

BLyS expression in Synovial Fluids from Rheumatoid Arthritis patients.

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Introduction: BLyS is a novel TNF family ligand, mainly secreted by myeloid cells and synovial fibroblasts that exerts profound effects on B cells leading to their maturation and increased survival. Local expression of BLyS in inflamed joints from Rheumatoid Arthritis (RA) patients may contribute to the development and progression of disease. We evaluated local gene expression of BLyS in RA patients with disease activity.

Patients and Methods: Synovial fluids and Peripheral Blood (PB) were obtained from RA patients and were classified in two groups, Group I: RA evaluated by DAS 28 score as high disease activity (n=10, 7F/3M, age: $56,3 \pm 20,9$, range: 17-84) and Group II: Osteoarthritis (OA, n=18, 13F/5M, age: $70,5 \pm 6,6$, range: 58-86).

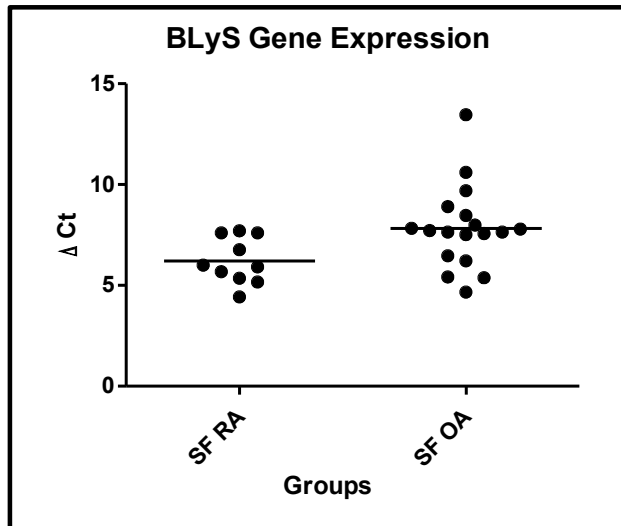
Levels of BLyS expression were evaluated using Quantitative Real Time PCR (QPCR). All amplifications were carried out in duplicate and threshold cycle (C_t) scores were averaged for calculations of relative expression values. The C_t scores were normalized against C_t scores by subtracting the corresponding β 2Microglobuline (β 2M) control, or $\Delta C_t = C_{t, \text{gene}} - C_{t, \beta 2M}$. To test for differential gene expression between groups, a two sample t-test was performed to compare the ΔC_t in the two groups.

Results: BLyS gene expression is shown in Table 1.

Group	Mean (ΔC_t)	Min	Max	p value
SF Group I	6,21	4,42	7,69	p=0,01
SF Group II	7,82	4,66	13,46	
PB Group I	9,32	4,64	14,25	p= NS
PB Group II	8,93	5,46	14,5	

ΔC_t is inversely proportional to the gene expression level.

Analysis of PB showed no significant difference in gene expression between RA and OA. In SF, we observed a significant difference for BLyS expression between Group I vs. Group II (p= 0.01). After t test, we evaluated data from ΔC_t analysis observing that in SF, mRNA of BLyS in Group I was higher than those from Group II (Figure 1).



Conclusions. Increased BLyS expression in active RA SF can be linked to B cell activation and proliferation in RA synovium.

Reference.

- 1- Tan SM et al. Local Production of B lymphocyte Stimulator Protein and APRIL in Arthritic Joints of Patients with Inflammatory Arthritis. *Arthritis and Rheumatism*. 48 (4):982-992 (2003).
- 2- Kreuzaler M et al. Soluble BAFF Levels inversely correlate with Peripheral B cell numbers and the expression of BAFF receptors. *J Immunol*. 188: 497-503 (2012).