoarthritis (OA). Therefore, we sought to clarify this association using data from the Seventh Korea National Health and Nutrition Examination Survey (KNHANES VII-1) 2016 in the Korean population. **Methods:** A total of 5842 subjects over 19 years old were analyzed from the KNHANES VII-1 2016 data, which was conducted by the Korean Centers for Disease Control and Prevention. All of the statistical analyses were performed on the basis of a sampling weight that represents the entire Korean population. The data were described as case numbers with weighted percentages (%), and means with standard errors (SE). The association between OA and the serum uric acid level was statistically analyzed using univariate and multivariate logistic regression methods. **Results:** A total of 669 subjects (8.6%) had OA, of which 557 were female (14.0%), and 112 male (3.0%). OA was more frequent in female than male subjects (n=557, 82.6% in women) (p<0.001). The serum uric acid level was significantly higher in subjects with OA than those without OA (p<0.001). Subgroup analysis in female subjects demonstrated that the serum uric acid level in OA was much higher than those without OA [4.48 (SE 0.05) vs. 4.34 (SE 0.02), p=0.013]. In contrast, there was no such difference in male subjects. However, the statistical significance in women was lost after adjusting for covariates (OR 0.888, 95% CI 0.785 - 1.005, p=0.060). **Conclusions:** The serum uric acid level was not significantly associated with OA in the Korean population, although there was a trend toward such a relationship in female subjects.

Figure 1.

