1. For the first time, we reported that antibodies against a lipid moiety, anti-PC is a protection marker for atherosclerosis and CVD, recently this concept was also applied to autoimmune conditions. We suggest a variant of the hygiene hypothesis, namely that low exposure to PC-epitopes on microorganisms as nematodes and parasites could cause the low levels present in Sweden as compared to populations with a ”stone-age” lifestyle as in certain areas in New Guinea. Low anti-PC could predispose to these conditions. There are striking synergies if anti-PC is combined with antibodies against other lipid moieties as MDA. This concept has been developed thanks to the grant from AFA as seen in the publication list. We have also several papers submitted, which we hope soon will be published: 1) antibodies against oxidized phosphatidylserine (anti-OxLDL) is a strong predictor for CVD protection and 2) anti-MDA is a similar protection marker. We have also re-analyzed the Kitava-cohort and submitted data also on anti-PC IgA and IgG. Taken together, the research supported by AFA has led to identification of independent protection markers, namely antibodies against small lipid moieties where we think anti-PC and anti-MDA are the most promising and easiest to define as antigens. These are independent of other risk markers, has similar effect as smoking and hypertension and stronger prediction than blood lipids so far.

2. We have discovered a specific mechanism by which T-cells in vulnerable atherosclerotic plaques could become activated, namely by enzymatically modified (or oxidized)LDL (and not LDL), inducing Dendritic cell (DC)-activation and ensuing T cell activation. This effect goes through heat shock proteins, and our recent research even imply that inflammatory phospholipids mimick this T cell activation.

3. We have sorted and characterized surface-markers on PC-reactive human B-cells and successfully performed single cell PCR on PC-specific B-cells. Our findings indicate that humans do not have a dominant anti PC clone such as anti PC T15 in mouse models. In line with this, anti-PC in humans are T-cell dependent in our recent studies. Also these findings are in sharp contrast to mouse models which have a dominant anti-PC clone.

4. We have now Clonally expressed and generated a panel of 20 fully human anti-PC mAbs, integrating sequences from IgM, IgG1 and IgG2 anti PC into the IgG1 format. Our results in vitro and ex vivo indicate that these monoclonals have anti-inflammatory properties. Further, the antibodies increase phagocytosis of apoptotic cells.
5. We have discovered that a plasma-protein, Annexin A5 has striking atheroprotective and antiinflammatory properties, including inhibition of inflammatory lipids, oxLDL, plaque T cell activation among others.

6. Our laboratory findings are now developed into novel therapies: Annexin A5 (close to testing in patients) or passive or active immunization to raise anti-PC (already tested in patients). In both these cases, the main applicant is main inventor.

7. We have successfully followed up our internationally unique SLE cohort study, SLEVIC; with detailed atherosclerosis measures and we have come well into another study, AHLDI, were patients from the Emergency clinic in Huddinge are included, in order to study immune mechanisms. These studies are led by JF.

Publikationer de senaste 5 åren:


SLE and high levels of pain compared to controls and patients with low levels of pain. *Lupus.* 2013;22(11):1118-1127.


