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Natural antibodies targeting phosphorylcholin as novel immunomodulative drug candidates in rheumatic diseases including systemic lupus erythematosus (SLE) and rheumatoid artritis (RA)

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We have demonstrated that natural antibodies targeting phosphorylcholine (anti-PC) are negatively and independently associated with development of atherosclerosis and risk of cardiovascular disease in human prospective cohorts. Mechanisms include anti-inflammatory properties, inhibition of scavenger-uptake of lipids and inhibition of cell death caused by inflammatory phospholipids. We hypothesize that impaired immune function with low levels of circulating natural protective antibodies (NAbs) directly contributes to inability to resolve chronic inflammation, is non-redundant and leads to disease. Therefore supportive immunotherapy aimed at increasing circulating levels of protective NAbs will be beneficial in several therapeutic settings.

Recently, we have investigated the effects of tumor necrosis factor (TNF)-antagonists and an anti-CD20 inhibitor (rituximab) on circulating anti-PC IgM in 215 patients with RA during a prospective one year study. Treatment with anti-TNF induced a 26% increase in anti-PC levels after 12 months of treatment, $p<0.0001$, while rituximab decreased anti-PC levels by 14%, $p=0.023$. Most interestingly, the "non-responders" to treatment had lower anti-PC levels at baseline than "responders" in both anti-TNF, $p=0.007$ and Rituximab-treated subjects, $p=0.041$.

We hypothesize that increasing the capacity to ameliorate inflammation by increasing levels of circulating anti-PC (via passive administration in combination with tumor necrosis factor antagonists (anti-TNF) or CD20 targeting antibodies (rituximab)) will lead to clinically relevant improvements (becoming a "responder") in patients with rheumatoid arthritis. We aim at providing answers, on the level of pre-clinical "proof of concept", whether the anti-PC antibodies in RA are relevant as a novel biomarker and as a potential therapeutic in combination with anti-TNF /rituximab.

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MRI characteristics of rheumatoid arthritis in the temporomandibular joints

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Purpose: To investigate characteristic MRI findings of rheumatoid arthritis (RA) in the temporomandibular joints (TMJs), and to compare them with MRI findings of temporomandibular disorder (TMD).

Patients and Methods: Sixty-two patients (124 TMJs) with RA in the TMJ and 50 patients (100 TMJs) with temporomandibular disorder (TMD) were included in this study. MR images of these patients were assessed by two oral radiologists for the presence or absence of osseous changes, disk displacement, joint effusion and synovial proliferation. These findings were compared between the two patient groups.

Results: Osseous changes in the condyle and articular eminence / fossa in the RA patient group were significantly more frequent than in the TMD patient group, and were often very severe. Joint effusion was also significantly more frequent in the RA patient group. Synovial proliferation was found in all TMJs in the RA patient group, while it was very uncommon in the TMD patient group.

Conclusion: Severe osseous changes in the condyle and synovial proliferation were considered characteristic MRI findings of RA in the TMJs.

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