Pro- and anti-inflammatory molecules in ANCA associated vasculitis

Background
Anti-neutrophil cytoplasmic antibody (ANCA) associated vasculitides (AAV) are a group of autoimmune disorders characterized by necrotizing inflammation in mainly small blood vessels. Pathogenesis is to some extent still unknown. Our aim with these studies is to gain a better understanding of the interaction between pro- and anti-inflammatory cells and molecules in AAV.

Method
Blood samples from patients with AAV, healthy blood donors (HBD) and treatment controls (TC) were gathered and analyzed by flow cytometry regarding different CD4+ T cell subsets. Reactive oxygen species (ROS) from granulocytes were measured by flow cytometric methods and we are planning to correlate this to CD4+ T cell phenotype distribution. By flow cytometry we have also analyzed levels of different granulocyte populations in AAV, for instance myeloid derived suppressor cells (MDSC), low-density granulocytes (LDG) and regulatory eosinophils (Eregs). Regulatory properties of the different granulocytes will be studied by co culturing granulocytes with T-cells and then analyze T-cell proliferation. Clinical data have been collected on all patients.

Results
In paper one we have shown that CD4+ T cell phenotype distribution is different in AAV compared to HBD but not compared to TC [1]. We have not yet any preliminary results regarding studies on granulocytes in AAV, ROS production in AAV or how this correlated with CD4+ T cell phenotype distribution. We also have yet to analyze if and how PMNs from AAV patients affect T-cell proliferation.

Significance
Despite treatment, relapse rates in AAV is high and the diseases are associated with significant morbidity. Our studies might contribute to a better understanding of the pathogenesis of AAV which in turn could lead to better and more specific therapeutic options.