ACR Annual Meeting 2017

November 3th – November 8th 2017, San Diego, California, USA

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For the third time I visited the ACR (American College of Rheumatology) conference which took place in San Diego. My PhD project is about the role of neutrophil extracellular traps (NETs) in ANCA-associated vasculitis (AAV) and systemic lupus erythematosus (SLE) and furthermore about B cell targeting in SLE. My abstract about a phase 2, translational study investigating rituximab following belimumab in SLE patients, was accepted for an oral presentation at the ACR. Both clinical and pre-clinical/experimental aspects of SLE are presented at the ACR. Overall, this meeting was a great opportunity to learn about new aspects of SLE and B cell biology and to present my own work. I want to point out some of the highlight of the conference in this small report.

On my first day at the conference, I participated in a pre-meeting course about innate immunity. This year, the title of this course was “Interface of Innate & Adaptive Immunity in Rheumatic Diseases”. The focus of this session was on TLR signalling in autoimmune diseases. It was interesting to hear about potential new mechanisms leading to autoimmune disease. Most lectures addressed mouse models on autoimmune diseases and the role of TLR7 and TLR 9, and also NETosis was discussed in relation to TLR signalling and autoimmunity. In one lecture given by dr. I. Sanz, I learned more about double negative memory B cells that are increased in SLE patients. These cells are CD19 positive and both CD27 and IgD negative (double negative or DN cells). In his research, he shows that these cells have a more pathophysiological phenotype. They have enhanced TLR7 signalling and deficient CD40 signalling. He hypothesized that these B cells have a pathogenic potency in SLE.

The next day I presented a poster about work of my colleague and I about different characteristics of NET formation in SLE and AAV. I was able to discuss our data with many people in the NETosis field and I received interesting comments on our work. Later that day was the session about novel therapies in SLE. One of the studies that was discussed was the ADDRESS study that investigated Atacicept, which blocks TACI, a receptor for B cell survival factors Blys and APRIL. In the phase 2 study, Atacicept was associated with reduction of disease activity measured with SLEDAI. In this presentation, a new possible outcome for SLE trials was discussed, the Lupus Low Disease Activity Scale (LLDAS), and LLDAS was received in a little over 20% in patients treated with Atacicept. My presentation was the last in this session and afterwards I was able to talk to many people in the field and I received many valuable comments on our work. Other important novel therapies for SLE that were mentioned were anti-CD40L therapy and anti-interferon alpha receptor antibody.

On Monday there was an abstract session about biomarkers in AAV. One potential biomarker that was discussed were circulating plasmablasts. In a large AAV cohort it was observed that a high number of circulating plasmablasts at T0 associated with low relapse-free survival compared to patients with a normal number of plasmablasts. In 15 patients, B cell analysis was performed short before relapse and during remission and this analysis showed plasmablast overall were lower at timepoint short before relapse compared to timepoint remission. They concluded that plasmablast frequency might be a helpful biomarker to monitor patients in remission at risk for relapse.

Finally I would like to mention 2 interesting posters. One poster showed a new, interesting method to functionally measure circulating immune complexes. They incubate serum with neutrophils after which FcyR IIa expression was measured. They hypothesize that presence of immune complex leads to shedding of the FcyR IIa and they showed more shedding in SLE patients compared to controls. Another interesting poster was about the lectin pathway in SLE patients. Here, they measured many LP proteins in more than 300 patients and controls and found a negative correlation of several LP proteins with disease activity.

Overall the ACR was a great conference. I have learned lots of new things and I could talk to many people in my field of research. I am very grateful for the financial support that I received from the NVVI.