Table. Familial risks and heritability of AS by type of first-degree relative (FDR) and sex

	Overall	Male-male	Male-female	Female-male	Female-female
Relative with AS	Familial risk, odds ratio (95% CI)				
Sibling	19.5 (16.9 - 22.4)	19.9 (16.1 - 24.7)	20.9 (16.0 - 27.4)	20.5 (16.0 - 26.5)	21.0 (13.3 - 33.2)
Parent	19.1 (17.2 - 21.3)	18.3 (15.5 - 21.6)	20.8 (16.3 - 26.4)	14.1 (11.3 - 17.5)	34.2 (26.1 - 44.9)
Child	20.6 (18.2 - 23.3)	20.5 (16.8 - 25.1)	16.0 (12.2 - 21.0)	19.9 (15.0 - 26.4)	26.2 (18.5 - 37.2)
Any FDR	19.4 (18.1 - 20.8)	19.0 (17.2 - 21.1)	18.2 (15.9 - 21.0)	17.7 (15.4 - 20.3)	26.9 (22.0 - 32.9)
>1 relative	68.0 (51.3 - 90.1)				
	Heritability (95% CI)				
Siblings	0.77 (0.73 - 0.80)	0.80 (0.74 - 0.85)	0.73 (0.67 - 0.78)	0.77 (0.72 - 0.83)	0.71 (0.61 - 0.81)

Disclosure of Interests: None declared

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FRI0370 ACCELERATED EXTRACELLULAR MATRIX REMODELING IN PSORIATIC ARTHRITIS & VALUE OF ECM-RELATED BIOMARKERS

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Background: With our increasing understanding of cross-talk between the immune system (immune cells, cytokines) and extracellular matrix (ECM) of the affected tissues, ECM destruction and turnover has gained a lot of attention in inflammatory arthritis. ECM mainly consists of interstitial matrix (rich in type I and III collagens) and basement membrane (mainly composed of type IV collagen), both of which are affected in inflammatory arthritis. We hypothesize that inflammatory milieu in Psoriatic Arthritis (PsA) leads to accelerated ECM destruction and remodeling, and the release of ECM metabolites into circulation, that can be measured in serum as biomarkers of tissue remodeling and may give insight to pathological process at the tissue level.

Objectives: This prospective study aimed to use serological biomarkers for evaluation of the extent of damage to, and changes in turnover of ECM in patients with PsA and to investigate their relation to inflammatory biomarkers and disease activity.

Methods: Patients with PsA (n=145) fulfilling the CASPAR criteria and above 18 years of age with any disease activity were recruited through outpatient department in Aalborg University Hospital, Denmark. Exclusion criteria were pregnancy, treatment with biological DMARD, or with oral corticosteroids and other comorbidities. Clinical disease parameters were recorded, and blood samples were collected at baseline and 24 weeks follow-up. Inflammation-related ECM remodelling was measured by serological biomarkers of type I, III and IV collagen formation (Pro-C1, Pro-C3 and Pro-C4, respectively) and MMP-mediated degradation (C1M, C3M and C4M respectively). The chronic inflammation was measured by CRPM (MMP degraded metabolite of CRP). All biomarkers were measured by competitive ELISAs and levels were compared to the reference levels of healthy individuals. The biomarker data was log₂ transformed for normalization and standard parametric statistical methods were applied.

Biomarkers (ng/ml)	PsA patients			Reference values*			Statistics	
	Mean	SD	n	Mean	SD	n	Difference	P Value
C1M	50.00	32.18	145	24.8	10.8	29	25.2	<0.0001
C3M	10.94	3.15	145	9.69	2.59	127	1.25	0.0004
C4M2	29.57	10.51	145	21.33	5.64	89	8.24	<0.0001
Pro-C1	79.20	38.85	145	104.77	54.17	119	-25.57	<0.0001
Pro-C3	11.49	3.56	145	11.28	3.56	111	0.21	ns
Pro-C4	304.07	120.17	145	204.88	63.54	127	99.19	<0.0001

Table 1. Comparison of ECM turnover biomarkers in PsA patients (at baseline) and healthy individuals (*internal laboratory data)

	Log ₂ ΔC1M	Log ₂ ΔC3M	Log ₂ ΔC4M	Log ₂ ΔPro-C1	Log ₂ ΔPro-C3	Log ₂ ΔPro-C4
ΔCRP	0.621±	0.53±	0.341±	-0.062	0.098	0.267±
Log ₂ ΔCRPM	0.436±	0.615±	0.415±	0.097	0.208	0.393±
ΔASDAS	0.202*	0.21*	0.207*	0.042	0.104	0.204*
ΔBASDAI	0.032	0.102	0.148	0.03	0.057	0.117
ΔBASMI	0.015	0.005	0.107	-0.015	-0.061	0.175*
ΔPASI	-0.076	-0.033	-0.001	-0.09	-0.053	0.008
ΔLEI	-0.024	0.027	0.246*	0.108	-0.043	0.094
ΔSPARCC	0	0.152	0.163	0.018	-0.049	0.174
ΔSJC	-0.015	-0.144	0.153	-0.011	0.019	0.062
ΔTJC	-0.039	0.037	0.062	0.006	-0.006	0.077
ΔVAS-Pain	0.07	0.104	0.138	0.075	0.087	0.198*

Results: We found that there was an increase in the degradation of interstitial matrix (represented by C1M and C3M) which was uncompensated with either decreased (Pro-C1) or unaltered (Pro-C3) formation in patients with PsA as compared to healthy individuals. On the contrary, there was a compensated increase in basement membrane remodeling in patients with PsA as represented by increase in both C4M and Pro-C4 in comparison to healthy individuals (Table 1). Interestingly, there was a strong correlation between baseline C4M and Pro-C4 (r=0.703, p<0.0001), and 24-week changes in both biomarkers (r=0.468, p<0.0001) pointing towards coupling between the two processes which was either lost or was weak in case of interstitial collagens. As baseline values and changes in C1M, C3M, C4M and Pro-C4 showed a strong correlation with changes in inflammatory biomarkers, we believe that ECM remodeling in PsA is, at least partly, driven by inflammation. Furthermore, baseline values and changes in these ECM turnover biomarkers correlated positively with changes in composite disease activity scores (Table 2) that may indicate their clinical importance as potential diagnostic or disease activity markers.

Conclusion: Chronic inflammation underlying PsA pathology results in an increased amount of ECM turnover that correlates with clinical progression and can be measured by serological biomarkers.

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None

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FRI0371 ALTERED EXPRESSION OF LNCRNA NR_003542 AND NR_026756 IN ANKYLOSING SPONDYLITIS MIGHT BE ASSOCIATED WITH THE DISEASE ACTIVITY

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Background: lncRNAs have been recognized as powerful regulators of numerous genes and pathways in the pathogenesis of inflammatory and autoimmune diseases, including SLE, RA, T1DM, MS, autoimmune thyroid disease, Sjögren's syndrome psoriasis, and Crohn's disease[1]. The role of lncRNAs in the pathogenesis of Ankylosing Spondylitis (AS) is just beginning to be investigated

Objectives: To determine whether the altered expression of lncRNA NR_003542 and NR_026756 in peripheral blood of AS patients could provide insights into the pathogenesis of AS.

Methods: Peripheral blood mononuclear cells (PBMCs) lncRNA NR_003542 and NR_026756 expression were measured in 30 active AS (AAS)group, 30 inactive AS (IAS) group and 30 healthy control (HC) subjects. Clinical characteristics of the subjects are summarized in Table1.

Results: 1. Clinical and laboratory characteristics of the three groups (Table 1)

Table 1. Clinical and laboratory characteristics of subjects studied

	AAS(n=30)	IAS(n=30)	HC(n=30)	P value
Gender, F/M	8/22	8/22	10/20	0.805
Age, mean±SD (years)	36.23±10.86	33.47±10.42	35.8±10.84	0.467
Disease duration, mean±SD (years)	9.55±6.34	7.8±6.55	-	0.205
Family history, positive/tested (%)	4/30(13.33%)	2/30(6.67%)	-	0.667
BASDAI, mean±SD	5.2±0.98	2.24±1.31	-	0.000
BASFI, mean±SD	3.2±2.34	0.74±0.99	-	0.000
Uveitis, positive/tested (%)	6/30(20%)	3/30(10%)	-	0.470
CT grading of sacroiliac arthritis, I/II/III/IV	5/14/11	12/14/4	-	0.014 ^a
HLA-B27, positive/tested (%)	29/30(96.67%)	25/30(83.33%)	-	0.000
ESR, mean±SD (mm/h)	58.83±27.04	15.63±12.75	5.97±3.18	0.000
hsCRP, mean±SD (mg/L)	36.6±31.14	5.9±5.54	1.09±2.11	0.000
WBC, mean±SD (10 ⁹ /L)	7.99±1.62	6.98±1.81	5.94±1.09	0.028
GLOB, mean±SD (g/L)	40.3±6.08	33.44±3.93	32.85±4.55	0.000

BASDAI: bath ankylosing spondylitis disease activity index, **BASFI:** bath ankylosing spondylitis functional index, **HLA-B27:** Human leukocyte antigen B27. **ESR:** erythrocyte sedimentation, **WBC:** leukocyte, **GLOB:** globulin, a: the P value of the non-parametric Mann-Whitney test.

2. Comparison of the two lncRNAs expression among the three groups (Figure 1)

Figure 1. Expression of lncRNA-NR_003542 and NR_026756 among three groups

3. Correlations between levels of two lncRNAs expression and clinical data in AS patients (Figure 2)

Figure 2. Correlations between levels of two lncRNAs expression and clinical data in AS patients

Conclusion: Altered expression of lncRNA-NR_003542 and NR_026756 in peripheral blood of AS patients might be involved in the pathogenesis of AS, higher expression of lncRNA-NR_003542 and lower expression of NR_026756 might be as the biomarkers for the disease activity of AS, further study would be needed to expound on the exact role of the two lncRNAs in AS.

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Spondyloarthritis – treatment

FRI0372 DMARD TREATMENT AND OPIOID USE IN EARLY SPONDYLOARTHRITIS IN FINLAND

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Background: Disease-modifying anti-rheumatic drugs (DMARDs) are introduced for the treatment of spondyloarthritis (SpA) after failure of non-steroidal anti-inflammatory drugs (NSAIDs). In Finland, try out with a conventional synthetic DMARD (csDMARD) is required before initiation of biologicals (bDMARD). The patients with DMARDs are eligible for a higher reimbursement for the cost of medication. Opioids are not recommended for arthritis pain.

Objectives: To report the current DMARD and pain medication use among newly-onset SpA patients in Finland.

Methods: From the nationwide reimbursement register maintained by the Social Insurance Institution of Finland we collected all incident adult patients with SpA (ICD-10 codes M45-46) between 2010-14 and divided them into two groups depending on whether bDMARDs were subsequently initiated (group B) or not (group A). Patients' drug purchases between 2009-15 were obtained from the Drug Purchase Register. Opioid use by these patients was evaluated one year before and after the index date (ID; the date when special reimbursement for antirheumatic drugs became effective), and compared to age, sex, and place of residence matched population controls. Intravenously administered bDMARDs (e.g. infliximab) were not included.

Results: We identified 3577 SpA patients, 23% of which started a self-injected bDMARD during the observation period. More of the patients in group B needed pain medication, prednisolone, methotrexate, or other csDMARDs than sulphasalazine, which was more frequent in group A (table 1). Fifty-eight percent of the patients in group B started their bDMARD already within one year from ID (table 1). Overall, 29.8% of the SpA patients compared to 8.1% of the controls purchased opioids at least once during the year before ID. Patients' opioid purchases peaked during the last 3-month period before ID; risk ratios (RR) were 4.23 (95% confidence interval (CI) 3.63 to 4.84) and 6.23 (5.23 to 7.41) in patient groups A and B, respectively, compared to controls. SpA patients who had at least one opioid purchase during 12 months preceding the ID were 1.58 times more likely to start a bDMARD than those who did not purchase any opioids.

Conclusion: Only one of four early SpA patients in Finland were initiated a self-injected bDMARD during 2010-15. The use of opioids before SpA diagnosis appears to be nearly four times more common among SpA patients compared to population controls, and early opioid purchases may act as a surrogate marker for further bDMARD initiation.